UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Administration
Bureau of Entomology and Plant Quarantine

University of California

Hawaii Agricultural Experiment Station

Territorial Board of Agriculture and Forestry

Pineapple Research Institute

Hawaiian Sugar Planters' Association
Experiment Station

ORIENTAL FRUIT FLY INVESTIGATIONS

QUARTERLY REPORT

July 1 - September 30, 1950

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VOLUME I

WORK PROJECT I-o-1. ECOLOGY-BIOLOGY - K. L. Bachler Project Leader
N. W. Flitters, Ass't Project Leader

SUMMARY

Line Project I-o-1-1. The Influence of Protein Hydrolysate Upon Preoviposition, Fertility and Longevity of D. dorsalis at Room Temperature and in Constant Temperature Cabinets. (N.E.Flitters)

The results obtained from this test on the effect of protein hydrolysate when fed as a supplementary diet to the Oriental fruit fly is reflected in every phase of the female development encompassed in this study.

The preoviposition was greatly reduced, egg deposition was definitely accelerated, the period of productivity was extended, and at most temperature levels longevity was greater.

It has been shown that the preoviposition period of flies fed the protein hydrolysate very closely parallels that of flies in the field, indicating that some adequate protein is readily available to the flies outdoors.

Should this dietetic factor have the same influence on the fly thru the other stages of its development, fecundity, and longevity then it would appear that the current results from this laboratory test would clearly reflect the fly potential in the field. The preoviposition period at room temperature (69-78°F) for a group of 22 flies fed hydrolized protein showed a mean of 9.5 days while a total of seven minus protein flies had a mean of 43 days.

The first group had a productive period of 27.5 days in which they deposited a total of 21,538 eggs. The latter group without the protein had a mean of 13.1 days and produced 655 eggs.

Fertility ran 53.3% for the protein group and 39.5 for the controls. However longevity for the two groups 24 flies in each showed that the minus protein group had a mean of 49.1 days whereas the mean for the protein sample was 43.6.

However the longevity means at the constant temperature levels showed that four out of five indicated higher peaks for the protein fed flies.

No eggs were recovered from either group of flies held at the lowest temperature level 12.5°C (54°F) but the protein-fed had a life span almost double that of the control group, indicating that at this temperature level activity and feeding are very limited, and the highly fortified diet was capable of sustaining the flies longer than the standard medium.

Eggs were not recovered from the control group of flies held at a temperature level of 17.5° C. (63° F.) and very low production was recorded for the protein group. However, it is felt the physical factor of cabinet construction may have figured largely in the net result. In all other cabinets provision was made for light by installing glass panelled doors, however, exception was made in the case of the cabinet held at 17.5° C. (63° F) and solid wooden doors were installed, and the interior lined with heavy gage sheet metal with added provision made for the inclusion of cooling coils for low temperature studies. It is possible that the exclusion of extraneous light completely shielding the normal diurnal conditions, could have contributed to the abnormal findings at this temperature level.

Line Project I-o-1-2 - Effect of Climate on the Oriental Fruit Fly Under Field Conditions. (K.L.Maehler and C.J.Davis)

Meteorological Data

Only at the higher stations may temperature be considered a limiting factor. Below 3500' there is no correlation between fly population and temperature. The period covered by this report was generally warmer although the maximum mean temperature differences between midsummer and midwinter were negligible by mainland standards. At Haiku (500') there was 5° F. variation between February and July. At Hilo (50') there was 1° F. variation between the max.-mean of 79° (Dec.) and 80° (July). The greatest difference was observed at Haleakala (9200') which had 48° F. (Jan.) and 63° F. (June). On Hawaii the lowest temperature recorded was 31° F. at Pohakuloa (6500') in July, while Hilo and Kaumana had maximum temperatures of 89° F. in August. On Maui the station which exhibited the least thermal variation was Waikamoi (4250°) which frequently had less than 3° F. difference between midnight and noon when the hygrothermograph needle would oscillate around 60° F.

Rainfall on Maui was scant in July at all stations except Waikamoi, which had 22.49 inches. August had more precipitation and one storm with northerly winds resulted in rain gauge records of over 10 inches in two days at Waikamoi (4250') and Haleakala (7030-9200'). On Hawaii the heaviest rain was recorded at Kaumana (21.64 inches).

It is now evident that in the Kula Area (2800-4000'), host availability and not temperature is the limiting factor. The months of February, March and April, which are the loquat season, were the periods of greatest fly abundance. Later mid-summer temperatures, although higher, were not associated with a high fly population. After the loquat season the population declined and has been at a low level ever since.

In the Olinda area (2160') our traps picked up their greatest counts in November and March, both periods of lower temperatures. These periods represent the guava and loquat seasons respectively.

Longevity of Flies

In the outdoor cages the life span of Dacus dorsalis seldom exceeds three months and the largest portion of the population succumbs before two months. When the diet of the fly is fortified with hydrolysate of yeast (M.R.T.) longevity is increased. On Hawaii the flies live longer at the higher, cooler stations. On Maui, the Waikamoi station (characterised by high relative humidity, heavy rains and fog) offered the least desirable conditions for the fly with a consequent reduction in the life span. In fact at this station and at Kaumana, which is also an area of heavy rain, the addition of hydrolysate of yeast to the diet did not always result in a discernable difference in the longevity in the two cages.

These studies indicate a shorter longevity than Davis demonstrated on Hawaii by using small cages sheltered inside buildings, however it is felt that the outdoor cages more closely simulate the longevity of the fly under natural conditions. In spite of the negative factors such as spiders, pelting rains, and inadequate protection in the cages, the caged flies probably lived longer than their counterparts subjected to the uncertainties of nature. This is partially substantiated by the rapid decline in populations at the end of a fruiting period.

Sexual Maturity

It has been demonstrated that diet and temperature both effect the rate at which the female fly attains sexual maturity. When the diet is fortified with hydrolysate of yeast maturity is more quickly attained, in fact the absence of this in the diet has precluded the attainment of sexual maturity altogether at the higher stations. On Maui at Haleakala (7030', 9200'), and on Hawaii at Pohakuloa (6500') temperature is a limiting factor during the winter months and these areas must be considered marginal habitats. Even during the summer the preoviposition period is greatly extended. Davis records two periods of 47 and 48 days at Pohakuloa. On Maui negative results were obtained with females 78 days old which had not had their diet fortified. Later tests indicate that about 30 days is necessary for the recovery of viable eggs at Kula (3750') with a fortified diet.

The evidence indicates that in areas of lower temperature the sexual maturity is so extended as to mathematically reduce the probability of the adult fly living to deposit viable eggs and therefore maintain or build up a population.

Larval Studies

The most influential factor relevant to rate of larval development is temperature. However, under similar temperature conditions different host fruits result in various rates of larval growth. The rate of development appears to be associated with the rate at which the fruit breaks down. For example, apples, which break down very slowly, have been shown to be the media in which larvae develop most slowly. Banana, which ripens and dessicates quickly, offers a medium in which rapid development takes place. In addition to the rate of deterioration of the fruit the nutritional make up of the media also affects the rate of development.

The larval period has been extended at Kaleakala (9200') up to 31 days while at Haiku the period is as short as 10 days. In Hawaii the period may be as short as 10 at Hilo and as long as 28 days at Pohakuloa (6500'). Larvae have a lower threshold of activity than the adult. Activity has been noted as low as 50° F. Dacus cucurbitae larvae have a lower threshold of activity than do dorsalis.

Pupal Studies

In Table No. 10 is summarized the adult emergence from 4,493 puparia which have been held at the climate stations on Maui throughout the last ten months. It is apparent that at certain times of the year no emergence takes place. When this emergence data is correlated with the maximum-mean temperature at the different climate stations, it presents an interesting picture. When the temperature curve crosses the threshold line of 61° F. emergence takes place with D. dorsalis. C. capitata has a much lower threshold line (56° F.) and this results in emergence with capitata when only negative results were being obtained with dorsalis. Neither parasite has been recovered at Haleakala 7030' or 9200' indicating that the fruit flies are more tolerant of lower temperatures and could conceivably establish themselves in areas where the parasites would be unable to do so.

ling Project I- [illegible] Hosts of Dacus dorsalis. (Maehler and Davis)

A summation of the fruit collections made on Maui and Hawaii are included in this report. They total 3,220 lots containing 140,103 fruit from which were recovered 367,034 puparia. These data have been divided into three sections: Section I (Tables 16, 17) Hosts of dorsalis which have been found infested; Section II (Tables 18, 19) Hosts of dorsalis found uninfested; Section III (Tables 20, 21) fruit not listed as hosts which have been found uninfested. The data are presented in such a manner that the adult emergence of D. dorsalis, C. capitata, O. longicaudatus and O. persulcatus can all be compared.

A plum survey made on Maui and an apricot survey made on Hawaii are presented in Tables 22 and 23. Plums have a low index of infestation since capitata does not prefer them for oviposition and they normally grow above the range where dorsalis occurs in any numbers. Fifty plums collected at 3650' and hung in a guava tree at Haiku Nursery (500') resulted in the recovery of 77 puparia of dorsalis, more than were recovered from 3000 plums collected in Kula. The apricots, like peaches, were heavily infested by capitata.

Fruit collections for Maui (Table 24) and Hawaii(Table 25) list 1,529 collections on which we are reporting this quarter.

The susceptibility of California fruit to Infestation and Development of D.Dorsalis (N.E.Flitters)

The testing of Californian fruits to determine their susceptibility to infestation by D. dorsalis when submitted to the flies in different stages of development is now complete.

Fruits and nuts in variety have been exposed to caged flies in the laboraratory, and to flies in competition with local hosts in the field. In most cases a like preference was exhibited by both groups of flies for fruits that were exposed when in a suitable condition and sufficiently attractive to the female flies.

However it is felt that some of the fruits that did not become infested cannot be ruled completely out of the potential host list. Blackberries did not support the larval stages of D. dorsalis largely because of the condition of the fruit at the time of introduction to the flies. Being a very soft succulent fruit they are very prone to shipping damage even though well packed. They bruise, overheat, and fall easy prey to mycelium growth, and it was in such a condition that our shipment arrived.

The fruits of necessity had to be exposed to the flies in Petri dishes and in a very few hours few of them had any individual appearance left, they became a watery pulpy mass and therefore unattrative to the flies.

However two of the most solid fruits were observed to have eggs present in them shortly after introduction to the caged flies, and it seems reasonably safe to assume that others would have become infested had the condition of the host been more favorable.

Fruits exposed outdoors were usually found to be fairly heavily parasitised and infestation was relatively high in most fruits submitted for test. Climax Plum when exposed to flies in the field by the expedient of suspending them in a wire basket from the limb of a Mango tree (in close proximity to a fruiting branch) yielded a Mediterranean Fruit Fly (Ceratitis capitata). This is the first recovery of the Mediterranean Fly from this locality in several years.

Cotton Bolls were infested for the first time in these tests. Flies were recovered from both the cage and field exposed groups. However the bolls were received when in the young firm stage whereas before they were dry and mature upon arrival.

Apples became heavily infested but the larval mortality was very high. The fruits are very slow to reach a stage of decadence and it would appear that the medium lacks some of the essential properties necessary for normal larval development. In many cases apples were held for periods exceeding one month, consequently before emergence of of the last fly the test would have been in progress over forty days.

Other fruits like oranges hold a strong attraction to flies for oviposition but larval development appears to be very slight and in consequence the infestation indices are very low. Almonds when exposed to the caged flies were observed to become infested, but very few larvae were ever discovered in any of the fruits. This lack of larval development can no doubt be attributed to the dry fibrous nature of the fruit and its lack of decay when ageing.

From an extensive list of fruits submitted to the flies the greater percentage have become infested in some measure and the host successful in supporting the larvae thru to pupation. The exceptions have been Quince, Persian Walnut, Paulonia, and Blackberries. With the exception of perhaps Blackberries, none of these fruits could be classed as good potential hosts and their inability to support larvae is readily understandable.

It becomes increasingly evident that the ideal host is one that is particularly fleshy, succulent with a firm but not too thick epidermal skin, and developed beyond its early immature stage.

Many fruits that under normal circumstances would rarely become infested make good hosts when bruised or otherwise damaged, therefore, careful evaluation must be made of all the factors that can contribute to the susceptibility of fruits to infestation by D. dorsalis when host determinations are being made.

Line Project I-o-1-5 - Population Trends of Dacus dorsalis (Maehler, Davis)

Haiku: Since the period of low population, during the winter months, the trend has been upward at Haiku with the exception of a decline in April and May when over 26 inches of rain were recorded. In September the fly catch per trap day was 3% less than recorded about a year ago in October. Guava collected in the Haiku area have had a very high index (213) and also were highly parasitized (Lots. 1818 95%, 1819 87%). Most of these parasites were O. persulcatus. In this area we have trapped 743,309 flies in five traps over a period of a year. If the parasites are effecting any reduction in fly population here it is not very apparent.

Baldwin's Mango Orchard: At this orchard there was a very poor fruit set and the population was down 45% from last October. The trap catch has dropped from 340 flies per trap day to 187. With little or no fruit in the orchard there is little reason to expect a very high fly population.

Iao Valley: From the winter low, the population has risen abruptly from the 1st of June so that the present catch (553) was 45% above that of last November (296). This rise was closely correlated with guava fruiting in the valley. Kamani began to drop fruit just about the time the guava season was over (August). The Kamani crop this year is very poor compared to last year and it is expected that the fly population will quickly decline.

Guava Gulch: In the guava gulch at Olinda (2160') there was a peak in March when nearby loquat were in season and then the level dropped very low during the summer and began to rise in August when the guava began to drop in the gulch. The present index (209) is 35% lower than the index last November (318), but it has risen from 1 fly per trap day in July to its present level.

Hawaii Exp. Station across from the guava gulch closely parallels the above. Most of the flies probably come from the gulch and the wind appears to have more effect on these traps than on those in the gulch.

At all the Kula Trap Stations (Kula Road, Kula Sanitarium, Lightner's, Ambrose) the population dropped off sharply after the loquat crop in February, March and April and has never recovered. This drop took place in spite of a good peach crop. The population level now is about 10% of what it was at the peak of the loquat season.

There is no overall trend in fly populations on Maui. Populations fluctuate with available host material usually in the immediate area. Higher summer temperatures did not result in higher fly populations at either Kula or Olinda, but the population appeared to follow the host availability.

The rise of O. persulcatus in the last year has been very noticeable, particularly in guava. It was found in coffee (53%), strawberry guava (11%), Chebula (10%), White Sapote (17%), and in Fern Tree (77%) on Maui. In all the result of the forty-odd hosts collected it appeared negligibly. On Hawaii it occurred in guava (12%), rose apple (18%), mountain apple (24%), and Yellow guava (49%), and infrequently in all other hosts. The parasite favors guava and is particularly noticeable in some of the smaller hosts where it can effectively attack the larvae. On Maui, in mango, out of 8,266 puparia only 2% were parasitized by persulcatus and on Hawaii out of 2230 puparia recovered from mango only 6%.

Many investigators believe that Dacus dorsalis was the primary cause of a reduction in the population level of C. capitata at lower elevations. It appears that with the advent of dorsalis, hosts which previously had high capitata infestation became infested with dorsalis. If for reasons not too well understood dorsalis has been responsible for the retreat of capitata to higher elevations, then dorsalis has reduced the hazard of this fly reaching the mainland, and what is more, capitata and not dorsalis appears to be better adapted to establishing itself there.

Hawaii Studies

The lowest temperature recorded on Hawaii during July, August and September was 31° F. at Pohakuloa. During this period, mating took place in 4 experiments, there was an increase in pupation and adult emergences, and 2 preoviposition records of 47 and 48 days were obtained in the outdoor cage studies. March and April respectively had 9 days above 70° F., May had 11 days, June and July had 20 days, August had 18, and September had 20 days.

In a sleeve cage study at Pohakuloa involving mixed populations of D. dorsalis and C. capitata, 416 pupae were recovered and from these, there issued 6 Oriental fruit flies and 307 Mediterranean fruit flies. It was observed that the Mediterranean fruit flies stung the green fruit readily and there is some evidence that the Mediterranean fruit fly is able to go through in green fruit. Six green plums were removed from the sleeve cage and taken to Hilo where they yielded 6 pupae and subsequently 6 C. capitata.

A total of 1812 lots of fruit has been collected on Hawaii. This consisted of 79,982 fruit. In order of infestation, rose apples, longan, Mohihi (Passiflora mollissima) and ball Kamani were the highest dorsalis infested fruits. The indices were 413, 323, 306, and 277 respectively.

Six lots of 78 guaves collected failed to yield dorsalis pupae.

One C. capitata was obtained from false Kamani at Hilo. It has also been reared from guavas at 700 feet elevation at Ookala.

Population trends are upward in most regular trapping localities and the most significant factor seems to be host availability. The populations at the higher levels, however, appear to be influenced by weather conditions. This is certainly true on the Mauna Loa Truck Trail where populations are often slow in building up after a siege of inclement weather.

The highest fly population on the island occurs at Kupaahu, about three miles west of Kalapana.. In seven days, 17,477 flies were trapped. This is an index of 499. The main host reservoirs are mangoes and guavas.

At Waikii there has been a slow but gradual build up of dorsalis and there appears to be correlation between trap catches and emergences from orchard fruit.

Line Project I-e-1-l - The Influence of Protein Hydrolysate Upon Preoviposition, rate of Oviposition, Fertility and Longevity of D. dorsalis at Room Temperature and In Constant Temperature Cabinets. (N.E.Flittlers)

This experiment concluded with the death of the last fly in the test series. The previous quarterly report carried most of the data relative to all factors with the exception of longevity.

Flies in the minus protein group held at the following temperature levels had a greater longevity: - Room Temp 21.1-26.7° (69°F-78°F) - (63°F) and 35°C - (95°F). However at all other levels the high protein fed group exceeded the control group in total longevity. The protein fed flies held at room temperature produced a phenomenal total of eggs which possibly influenced an acceleration in metabolism and a greater dissipation of energy, thereby reducing their longevity, which would naturally account for the longer survival of the minus protein group.

Results obtained at the constant temperature level of 17.5°C - (63°F) were possibly influenced by the physical difference in the cabinet construction, which varied greatly from others in the test largely due to its former adaptation for low temperature studies. The wooden doors, heavy insulation, and light proof construction may have retarded activity, and development of the flies not receiving the fortfied diet and in consequence lengthened their longevity over that of the more productive protein fed group.

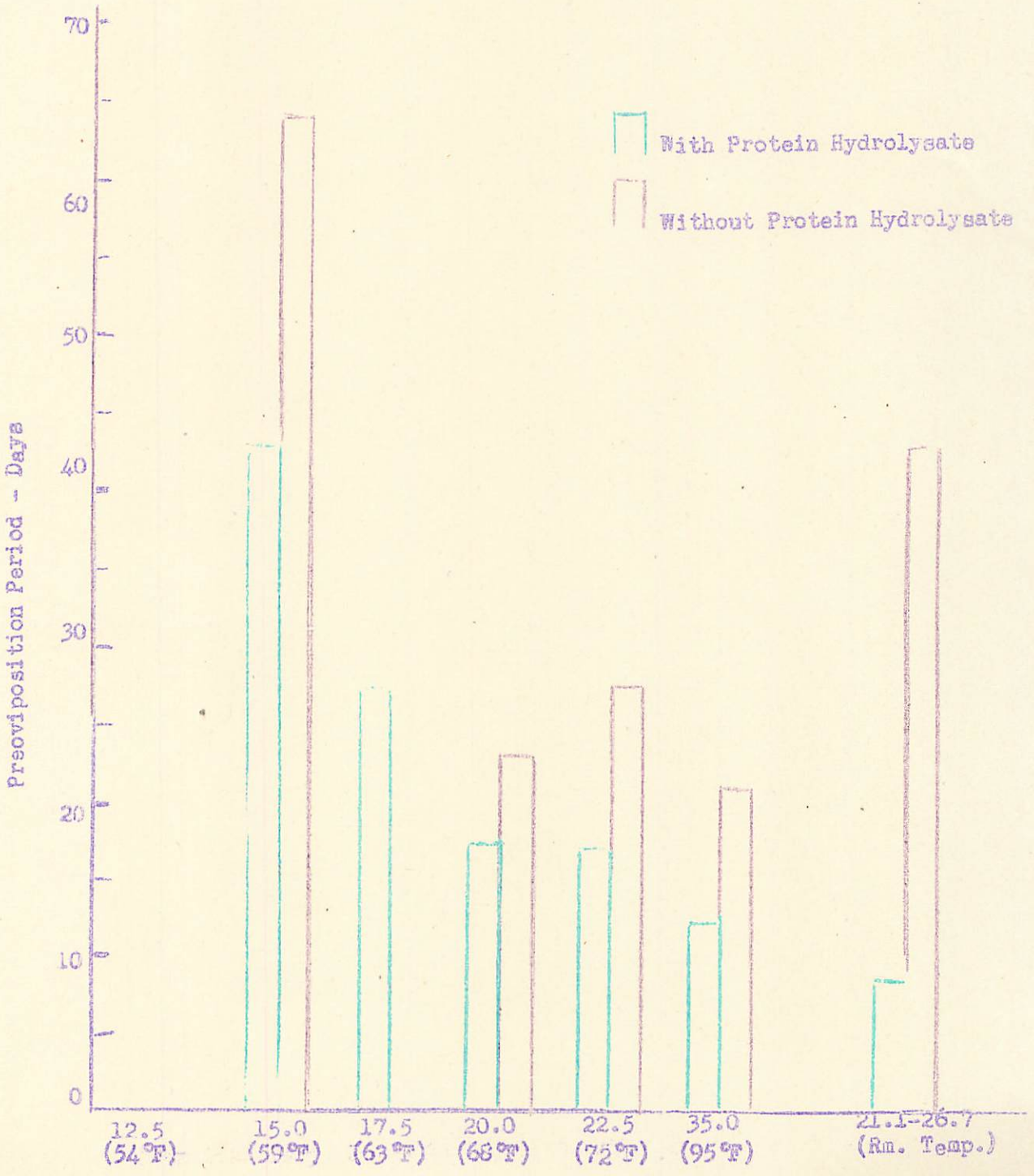
At a constant temperature level of 35°C - (95°F) we are very close to the point at which development can be expected to cease, rate of metabolism is undoubtedly high and the output of energy consequently very great. Therefore the high egg producing group would be expected to dissipate greater energy, and as a result fail to survive as long as the flies less productive and consequently not as active.

At a constant temperature level of 12.5° (54°F) no egg recoveries were made but longevity was quite extended. Flies at this level are quite inactive and indications gathered from previous tests point to this temperature as being very close to the threshold of development. Flies ingesting the protein fortified diet at this temperature were no doubt receiving adequate stimulus from the diet to sustain them even when feeding was infrequent and light in their inactive condition. Therefore they were able to survive for a greater period of time than the flies not having access to the fortified diet.

Larger amounts of flies were carried thru the test at room temperature because the laboratory findings were necessary for determining the results that could be expected from flies held where normal diurnal light changes were present. This together with the fact that the constant temperature cabinets were too small to hold any additional cages (beyond those already included in the test) made it impossible to conduct the test with as large a quantity of flies as we may have desired.

It is very evident that the addition of protein hydrolysate to the diet of the female Oriental fruit fly is instrumental in shortening the preoviposition period, stimulating egg deposition and apparently aiding longevity in certain temperature levels. The following histograms illustrate the effects of protein hydrolysate on the length of preoviposition (1) egg production (2) length of productive periods(3) fertility (4) and longevity (5) at the different temperature levels.

Table (no.6) shows a tabulated summary of the total effect of protein hydrolysate fed Dacus dorsalis in tests conducted at all temperature levels and provides the percentage figures for each group.



(Constant Temp. Cabinets, RH - 50-60%)

Fig. 1. Effect of protein hydrolysate on the length of preoviposition period of Dacus dorsalis at the various temperature levels.

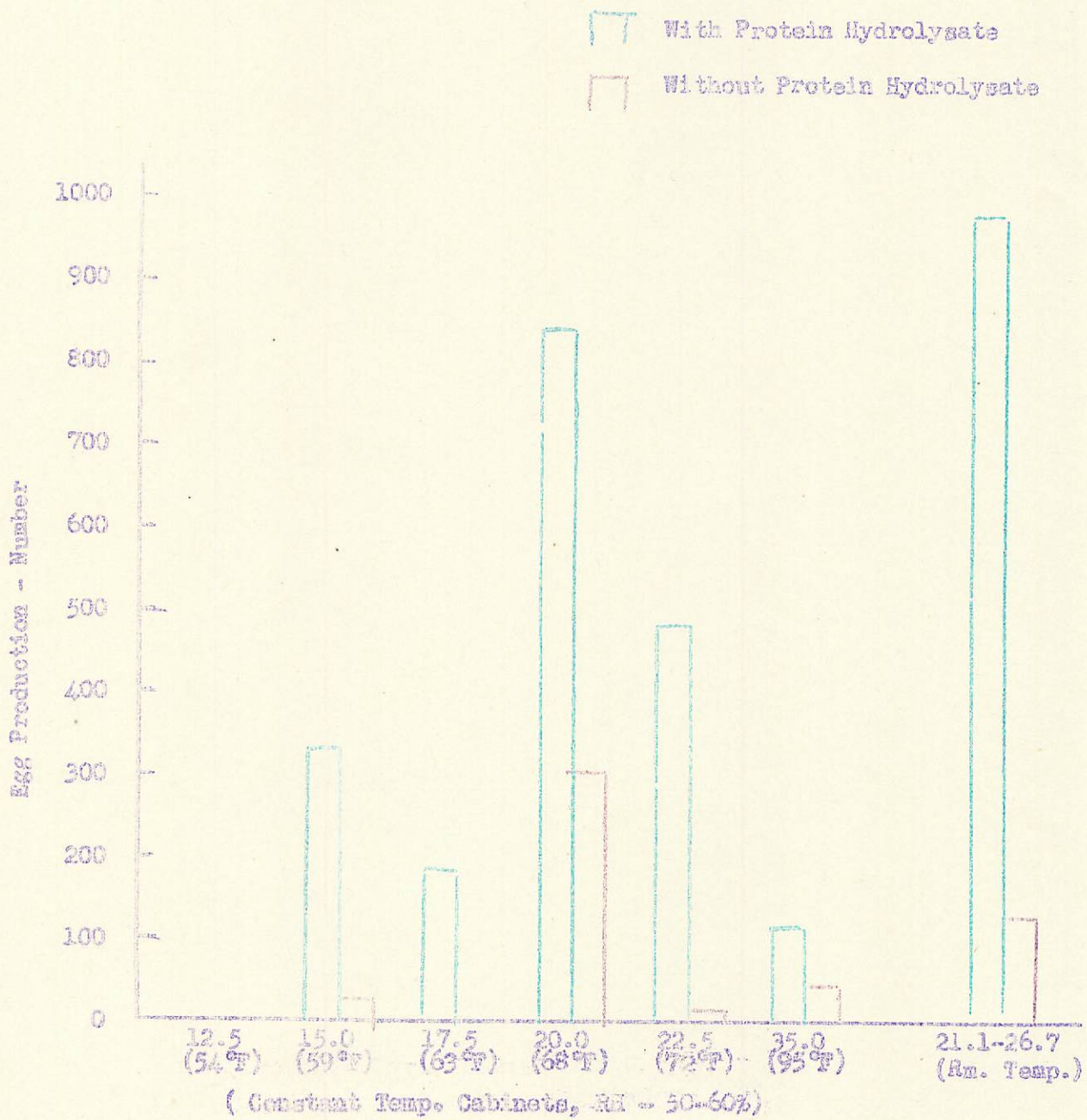


FIG. 2 - Effect of protein hydrolysate on egg production of Dacus dorsalis at the various temperature levels.

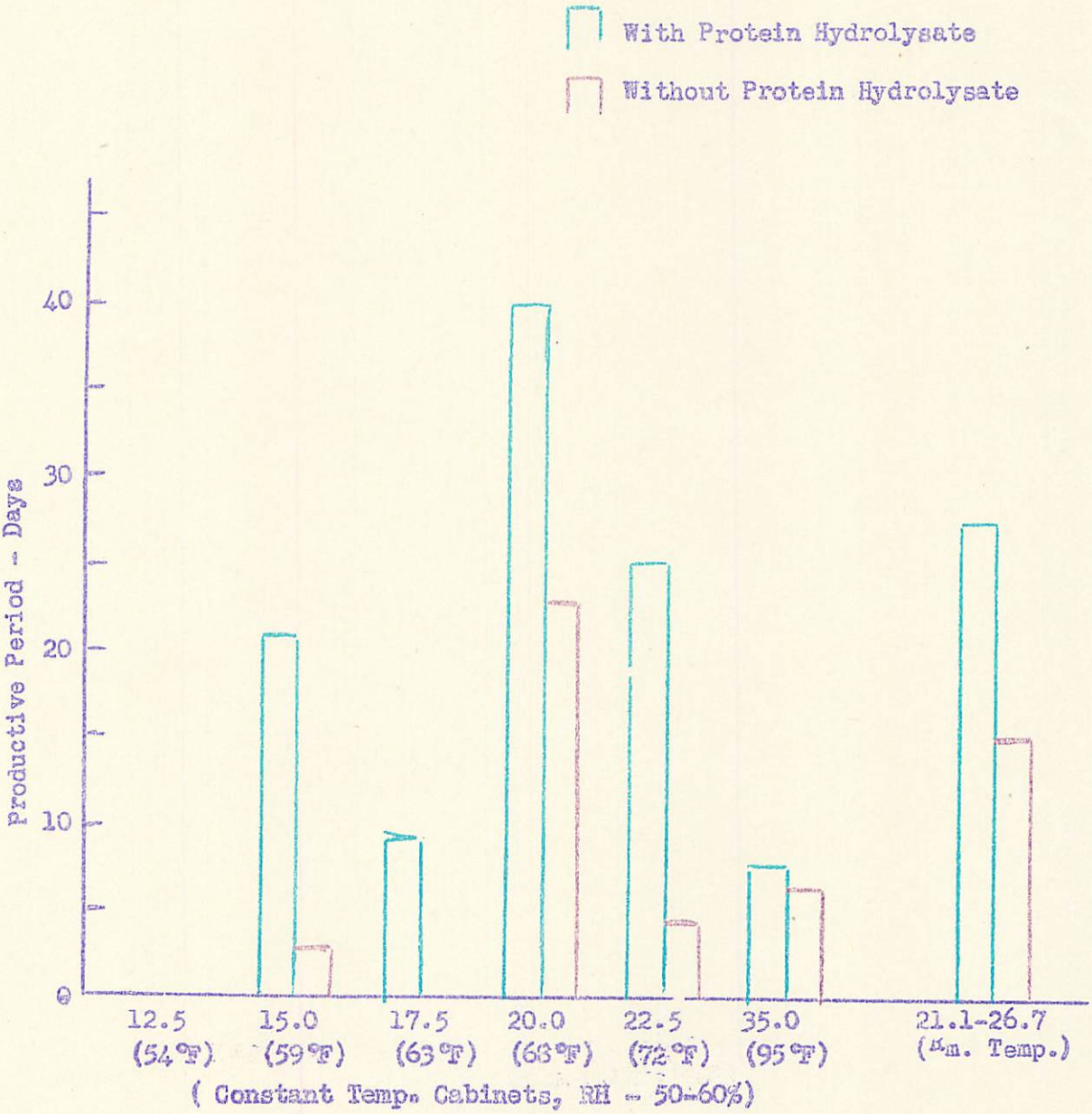


FIG. 3. Effect of protein hydrolysate on the length of productive period of Dacus dorsalis at the various temperature levels.

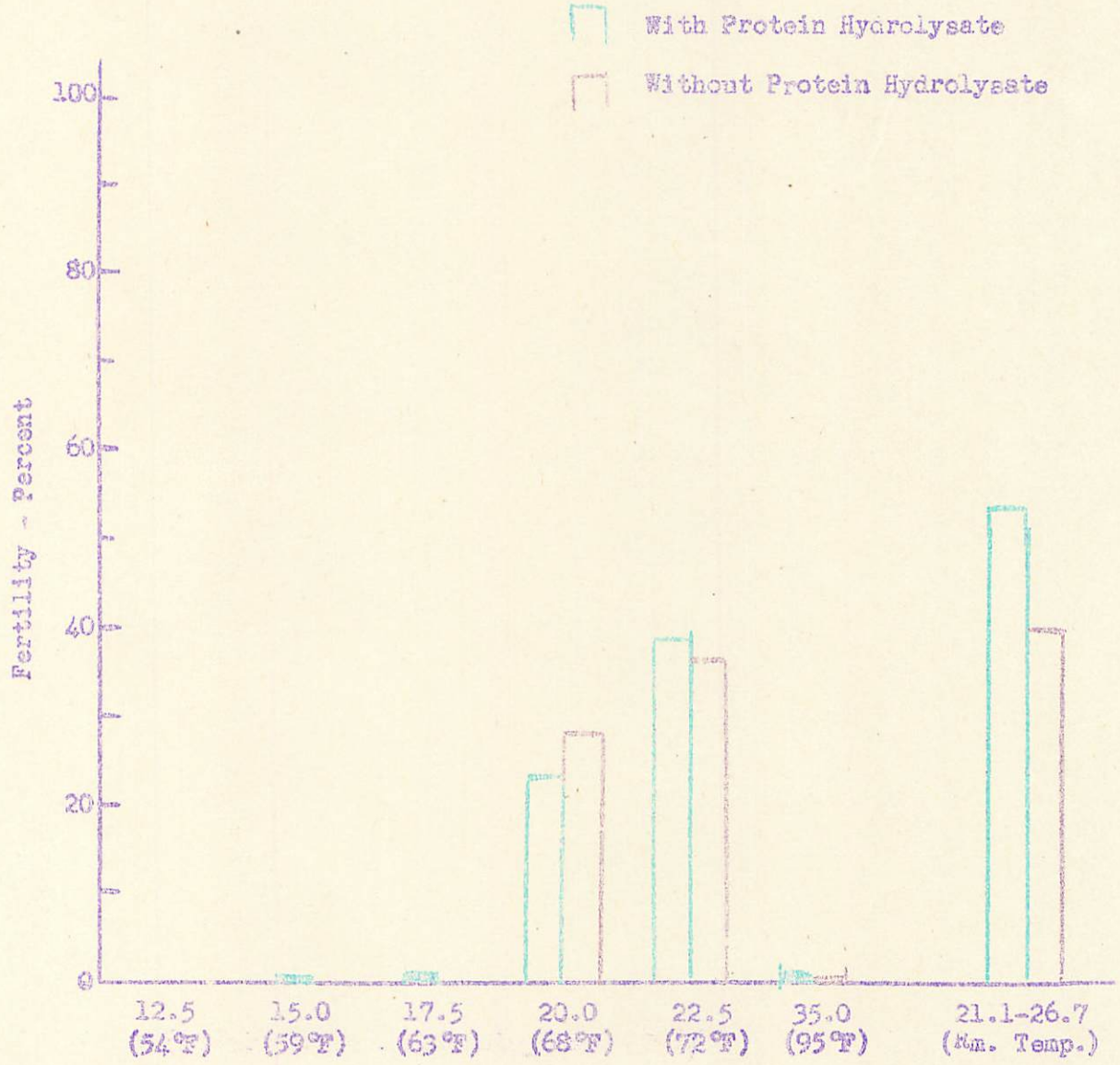


Fig. 4. Effect of protein hydrolysate on the fertility of eggs produced by Dacus dorsalis at the various temperature levels.

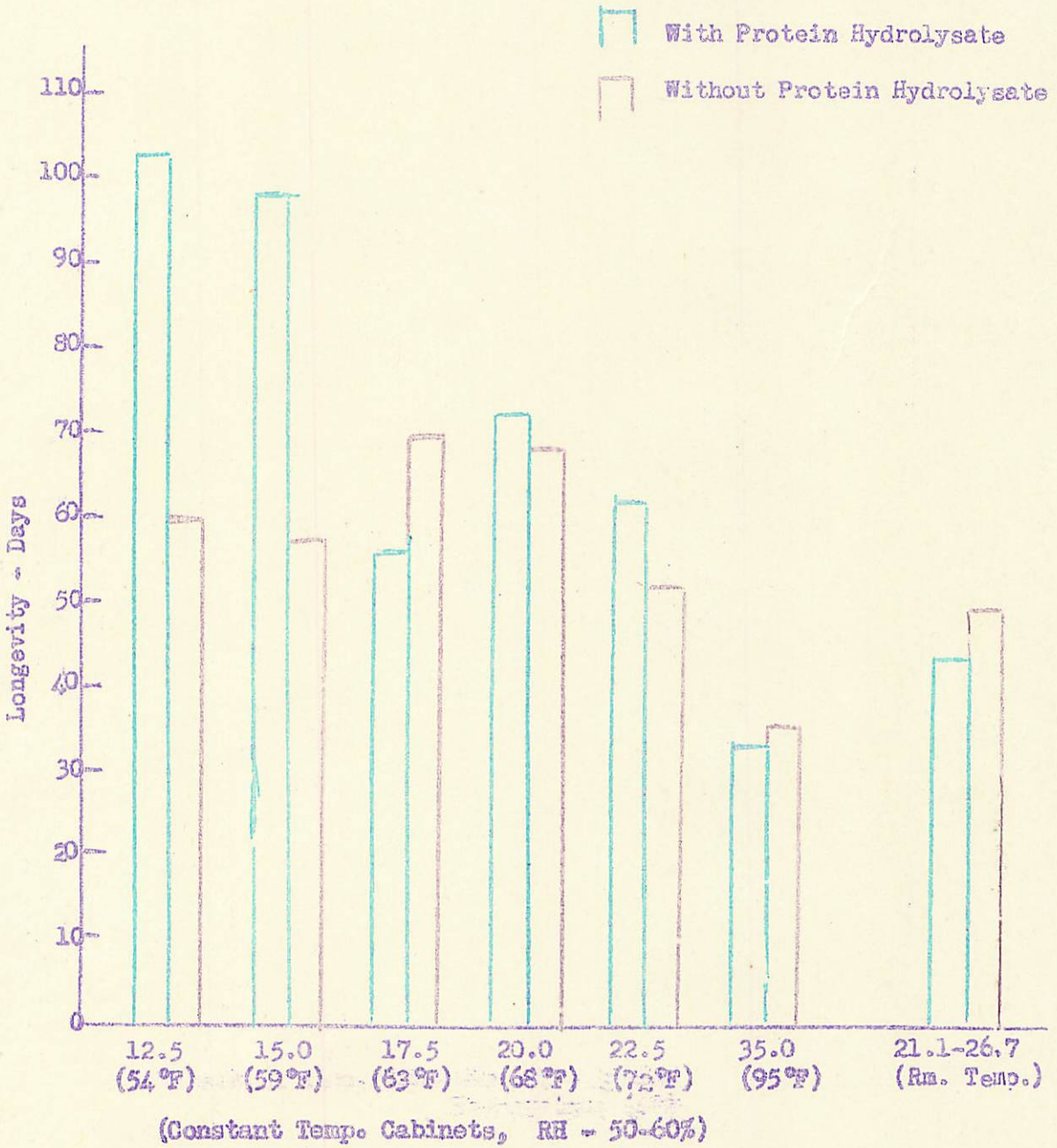


FIG. 5. Effect of protein hydrolysate on longevity of Dacus dorsalis at the various temperature levels.

TABLE NO. 6

Summarized Table of preoviposition, egg productivity, productive period, fertility and longevity at various temperature levels.

Room Temperature	78°F	(54°F) 12.5	(59°F) 15.0	(63°F) 17.5	(68°F) 20.0	(72°F) 22.5	(95°F) 35.0
Preoviposition Period							
With protein	(22)* 9.5	—	(5) 43.8	(3) 27.3	(4) 17.3	(5) 17.0	(4) 12.3
w/o "	49	—	(1) 64	—	(1) 29	(2) 27.5	(2) 21.0
Egg Production							
With protein	(22) 979	—	(5) 327	(3) 188	(4) 838.5	(5) 480.6	(4) 106.8
w/o "	(7) 117	—	(1) 25	—	(1) 300	(2) 13.5	(2) 46.5
Productive Per							
With protein	(22) 27.5	—	(5) 21.2	(3) 9.3	(4) 40.0	(5) 25.2	(4) 7.8
w/o "	(7) 35.1	—	(1) 3	—	(1) 23	(2) 4.5	(2) 6.5
% Fertility							
With protein	(22) 53.3	—	(5) 0.5	(2) 1.8	(3) 23.7	(3) 38.9	(1) 1.7
w/o "	(7) 39.5	—	—	—	—	(2) 36.9	(2) 1.2
Longevity							
With protein	(24) 43.6	(6) 103.8	(6) 98.3	(6) 55.8	(6) 72.0	(6) 61	(6) 31.5
w/o "	(24) 49.1	(6) 59.3	(6) 57.0	(6) 69.5	(6) 68.3	(6) 51.8	(6) 35

* Figure in brackets represents number of individual flies.

Line Project I-o-1-2 - Effect of Climate on the Oriental Fruit Fly Under Field Conditions. (K. L. Maehler and C. J. Davis)

Summary and Evaluation of Meteorological Data on Maui. (Maehler)

The period covered by this report (July, August, September) was generally warmer although the differences in Mean-Max. temperatures between the previous recorded low would be negligible by mainland standards. Below are a few examples cited:

Station	Elevation	Mean-Max. Temperature			
		Month	Temp.	Month	Temp.
Haiku	500'	Feb.	71° F.	July	76° F.
Kula	3750'	Jan.	58°	July	70°
Waikamoi	4250'	Apr.	55°	July	61°
Haleakala	7030'	Apr.	55°	July	62°
Haleakala	9200'	Jan.	48°	June	63°

However, these differences, slight as they may be, appeared to make difference between negative and positive results insofar as adult emergence at the higher stations was concerned. (See Fig. 10).

The station that exhibited the least thermal variation was Waikamoi which frequently had less than three degrees difference between midnight and noon when the hygrothermograph needle would oscillate around 60° F. The high relative humidity (93%) and frequent fog were probably responsible for this condition.

The rainfall in July was scant at all stations except Waikamoi which had 22.49 inches. August was much wetter and a storm with a strong northerly wind resulted in the following rainfall on August 14 and 15.

Station	Rainfall
Kula	6.12
Haleakala (7030')	10.51
Haleakala (9200')	11.00
Waikamoi	12.00

The average relative humidity varied from 90% plus at Waikamoi to 40% minus at Haleakala (9200'). At the higher station the needle frequently trailed along at 10% R. H.

It is of interest that in the last eleven months Waikamoi (4250') has had 208.61 inches of rain while at Kula Insectary (3750'), in the same period, 28.61 inches have been recorded, although the two stations are only six miles apart.

METEOROLOGICAL DATA ON MAUI STATIONS

TABLE NO. 1

STATION	JULY	AUGUST	SEPTEMBER	TEMPERATURE
HALEAKALA	66	68	68	Absolute Max.
	58	61	60	Max. Mean
9200'	43	44	44	Min. Mean
	38	36	38	Absolute Min.
	.26	10.69	3.00	Ppt.
	36	45	49	Aver. Rel. Hum.
HALEAKALA	74	72	72	Absolute Max.
	67	65	65	Max. Mean
7030'	47	46	45	Min. Mean
	38	40	40	Absolute Min.
	1.42	16.40	2.55	Ppt.
	59	66	57	Aver. Rel. Hum.
WAIKAMOI	63	74	70	Absolute Max.
	61	66	63	Max. Mean
4250'	55	54	55	Min. Mean
	52	48	48	Absolute Min.
	22	18	8.33	Ppt.
	93	92	91	Aver. Rel. Hum.
KULA INSECTARY	74	78	75	Absolute Max.
	70	70	70	Max. Mean
3750'	52	54	54	Min. Mean
	48	50	50	Absolute Min.
	.46	6.40	.62	Ppt.
	85	83	85	Aver. Rel. Hum.
HAIKU	80	84	82	Absolute Max.
	77	78	78	Max. Mean
500'	67	67	67	Min. Mean
	64	62	63	Absolute Min.
	7.11	4.78	1.87	Ppt.
	78	78	76	Aver. Rel. Hum.

Note: Temperature Records from standard weather shelter.

METEOROLOGICAL DATA ON MAUI STATIONS

October 1949 - September 1950

TABLE No. 2

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Haleakala (9200')												
Abs.Max.				57	58	58	58	67	76	66	68	68
Max. Mean				49	52	52	52	56	63	58	61	60
Min.Mean				38	39	38	41	40	45	43	44	44
Abs.Min.				33	32	32	38	37	38	38	36	38
Ppt.						2.11	8.14	5.31	.40	.26	10.69	3.00
R.H.%				63	47	44				36	45	49
Haleakala (7030')												
Abs.Max.	69	67	68	66	68	68	66	72	78	74	72	72
Max.Mean	64	61	60	58	59	59	58	62	64	67	65	65
Min.Mean	44	43	42	45	46	44	41	42	44	47	46	45
Abs.Min.	37	32	35	37	42	36	36	34	38	38	40	40
Ppt.	1.79	2.82	3.12	11.26	5.44	5.04	12.68	1.37	.43	1.42	16.40	2.55
R.H.%	52		68	63	47	46	75			59	66	57
Waikamoi (4250')												
Abs.Max.	68	70	70	68	67	70	65	63	66	63	74	70
Max.Mean	63	60	61	61	58	59	55	57	60	61	66	63
Min.Mean	52	47	45	47	49	49	51	52	50	55	54	55
Abs.Min.	49	39	37	40	42	42	46	46	47	52	48	48
Ppt.	7.4	29	16	11	19	42	48	30	13	22	18	8.33
R.H.%	96	91	92	86	89	86	95			93	92	91
Kula Insectary (3750')												
Abs.Max.	78	74	74	70	72	70	70	69	70	74	78	75
Max.Mean	73	68	68	64	66	66	65	66	66	70	70	70
Min.Mean	51	48	49	50	51	47	52	52	53	52	54	54
Abs.Min.	48	42	42	42	44	42	44	47	48	48	50	50
Ppt.	0	0	1.5	9.26	.89	.81	7.92	.83	.54	.46	6.40	.62
R.H.%		87	90	82	78	73	82			85	83	85
Haiku (500')												
Abs.Max.	84	84	78	80	77	80	76	78	80	80	84	82
Max.Mean	80	79	75	76	73	73	73	76	76	77	78	78
Min.Mean	65	64	63	62	65	63	64	65	65	67	67	67
Abs.Min.	60	58	60	58	60	55	61	62	62	64	62	63
Ppt.	1.3	7.2	5.8	10.68	5.44	6.61	20	5.67	4.85	7.11	4.78	1.87
R.H.%										78	78	76

Note: Temperature Records from standard weather shelter.

METEOROLOGICAL DATA ON HAWAII STATIONS

TABLE 3

STATION	JULY	AUGUST	SEPTEMBER	TEMPERATURE
HILO, INSECTARY	81	89	84	Absolute Max.
	80	82	82	Max. Mean
75'	66	67	66	Min. Mean
	62	62	63	Absolute Min.
	9.89	5.63	6.30	Ppt.
	84	85	81	Aver. Rel. Hum.
KAUMANA	78	89	80	Absolute Max.
	73	75	76	Max. Mean
2000'	59	60	59	Min. Mean
	54	54	54	Absolute Min.
	21.64	7.68	5.84	Ppt.
	90	92	88	Aver. Rel. Hum.
PORAKULOA	80	80	76	Absolute Max.
	72	72	72	Max. Mean
6511'	40	42	40	Min. Mean
	31	34	35	Absolute Min.
	.29	2.09	.75	Ppt.
	70	74	72	Aver. Rel. Hum.
WAIKII	74	77	76	Absolute Max.
	70	70	70	Max. Mean
4700'	48	49	49	Min. Mean
	45	46	44	Absolute Min.
	.84	4.11	.97	Ppt.
	93	94	91	Aver. Rel. Hum.
KEANAKOLU	78	77	76	Absolute Max.
	70	71	70	Max. Mean
5200'	50	51	50	Min. Mean
	43	44	45	Absolute Min.
	5.45	10.92	1.95	Ppt.
	84	90	95	Aver. Rel. Hum.
KIPUKA KI	78	77	77	Absolute Max.
	72	71	72	Max. Mean
4250'	54	54	55	Min. Mean
	49	44	48	Absolute Min.
	7.50	3.04	1.35	Ppt.
	83	87	80	Aver. Rel. Hum.

Mortality (Davis)

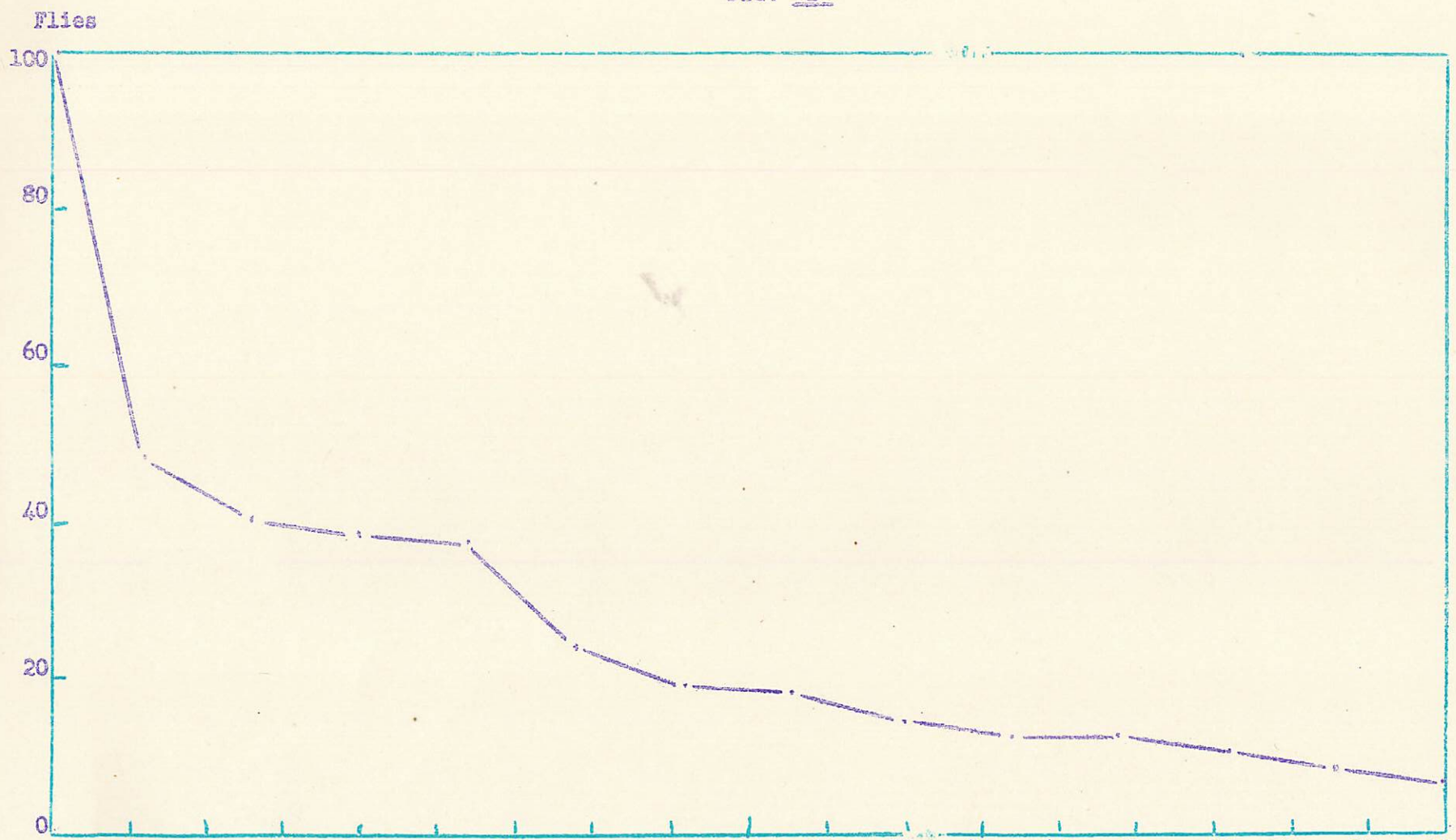
With one exception, experiments with field flies of an unknown age captured at Hilo and on the H. L. T. T. failed to show that flies at the higher elevations were better conditioned than those at the lower elevations. This can best be seen on the accompanying graphs which show mortality trends of flies from different localities held at the same station, and flies held as controls at each station.

No further studies were undertaken as it is felt that experiments with even aged flies from each locality might give us more accurate data than experiments with field flies of an unknown age.

Exp. 763 Mortality of Hilo Flies

Held at Pohakuloa, 6511'

FIG. 1

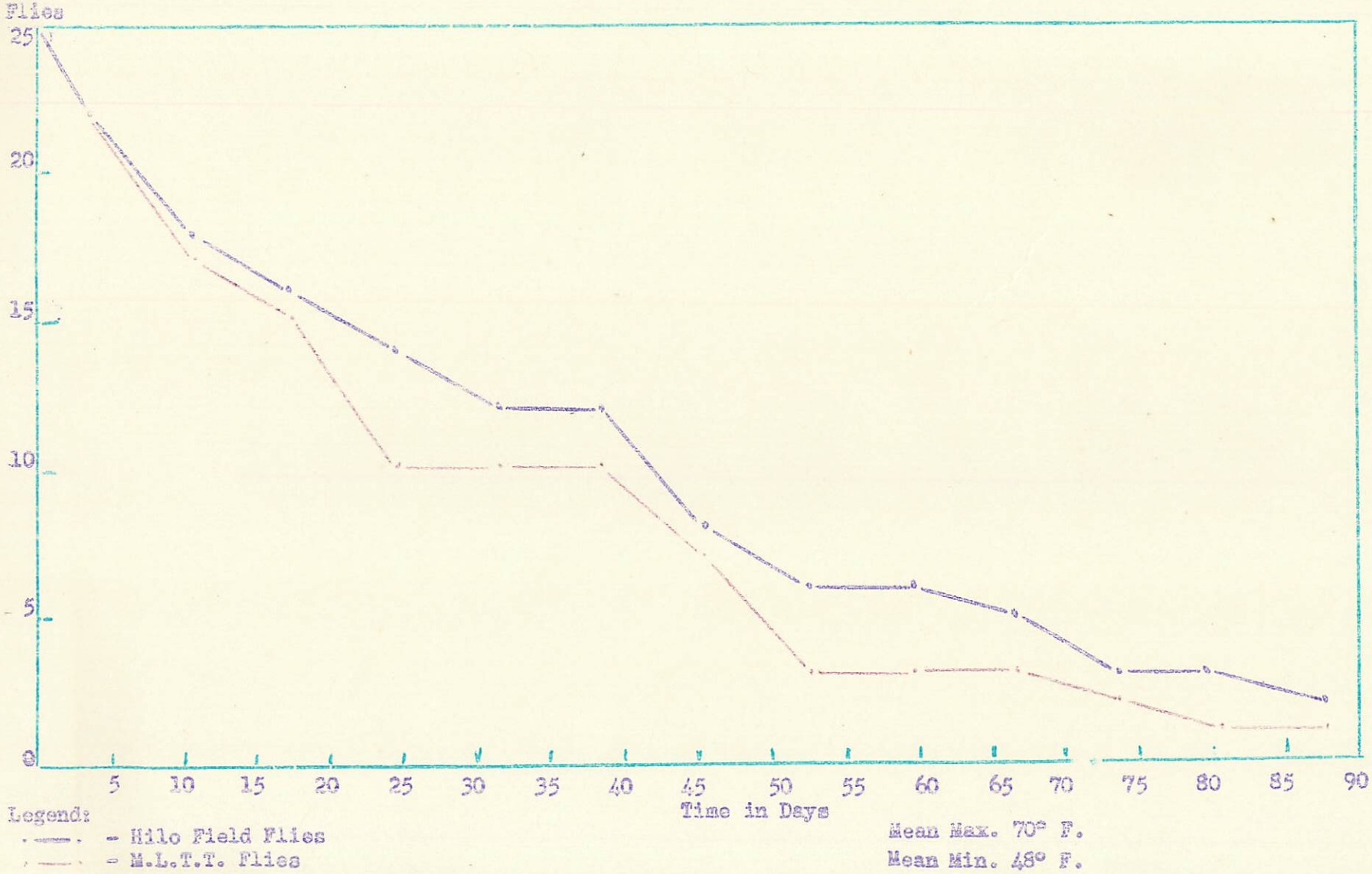


Mean Max. 72° F.
Mean Min. 40° F.

Exp. 693 Mortality, Hilo and M.L.T.T. Flies

Held at Waikii, 4700'

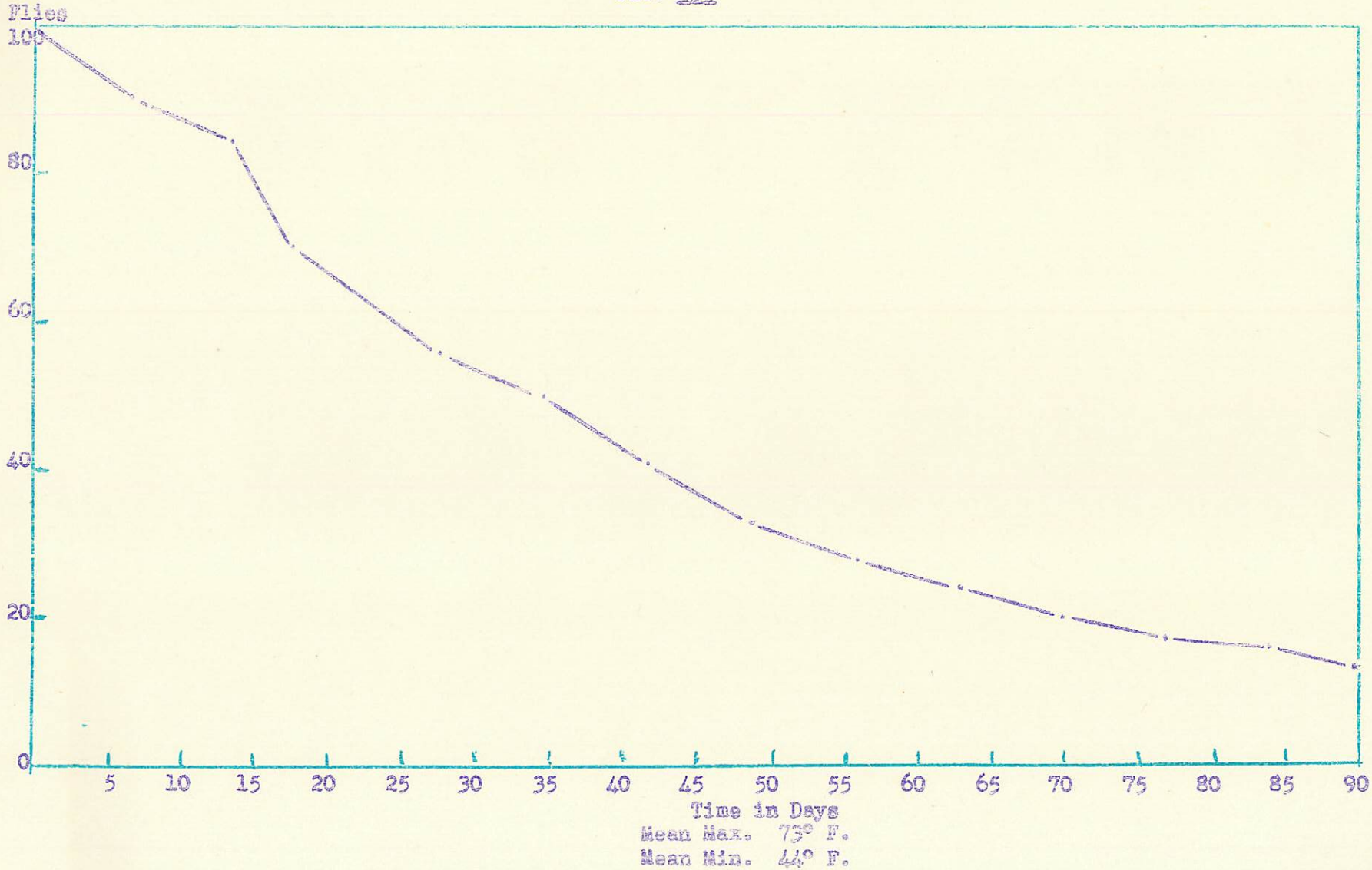
FIG. 2



Exp. 757 Mortality of M.L.T.T. Flies

Held at 5100', M.L.T.T.

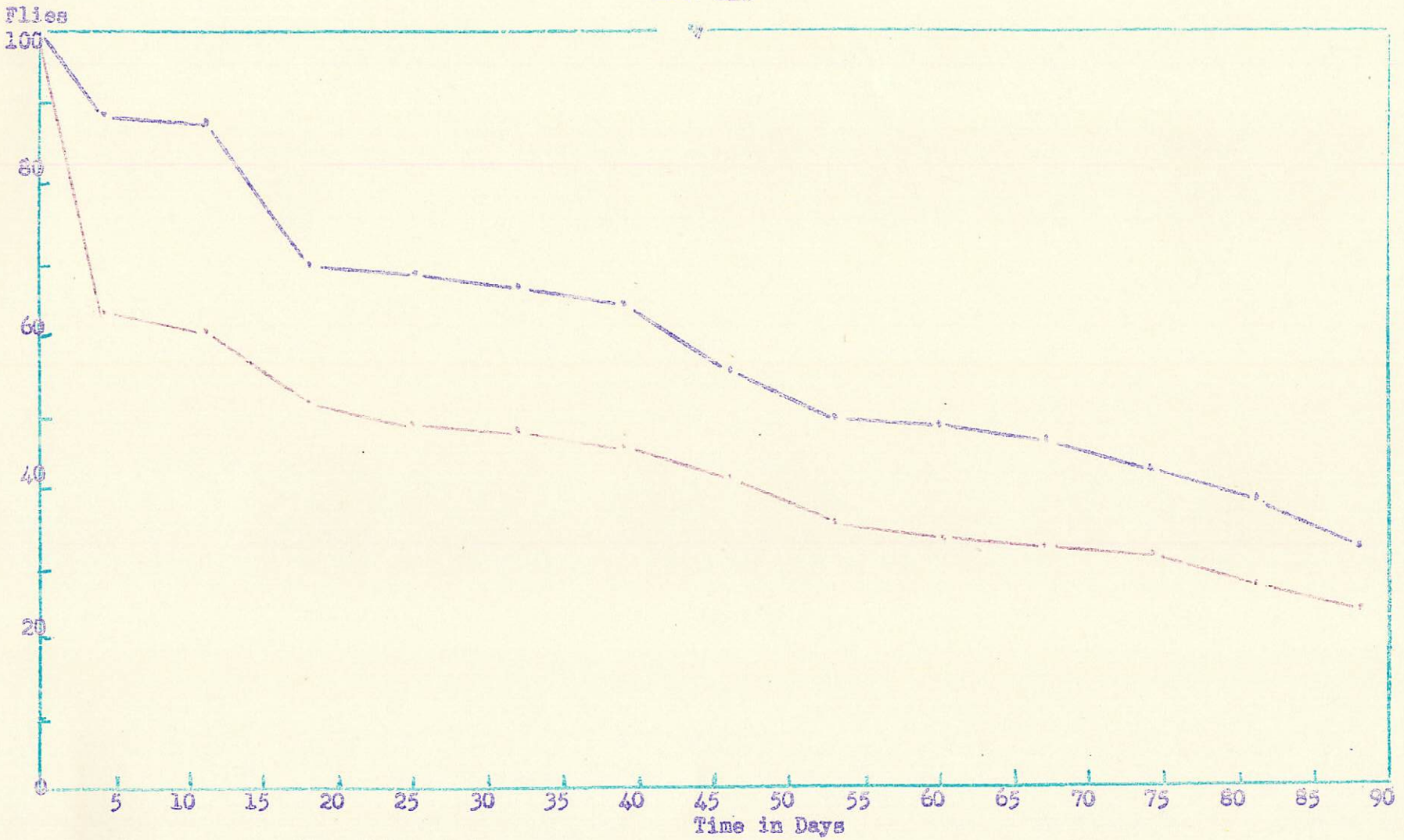
FIG. 3



Exp. 691 Mortality, Hilo and M.L.T.T. Flies

Held at Pohakuloa, 6511'

FIG. 4



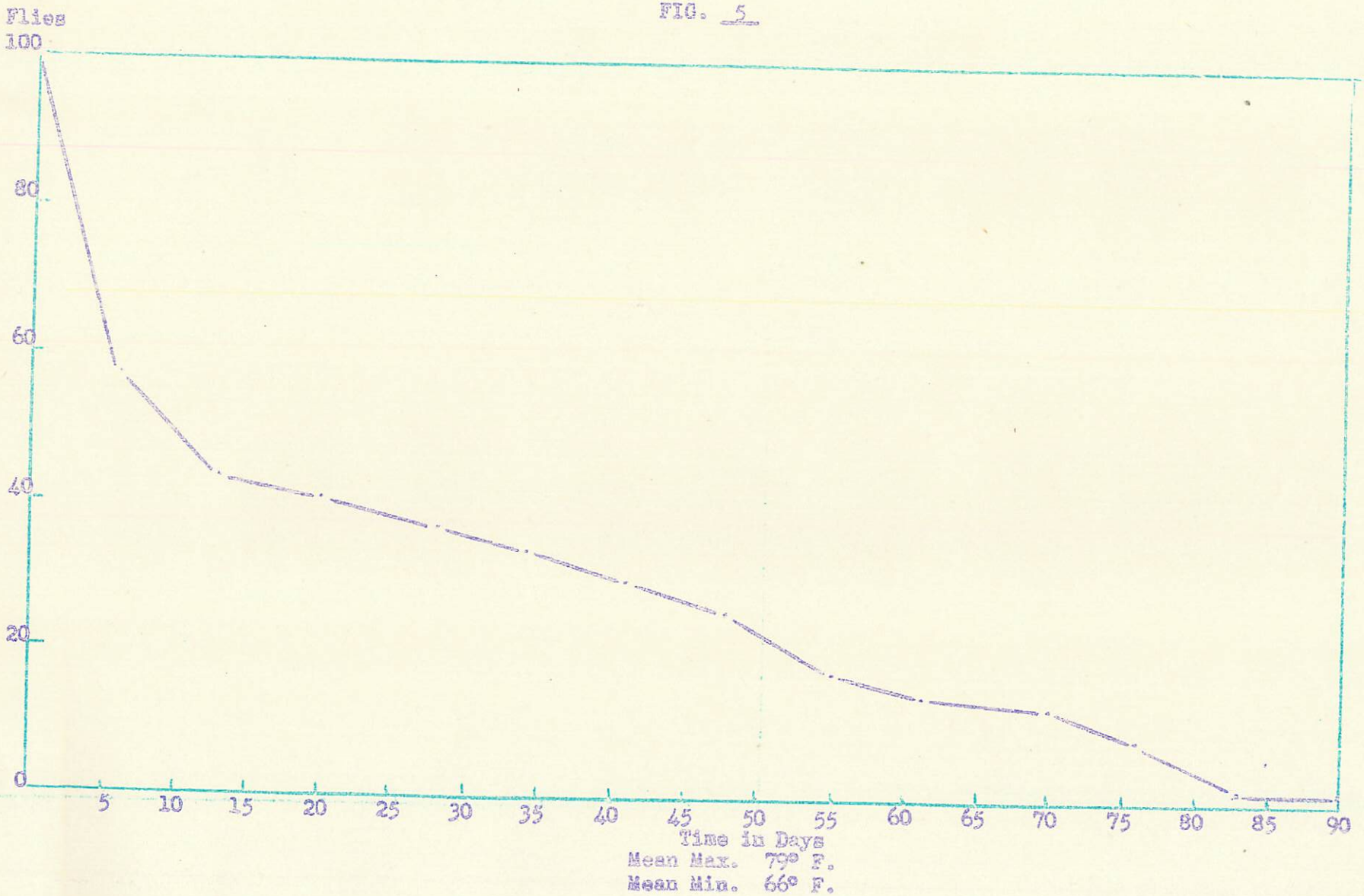
Legend: Hilo Flies, Unknown Age
M.L.T.T. Flies

Mean Max. 71° F.
Mean Min. 40° F.

Exp. 761 Mortality of Hilo Field Flies

Held at Hilo, 75°

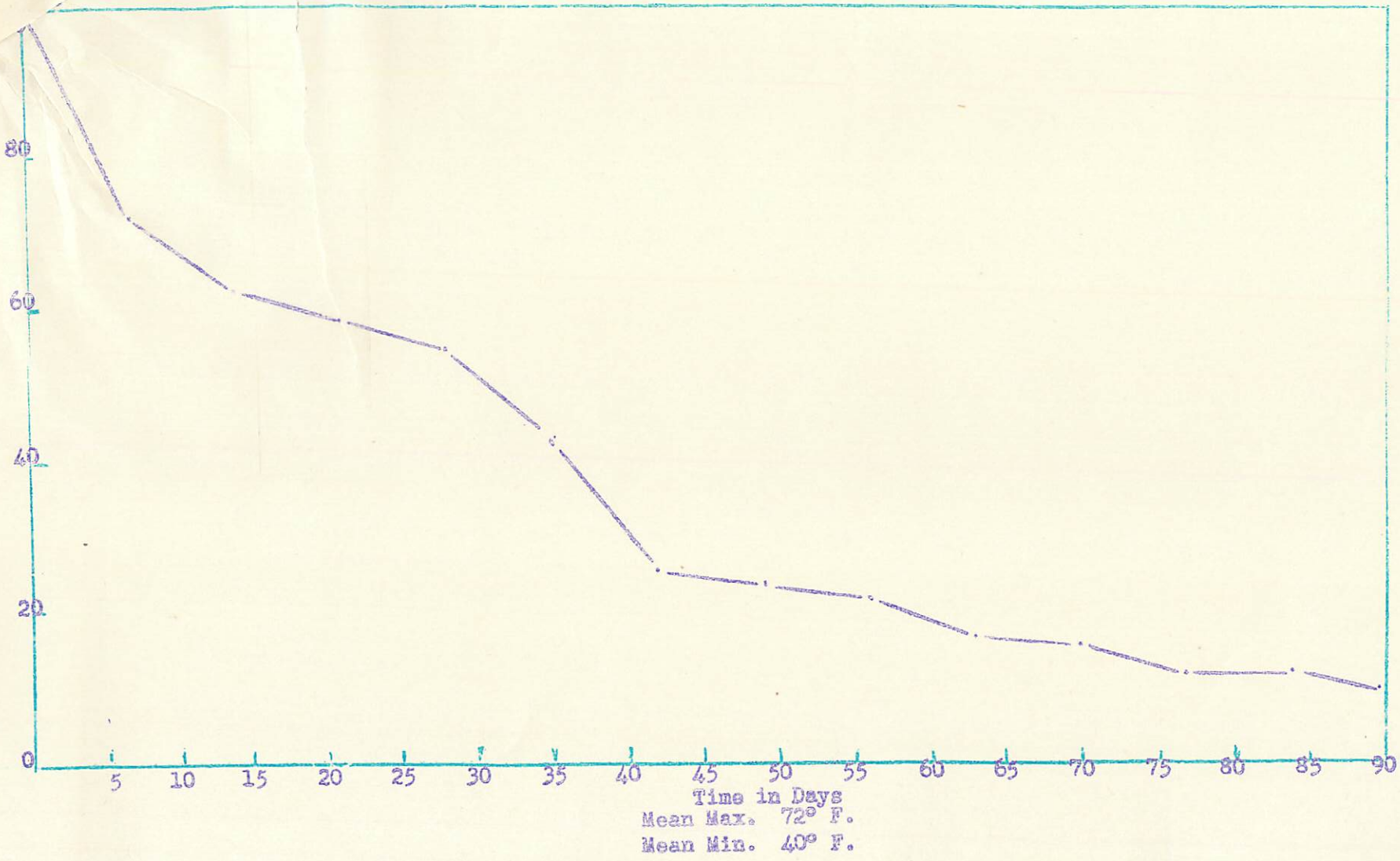
FIG. 5



Exp. 759 Mortality of M.L.T.T. Flies

Held at Pohaknloa, 6511'

FIG. 6



Longevity Studies on Maui (Maehler)

Studies on the life span of Dacus dorsalis conducted over the last ten months have shown that in our outdoor cages the fly seldom lives longer than 3 months and the largest portion of the population succumbs before 2 months. This is considerably shorter than the longevity obtained in small cages. It will be recalled that Davis demonstrated that the fly would live over a year at Pohakuloa (6500') on Hawaii. However, it is felt that the outdoor cages more closely approximate longevity under normal conditions.

Our initial studies suggest that flies with a fortified diet of hydrolysate of yeast in addition to sugar and fruit live longer than flies in which the diet is not so fortified. This is exactly the reverse of what some have predicted, for they reason that since hydrolysate of yeast hastens sexual maturity, increases egg production and appears to accelerate the tempo of the adult's life then it would probably "burn itself out" and longevity would be shortened. Our data do not support this conclusion.

The writer does not feel that the caged flies had the equivalent of the protection they would have achieved if they had been able to seek natural shelter. The floor of the cage had to be kept clean to recover the dead flies and yet natural debris probably offers the fly some protection in soaking up excess water quickly and affording protection during colder weather. After heavy rains, numbers of flies would usually be found with their wings stuck to the floor unable to extricate themselves.

In spite of the negative factors such as spiders, ants and pelting rains, which took their toll of flies in the cages, probably the caged flies lived longer than their counterparts subjected to the uncertainties of nature. This is partially substantiated by the rapid population decline at the end of fruiting periods in certain areas.

Of all the stations, Waikamoi offered the least favorable environment for the flies, based on longevity. The low temperature, high humidity, and heavy rain reduced longevity considerably but even under these most unfavorable conditions the fly was able to live in some cases over two months.

In spite of the demonstrated toughness of dorsalis and her ability to tolerate great extremes of climate, under natural conditions the range at which she occurs at high population levels is quite limited. This may not be due to meteorological limitations, however, but rather to unfavorable host sequence at the higher elevations.

TABLE No. 4 - LONGEVITY STUDIES

Station	Elev.	Color	Started	M.R.T.	2 Feb.	3 Mar.	4 Apr.	5 May	6 Jun	7 Jul	8 Aug	9 Sept
Kula	3750'	Red	Feb.	no	———	———	———	———				
Haleakala	7030'	Red	Feb.	no	———	———	———					
Waikamoi	4250'	Red	Feb.	no	———	———						
Kula	3750'	White	Mar.	no		———	———	———				
Haleakala	7030'	White	Mar.	no		———	———					
Waikamoi	4250'	White	Mar.	no		———	———					
Kula	3750'	Orange	Apr.	yes			———	———	———	———		
Kula	3750'	Orange	Apr.	no			———	———	———			
Haleakala	7030'	Orange	Apr.	yes			———	———				
Haleakala	7030'	Orange	Apr.	no			———	———	———			
Waikamoi	4250'	Orange	Apr.	yes			———	———				
Waikamoi	4250'	Orange	Apr.	no			———					
Haiku	500'	Orange	Apr.	yes				———	———			
Haiku	500'	Orange	Apr.	no				———	———			
Kula	3750'	Green	May	yes				———	———	———	———	
Kula	3750'	Green	May	no				———	———	———	———	
Haleakala	7030'	Green	May	yes				———	———	———	———	
Haleakala	7030'	Green	May	no				———	———	———		

Note: Dotted line indicates greatest longevity based on recovery of last dead fly.
Flies are marked with chinese lacquer and about 100 of each sex released in cage each month.

TABLE No. 5 - LONGEVITY STUDIES

Station	Elev.	Color	Started	M.R.T.	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9
Waikamoi	4250'	Green	May	yes				—	—			
Waikamoi	4250'	Green	May	no				—	—	—		
Kula	3750'	Yellow	June	yes					—	—	—	
Kula	3750'	Yellow	June	no					—	—	—	
Haleakala	7030'	Yellow	June	yes					—	—	—	
Haleakala	7030'	Yellow	June	no					—	—	—	—
Waikamoi	4250'	Yellow	June	yes					—	—		
Waikamoi	4250'	Yellow	June	no					—	—	—	
Kula	3750'	Blue	July	yes						—	—	—
Kula	3750'	Blue	July	no						—	—	—
Haleakala	7030'	Blue	July	yes						—	—	—
Haleakala	7030'	Blue	July	no						—	—	—
Waikamoi	4250'	Blue	July	yes						—	—	
Waikamoi	4250'	Blue	July	no						—	—	—
Kula	3750'	Red	Aug	yes							—	—
Kula	3750'	Red	Aug	no							—	—
Haleakala	7030'	Red	Aug	yes							—	—
Haleakala	7030'	Red	Aug	no							—	—

Note: Dotted line indicates greatest longevity based on recovery of last dead fly.

Longevity - Hawaii (Davis)

Experiments 695-951 this quarter.
Experiments 1043-1137 incomplete and will be included in the next quarterly report.

Results of longevity studies carried over from last quarter are as follows:

Experiment 695, green marked flies, May release

Hilo, 75' Lot 1 (50 pairs)		Hilo, 75' Lot 2 (50 pairs) (MRT)	
Total Longevity	60 days	Total Longevity	109 days
Mean Max	78° F.	Mean Max	79° F.
Mean Min	66° F.	Mean Min	66° F.

Experiment 703

Kaumana, 2000' Lot 1 (50 Pairs)		Kaumana, 2000' Lot 2 (50 pairs) (MRT)	
Total Longevity	50 days	Total Longevity	85 days
Mean Max	71° F.	Mean Max	72° F.
Mean Min	58° F.	Mean Min	58° F.

Experiment 701

Pohakuloa, 6511' Lot 1 (50 pairs)		Pohakuloa, 6511' Lot 2 (50 pairs) (MRT) -	
Total Longevity	73 days	Total Longevity	80 days
Mean Max	71° F.	Mean Max	71° F.
Mean Min	39° F.	Mean Min	39° F.

Experiment 699

Waikii, 4700' Lot 1 (50 pairs)		Waikii, 4700' Lot 2 (50 pairs) (MRT)	
Total Longevity	78 days	Total Longevity	113 days
Mean Max	68° F.	Mean Max	69° F.
Mean Min	47° F.	Mean Min	48° F.

Experiment 697

Keanakolu, 5200' Lot 1 (50 pairs)		Keanakolu, 5200' Lot 2 (50 pairs) (MRT)	
Total Longevity	75 days	Total Longevity	110 days
Mean Max	67° F.	Mean Max	68° F.
Mean Min	48° F.	Mean Min	49° F.

Yellow Flies, June Release

Experiment 825

Hilo, 75'	Lot 1 (100 pairs)	Hilo, 75'	Lot 2 (100 pairs) (MRT)
Total Longevity	62 days	Total Longevity	76 days
Mean Max	80° F.	Mean Max	80° F.
Mean Min	66° F.	Mean Min	66° F.

Experiment 817

Kaumana, 2000'	Lot 1 (100 pairs)	Kaumana, 2000'	Lot 2 (100 pairs) (MRT)
Total Longevity	91 days	Total Longevity	84 days
Mean Max	73° F.	Mean Max	73° F.
Mean Min	59° F.	Mean Min	59° F.

Experiment 819

Pohakuloa, 6511'	Lot 1 (100 pairs)	Pohakuloa, 6511'	Lot 2 (100 pairs (MRT)
Total Longevity	70 days	Total Longevity	70 days
Mean Max	72° F.	Mean Max	72° F.
Mean Min	38° F.	Mean Min	38° F.

Experiment 821

Waikii, 4700'	Lot 1 (100 pairs)	Waikii, 4700'	Lot 2 (100 pairs) (MRT)
Total Longevity	70 days	Total Longevity	70 days
Mean Max	68° F.	Mean Max	68° F.
Mean Min	47° F.	Mean Min	47° F.

Experiment 823

Keanakolu, 5200'	Lot 1 (100 pairs)	Keanakolu, 5200'	Lot 2 (100 pairs) (MRT)
Total Longevity	67 days	Total Longevity	67 days
Mean Max	69° F.	Mean Max	69° F.
Mean Min	49° F.	Mean Min	49° F.

Longevity experiments completed during the present quarter are shown as follows:

Blue Flies, July Release

Experiment 951

Hilo, 75' — Cage 11 — Lot 1 (100 pairs) Emerged 7-5-50

Date	Days	Flies alive M	Flies alive F	Corrected for error M	Corrected for error F (*)
7/5	1	100	100		
7/10	5	100	100		
7/17	12	56	64	51	47
7/24	19	35	53	30	36
7/31	26	25	44	20	27
8/7	33	17	37	12	20
8/14	40	11	29	6	12
8/21	47	10	27	5	10
8/28	54	10	26	5	9
9/4	61	10	26	5	9
9/11	68	10	26	5	9
9/18	75	9	26	4	9

Mean Max. 81° F.
Mean Min. 66° F.

Hilo, 75' — Cage 12 — Lot 2 (100 pairs) (MRT) Emerged 7-5-50

Date	Days	Flies alive M	Flies alive F	Cor. for error M (*)	Cor. for error F (*)
7/5	1	100	100		
7/10	5	97	97	85	80
7/17	12	63	68	51	51
7/24	19	39	53	27	36
7/31	26	32	36	20	19
8/7	33	24	27	12	10
8/14	40	21	25	9	8
8/21	47	18	24	6	7
8/28	54	14	19	2	2
9/4	61	14	19	2	2
9/11	68	13	19	1	2
9/18	75	12	18	0	1

Mean Max. 81° F.
Mean Min. 66° F.

Experiment 937

Kaumana, 2000' — Cage 13 — Lot 1 (100 pairs) Emerged 7/5/50

Date	Days	Flies alive M	Flies alive F	Corrected for error M	Corrected for error F (*)
7/5	1	100	100		
7/10	5	96	95	68	65
7/17	12	73	73	45	43
7/24	19	47	52	19	22
7/31	26	40	44	12	14
8/7	33	37	42	9	12
8/14	40	34	39	6	9
8/21	47	33	38	5	7
8/28	54	29	32	1	1
9/4	61	29	32	1	1
9/11	68	29	32	1	1

Mean Max. 74° F.
Mean Min. 59° F.

Kaumana, 2000' — Cage 14 — Lot 2 (100 pairs) (MRT) Emerged 7/5/50

Date	Days	Flies alive M	Flies alive F	Cor. for error M (*)	Cor. for error F (*)
7/5	1	100	100		
7/10	5	82	88	58	59
7/17	12	58	69	34	40
7/24	19	45	55	21	26
7/31	26	42	50	18	21
8/7	33	38	44	14	15
8/14	40	37	43	13	14
8/21	47	35	41	11	12
8/28	54	30	34	6	5
9/4	61	30	34	6	5
9/11	68	30	34	6	5
9/18	75	29	34	5	5
9/25	82	29	33	5	4

Mean Max. 77° F.
Mean Min. 59° F.

(*) Distributed error to account for discrepency between flies released and flies recovered.

Experiment 939

Pohakuloa, 6511' Lot 1 (100 pairs)
Cage 15 Emerged 7-5-50

Date	Days	Flies alive M	Flies alive F	Corrected for error M	Corrected for error F	(*)
7/5	1	100	100			
7/10	5	69	59	64	47	
7/17	12	37	43	32	31	
7/24	19	24	38	19	26	
7/31	26	15	27	10	15	
8/7	33	12	25	7	12	
8/14	40	11	22	6	9	
8/21	47	9	22	4	9	
8/28	54	9	21	4	8	
9/4	61	9	21	4	8	
9/11	68	8	21	4	8	
9/18	75	7	21	3	8	

Mean Max. 72° F.
Mean Min. 41° F.

Pohakuloa, 6511' Lot 2 (100 pairs) (MRT)
Cage 16 Emerged 7-5-50

Date	Days	Flies alive M	Flies alive F	Cor. for error M	Cor. for error F	(*)
7/5	1	100	100			
7/10	5	54	58	53	56	
7/17	12	31	41	30	39	
7/24	19	19	25	18	23	
7/31	26	5	15	4	13	
8/7	33	3	7	2	5	
8/14	40	3	6	2	3	
8/21	47	3	6	2	3	
8/28	54	3	6	2	3	
9/4	61	3	6	2	3	
9/11	68	3	6	2	3	
9/18	75	2	5	1	2	
9/25	82	2	4	1	1	

Mean Max. 72° F.
Mean Min. 41° F.

Experiment 919

Waikii, 4700' Lot 1 (100 pairs)
Cage 17 Emerged 6/28/50

Date	Days	Flies alive M	Flies alive F	Corrected for error M	Corrected for error F	(*)
6/28	1	100	100			
7/10	12	62	77	42	40	
7/17	19	45	71	25	34	
7/24	26	39	69	19	32	
7/31	33	38	58	18	21	
8/7	40	33	50	13	13	
8/14	47	33	49	13	12	
8/21	54	32	49	12	12	
8/28	61	32	48	12	11	

Mean Max. 70° F.
Mean Min. 49° F.

Waikii, 4700' Lot 2 (100 pairs) (MRT)
Cage 18 Emerged 6-28/50

Date	Days	Flies alive M	Flies alive F	Cor. for error M	Cor. for error F	(*)
6/28	1	100	100			
7/10	12	59	62	50	53	
7/17	19	47	52	38	43	
7/24	26	44	50	35	41	
7/31	33	38	46	29	37	
8/7	40	31	38	22	29	
8/14	47	31	38	22	29	
8/21	54	16	14	7	5	
8/28	61	16	14	7	5	

Mean Max. 70° F.
Mean Min. 49° F.

(*) Distributed error to account for discrepency between flies released and flies recovered.

Experiment 933

Keanakolu, 5200' Lot 1 (100 pairs)
Cage 19 Emerged 7-1-50

Date	Days	Flies alive M	Flies alive F	Corrected for error (*) M	Corrected for error (*) F
7/1	1	100	100		
7/11	10	80	78	61	59
7/18	17	55	55	36	36
7/25	24	46	45	27	26
8/1	31	42	39	23	20
8/8	38	32	31	13	12
8/15	45	29	29	10	10
8/22	52	29	27	10	8
8/29	59	24	24	5	5

Mean Max. 71° F.
Mean Min. 51° F.

Keanakolu, 5200' Lot 2 (100 pairs) (MRT)
Cage 20 Emerged 7-1-50

Date	Days	Flies alive M	Flies alive F	Cor. for error (*) M	Cor. for error (*) F
7/1	1	100	100		
7/11	10	79	78	58	51
7/18	17	55	71	34	44
7/25	24	49	65	28	38
8/1	31	47	64	26	37
8/8	38	39	57	18	30
8/15	45	35	54	14	27
8/22	52	34	53	13	25
8/29	59	29	44	8	16
9/5	66	29	43	8	15
9/12	73	28	43	7	15
9/19	80	28	38	7	10
9/26	87	27	36	6	8
10/2	94	27	34	6	6

Mean Max. 71° F.
Mean Min. 51° F.

(*) Distributed error to account for discrepency between flies released and flies recovered.

Sexual Maturity (Davis)

Experiments 605-877 last quarter.
Experiments 901-1093 this quarter
Experiments 1095-1181 incomplete and will be reported on next quarter.

The procedure in carrying on sexual maturity experiments is the same as reported last quarter.

Two significant developments took place in experiments 853, Lot 2 and 857, Lot 2, which were incomplete last quarter. In the former, in which 50 pairs of dorsalis were held in the outdoor cage at Pohakuloa, 6511', females attained maturity in 47 days and in the latter, females were found mature at Waikii, 51 days after emergence. The diet in both experiments included MRT. The control flies in Lot 1 of experiments 855 and 857 failed to attain maturity. This is the first record at these stations of flies attaining maturity in outdoor cages. Maturity was determined by the recovery of eggs in bananas.

In Experiment 877 (Kaumana), which also was incomplete last quarter, females attained maturity in Lot 2 (MRT) 18 days after emergence. The flies in Lot 1 died before attaining maturity.

In the following summary of completed sexual maturity experiments, it will be noted that in Lot 2 of Experiment 999 at Pohakuloa we have another pre-oviposition record of 48 days.

Experiment 963

Hilo, 75' Lot 1
Cage 11 Emerged 7-17-50

Date	Days	M.	F.
7/17	1	50	50
7/25	8	+	-
8/1	15		-
8/7	21		-

Mean Max. 80° F.
Mean Min. 68° F.
Ppt. 10.60 in.

Hilo, 75' Lot 2
Cage 12 (MRT) Emerged 7/17/50

Date	Days	M.	F.
7/17	1	50	50
7/25	8	+	-
8/1	15		eggs

Mean Max. 80° F.
Mean Min. 67° F.
Ppt. 6.64 in.

Exp. 901
Hilo, 75'
Cage 12 Emerged 6-22-50

Date	Days	M.	F.
6/22	1	50	50
6/30	8	+	-
7/7	15		eggs

Mean Max. 80° F.
Mean Min. 66° F.
Ppt. 3.96 in.

Exp. 965
Kaumana, 2000'
Cage 14 Emerged 7-17-50

Date	Days	M.	F.
7/17	1	50	50
7/31	14	-	-
8/4	18	+	-
8/14	28		-
8/21	35		eggs

Mean Max. 74° F.
Mean Min. 61° F.
Ppt. 24.44 in.

Exp. 967
Waikii, 4700'
Cage 17, Emerged 7-17-50

Date	Days	M.	F.
7/17	1	50	50
7/31	14	-	-
8/14	28	+	-
8/21	35		-
8/28	42		-
9/4	49		-
9/11	56		-
9/18	63		-
9/25	70		-

Mean Max. 70° F.
Mean Min. 49° F.
Ppt. 2.26 in.

Exp. 999
Pohakuloa, 6511'
Cage 16, Emerged 8-1-50

Date	Days	M.	F.
8/1	1	50	50
8/7	6	-	-
8/14	13	-	-
8/21	20	-	-
8/28	27	+	-
9/4	34		-
9/11	41		-
9/18	48		eggs

Mean Max. 72° F.
Mean Min. 41° F.
Ppt. 2.84 in.

Exp. 1089
Hilo, 75'
Cage 12, Emerged 8-18-50

Date	Days	M.	F.
8/18	1	50	50
8/29	10	+	-
9/5	18		eggs

Mean Max. 82° F.
Mean Min. 66° F.
Ppt. 1.68 in.

Exp. 1017
Hilo, 75'
Cage 12, Emerged 8-3-50

Date	Days	M.	F.
8/3	1	50	50
8/7	4	-	-
8/8	5	-	-
8/9	6	+	-
8/15	12		eggs

Mean Max. 81° F.
Mean Min. 68° F.
Ppt. 4.35 in.

Exp. 1019
Pohakuloa, 6511'
Cage 15, Emerged 8-3-50

Date	Days	M.	F.
8/3	1	50	50
8/7	4	-	-
8/14	11	-	-
8/21	18	-	-
8/28	25	+	-
9/4	32		-
9/11	39		-
9/18	46		-
9/25	53		-

Mean Max. 72° F.
Mean Min. 41° F.
Ppt. 2.84 in.

Exp. 1091
Hilo, 75'
Cage 11, Emerged 8-20-50

Date	Days	M.	F.
8/20	1	50	50
8/29	9	+	-
9/5	16		-

Mean Max. 82° F.
Mean Min. 66° F.
Ppt. 1.67 in.

Exp. 1093
Kaumana, 2000'
Cage 13, Emerged 8-20-50

Date	Days	M.	F.
8/20	1	50	50
8/28	8	"	"
9/4	15	"	"
9/11	22		"
9/18	29		"
9/25	36		"

Mean Max. 75° F.
Mean Min. 59° F.
Ppt. 5.86 in.

Mating Studies (Davis)

During the past winter at Pohakuloa it was observed that females of a known age held at that station laid eggs and that these eggs were not viable. This raised the question of whether flies whose mating habits were crepuscular could mate under existing temperature conditions at Pohakuloa. Hygrothermograph records during the early part of the year indicated that the temperature at 5:00 p.m. was usually below the threshold of activity, dropping steadily thereafter until 6:00 a.m. the following morning. Frequent observations at this station between 5 and 10 p.m. failed to disclose mating. However, on June 30, six months after the aforementioned flies had been held at Pohakuloa, viable eggs were recovered. As the season progressed further records of fertility in other experiments were obtained and these are reported as follows:

	Exp. 769 Pohakuloa, 6511'	Exp. 775 Keanakolu, 5200'
Females emerged	3-29-50	4-25-30
1st eggs recovered	4-14-50	5-12-50
Females taken to each station	4-24-50	5-13-50
Males introduced	5-4-50	5-27-50
Mating observed	No	No
No. of fruit exposed	8	7
Fertile eggs recovered	6-30-50	7-18-50
*No. of days to fertility	56	52
Abs. Max.	75° F.	68° F.
Abs. Min	33° F.	41° F.
Mean Max.	67° F.	61° F.
Mean Min.	43° F.	46° F.

* Days to fertility in experiments 769, 775 based on date males introduced.

	Exp. 903 Hilo, 75'	Exp. 907 Waikii, 4700'
Females emerged	6-14-50 (50)	6-14-50 (50)
1st eggs recovered	6-27-50	7-5-50
Females taken to each station	6-14-50	7-7-50
Males introduced	7-21-50 (35)	7-17-50 (41)
Mating observed	No	No
No. of fruit exposed	3	4
Fertile eggs recovered	7-27-50	8-11-50
1/No. of days to fertility	6	25
Abs. Max.	81° F.	74° F.
Abs. Min.	63° F.	44° F.
Mean Min.	66° F.	47° F.
Mean Max.	78° F.	69° F.

	Exp. 733 Hilo, 75'	Exp. 765 Kaumana, 2000'	Exp. 767 Pohakuloa, 6511'	Exp. 771 Waikii, 4700'
No. of days old flies	50 pairs	50 pairs	50 pairs	50 pairs
Date to each station	5-22-50	5-22-50	5-22-50	5-22-50
Mating observed	6-9-50	No	No	No
No. of fruit exposed	2	4	10	9
*Date eggs recovered	6-12-50	6-30-50	8-22-50	7-31-50
No. of days to fertility	21	39	92	70
Abs. Max.	81° F.	76° F.	80° F.	74° F.
Abs. Min.	63° F.	55° F.	29° F.	44° F.
Mean Min.	66° F.	59° F.	40° F.	47° F.
Mean Max.	77° F.	71° F.	72° F.	68° F.

(*) viable eggs

	Exp. 861, Hilo, 75'	Exp. 881 Hilo, 75'	Exp. 879 Pohakuloa, 6511'
No. of day-old flies	50 pairs	50 pairs	50 pairs
Date to each station	6-9-50	6-12-50	6-12-50
Mating observed	6-25-50	No	No
No.of fruit exposed	4	5	5
*Date eggs recovered	6-26-50	6-30-50	7-17-50
No. of days to fertility	18	19	37
Abs. Max.	81° F.	83° F.	78° F.
Abs. Min.	63° F.	63° F.	29° F.
Mean Max.	78° F.	78° F.	72° F.
Mean Min.	66° F.	66° F.	38° F.

(*) viable eggs

1/ Days to fertility in experiments 903 and 907 based on date males introduced.

Oviposition (Davis)

Experiments 713-961 this quarter.
Experiments 971-1169 are not complete at all stations and will be reported next quarter.

These experiments involve exposing bananas to gravid femeles that are held at each station in a standard insect cage. The usual number of females in each cage is about 50 and the fruit is usually exposed 3 days at the higher stations and 1 to 4 hours at Hilo. Flies will usually oviposit readily at all stations and a complete record of the life history is being kept for each station. Thus we find that between May and July of 1950 the life cycle, from the deposition of the egg to the emergence of the adult, is between 21 and 26 days for Hilo, 21-38 days at Kaumana, 2000', 31-64 days at Pohakuloa and 49-59 days at Keanakolu. The preoviposition record of flies that emerge at these stations is also being kept.

It will be noted in the following summary of oviposition experiments that adults emerged at Pohakuloa in Experiments 751, 895, 913, 927 and 955. This is complete dorsalis development in 5 out of 20 bananas held at this station. The average duration from the deposition of the egg to the emergence of the adult was 59 days. Since we have two preoviposition records of 47 and 48 days in the outdoor cage sexual maturity experiments at Pohakuloa, the complete cycle, including the preoviposition period, would be 107 days.

	Exp. 713 Hilo 75'	Exp. 715 Kaumana 2000'	Exp. 717 Pohakuloa 6511'	Exp. 719 Waikii 4700'	Exp. 721 Keanakolu 5200'
1st exposed	5-17-50	5-15-50	5-15-50	5-15-50	5-16-50
Last exposed	5-17-50	5-19-50	5-19-50	5-19-50	5-23-50
Eggs observed	Yes	Yes	Yes	Yes	Yes
Larvae pupated	5-26-50	5-26-50	Negative	Bet.6-5 6-9	Bet. 6-5 6-13
Adults emerged	6-7-50	Bet. 6-5 6-9		Negative	Bet. 7-4 7-11
Pupal period	12 days	11-15 days			21-36 days
Total cycle	21 "	21-25 "			50-56 "
Mean Max. temp.	79° F.	70° F.	70° F.	65° F.	58° F.
Mean Min. temp.	65	58	43	43	45

	Exp. 747 Hilo 75'	Exp. 749 Kaumana 2000'	Exp. 751 Pohakuloa 6511'	Exp. 753 Waikii 4700'	Exp. 755 Keanakolu 5200'
1st exposed	5-23-50	5-22-50	5-22-50	5-22-50	5-23-50
Last exposed	5-23-50	5-26-50	5-26-50	5-26-50	5-26-50
Eggs observed	Yes	Yes	Yes	Yes	Yes
Larvae pupated	6-1-50	Bet. 6-5 6-9	6-16-50	Bet. 6-19 6-23	Negative
Adults emerged	6-15-50	Bet. 6-26 6-30	Bet. 7-17 7-21	Bet. 7-22 7-23	
Pupal period	14 days	14-19 days	31-35 days	29-34 days	
Total cycle	23 "	21-25 "	53-60 "	58-62 "	
Mean Max. Temp.	76° F.	69° F.	70° F.	67° F.	60° F.
Mean Min. Temp.	63° F.	58° F.	42° F.	48° F.	46° F.

	Exp. 799	Exp. 801	Exp. 803	Exp. 805	Exp. 807
1st exposed	5-31-50	5-29-50	5-29-50	5-29-50	5-29-50
Last exposed	6-1-50	6-2-50	6-2-50	6-2-50	6-6-50
Eggs observed	Yes	Yes	Yes	Yes	Yes
Larvae pupated	6-12-50	Bet. 6-12 6-16	Bet. 6-23 6-26	Bet. 6-26 6-30	Bet. 6-27 7-4
Adults emerged	6-25-50	Bet. 7-4 7-7	Negative	Bet. 7-24 7-28	8-9-50
Pupal period	13 days	18-25 days		24-32 days	36-40 days
Total cycle	26 "	35-38 "		64-70 "	
Mean Max. Temp.	79° F.	72° F.		65° F.	70° F.
Mean Min. Temp.	66° F.	57° F.		46° F.	45° F.

	Exp. 835	Exp. 837	Exp. 839	Exp. 841	Exp. 843
1st Exposed	6-5-50	6-5-50	6-5-50	6-5-50	6-5-50
Last exposed	6-5-50	6-9-50	6-9-50	6-9-50	6-13-50
Eggs observed	Yes	Yes	Yes	Yes	No
Larvae pupated	6-15-50	Bet. 6-19 6-23	Negative	Negative	Negative
Adults emerged	6-30-50	7-10-50			
Pupal period	15 days	17-21 days			
Total cycle	25 days	31-35 days			
Mean Max. temp.	79° F.	70° F.	69° F.	66° F.	68° F.
Mean Min. temp.	65° F.	58° F.	35° F.	46° F.	48° F.

	Exp. 863 Hilo 75'	Exp. 865 Kaumana 2000'	Exp. 867 Pohakuloa 6511'	Exp. 869 Waikii 4700'	Exp. 871 Keanakolu 5200'
1st exposed	6-12-50	6-12-50	6-12-50	6-12-50	6-13-50
Last exposed	6-12-50	6-16-50	6-16-50	6-16-50	6-19-50
Eggs observed	Yes	Yes	Yes	No	Yes
Larvae pupated	6-22-50	Bet. 6-26 6-30	Bet. 7-10 7-14	Negative	Bet. 7-11 7-18
Adults emerged	Bet. 7-3 7-5	7-17-50	Negative		8-11-50
Pupal period	11-16 days	17-21 days			24-31 days
Total cycle	21-23 days	31-35 days			53-59 days
Mean max. temp.	79° F.	68° F.	72° F.	66° F.	69° F.
Mean Min. temp.	68° F.	60° F.	35° F.	48° F.	47° F.

	Exp. 891	Exp. 893	Exp. 895	Exp. 897	Exp. 899
1st exposed	6-19-50	6-19-50	6-19-50	6-19-50	6-19-50
Last exposed	6-20-50	6-23-50	6-23-50	6-23-50	6-27-50
Eggs observed	Yes	Yes	Yes	Yes	No
Larvae pupated	7-1-50	Bet. 7-6 7-7	7-14-50	Negative	Negative
Adults emerged	7-14-50	Bet. 7-22 7-23	Bet. 8-14 8-18		
Pupal period	13 days	15-17 days	31-35 days		
Total cycle	25 days	30-34 "	60-64 "		
Mean max. temp.	75° F.	71° F.	70° F.	68° F.	70° F.
Mean min. temp.	57° F.	59° F.	39° F.	48° F.	51° F.

	Exp. 909	Exp. 911	Exp. 913	Exp. 915	Exp. 917
1st exposed	6-28-50	6-26-50	6-26-50	6-26-50	6-27-50
Last exposed	6-28-50	6-30-50	6-30-50	6-30-50	7-3-50
Eggs observed	Yes	Yes	Yes	No	Yes
Larvae pupated	7-7-50	7-9-50	Bet. 7-21 7-24	Negative	Bet. 7-25 8-1
Adults emerged	7-21-50	Bet. 7-24 7-28	Bet. 8-21 8-28		Negative
Pupal period	14 days	15-18 days	28-34 days		
Total cycle	23 "	28-31 "	59-63 "		
Mean max. temp.	79° F.	73° F.	72° F.	68° F.	71° F.
Mean min. temp.	68° F.	59° F.	36° F.	47° F.	46° F.
Preovlposition per.		9-4-50 38-42 days			

	Exp. 923 Hilo 75'	Exp. 925 Kaumana 2000'	Exp. 927 Pohakuloa 6511'	Exp. 929 Waikii 4700'	Exp. 931 Keanakolu 5200'
1st exposed	7-3-50	7-3-50	7-3-50	7-3-50	7-4-50
Last exposed	7-3-50	7-7-50	7-7-50	7-7-50	7-11-50
Eggs observed	Yes	Yes	Yes	Yes	Yes
Larvae pupated	7-14-50	Bet. 7-17 7-21	Bet. 7-21 8-4	Negative	Bet. 7-25 8-1
Adults emerged	7-27-50	Bet. 8-4 8-7	Bet. 8-28 9-4		Bet. 8-26 8-29
Pupal period	13 days	14-21 days	24-32 days		25-34 days
Total cycle	24 "	31-34 "	59-63 "		49-53 "
Mean max. temp.	81° F.	72° F.	74° F.	68° F.	70° F.
Mean min. temp.	67° F.	60° F.	43° F.	47° F.	50° F.

	Exp. 941	Exp. 943	Exp. 945	Exp. 947	Exp. 949
1st exposed	7-10-50	7-10-50	7-10-50	7-10-50	7-11-50
Last exposed	7-10-50	7-14-50	7-14-50	7-14-50	7-18-50
Eggs observed	Yes	Yes	Yes	No	No
Larvae pupated	7-21-50	Bet. 7-24 7-28	Negative		
Adults emerged	8-1-50	8-14-50			
Pupal period	11 days	17-21 days			
Total cycle	22 days	31-35 "			
Mean Max. temp.	77° F.	74° F.	71° F.	69° F.	68° F.
Mean Min. temp.	67° F.	57° F.	39° F.	46° F.	48° F.

	Exp. 953 Kaumana 2000'	Exp. 955 Pohakuloa 6511'	Exp. 957 Waikii 4700'	Exp. 959 Hilo 75'	Exp. 961 Keanakolu 5200'
1st exposed	7-14-50	7-14-50	7-14-50	7-18-50	7-13-50
Last exposed	7-17-50	7-17-50	7-17-50	7-18-50	7-25-50
Eggs observed	Yes	Yes	Yes	Yes	No
Larvae pupated	Bet. 7-31 8-4	Bet. 8-7 8-11	Bet. 7-31 8-4	7-28-50	
Adults emerged	Bet. 8-14 8-18	9-11-50	Bet. 8-28 9-4	8-9-50	
Pupal period	14-18 days	31-35 days	24-32 days	12 days	
Total cycle	31-35 "	56-59 "	49-52 "	22 "	
Mean max. temp.	74° F.	72° F	70° F.	80° F.	69° F.
Mean min temp.	59° F.	38° F.	47° F.	63° F.	52° F.

Hatching Studies (Davis)

Experiments 883-1083 this quarter.
Experiments 1085-1153, which are incomplete, will be included in the next quarterly report.

In mass culture of the Oriental fruit fly in which hundreds of eggs are placed over a damp cloth and held in a petri dish, it has been observed on 3 occasions that hatching has taken place in a day and a half at Hilo. The usual incubation period is 2 days.

At Kaumana hatching appears to be consistent at 3 days, while at Pohakuloa no on-the-spot observations on hatching have been made to date.

Results of hatching studies are as follows:

	Exp. 883 Hilo	Exp. 885 Pohakuloa
Eggs laid	6/15/50	6/15/50
Eggs transferred	6/15/50 (20)	6/15/50 (20)
Eggs hatched	6/17/50	Bet. 6/19 6/23
% hatched	90%	75%
Incubation period	2 days	4-7 days
Larvae pupated	Bet. 6/23 6/26	Negative
Adults emerged	7/8/50	
Total cycle	23 days	
Mean Max. temp.	79° F.	72° F.
Mean Min. Temp.	65° F.	36° F.

	Exp. 1027 Hilo	Exp. 1029 Kaumana	Exp. 1031 Pohakuloa
Eggs laid	8/11/50	8/11/50	8/11/50
Eggs transferred	8/11/50 (10)	8/11/50 (10)	8/11/50 (10)
Eggs hatched	Bet. 8/13 8/14	8/13/50	8/14/50
% hatched	70%	80%	60%
Incubation period	2-3 days	2 days	3 days
Larvae pupated	8/20/50	Bet. 8/21 8/26	Bet. 8/28 9/4
Adults emerged	9/1/50	Negative	
Total cycle	21 days		
Mean max. temp.	80° F.	74° F.	75° F.
Mean min. temp.	68° F.	60° F.	44° F.

	Exp. 1081 Hilo	Exp. 1083 Kaumana
Eggs laid	8/18/50	8/18/50
Eggs transferred	8/18/50 (20)	8/18/50 (20)
Eggs hatched	8/20/50	8/21/50
% hatched	90%	80%
Incubation period	2 days	3 days
Larvae pupated	8/29/50	Bet. 8/28 9/4
Adults emerged	Bet. 9/7 9/14	Bet. 9/15 9/18
Total cycle	27 days	31 days
Mean max. temp.	83° F.	78° F.
Mean Min. temp.	66° F.	58° F.

Larval Studies (Maehler and Davis)

Summation and Evaluation of Larval Studies - The most influential factor relevant to rate of larval development is temperature. However, it is evident that with various host fruits different rates of larval development result under the same temperature conditions. The acceleration of this development appears to be associated with the normal rate at which the fruit itself breaks down. Apples, which break down very slowly, have been shown to be the media in which larval development is the slowest. Banana, which when ripe break down more rapidly, offer a medium in which development takes place much more quickly.

In addition there seems to be some correlation between nutrient make-up of the medium and larval development and subsequent size of the adults. False Kamani characteristically produces diminutive adults while Santalum and Mock orange, although small berries, produce adults of normal size.

Experiment 668 shows that of the three fruits used (banana, apple, orange) banana offered a more suitable medium than either apples or oranges.

Under optimum conditions the larval period is about 8 or 9 days but at Haleakala (9200') it may be extended to 31 days and at Pohakuloa (6500') 28 days was recorded by Davis.

Considerable difference is shown in rate of development when the larvae are held inside a weather shelter or held outside where the rays of the sun can raise the temperature of the fruit (Exp. 526).

It has been observed that the larvae of dorsalis have a much lower threshold of activity than the adults and activity has been noted down to 50° F. Dacus cucurbitae larvae have a lower threshold of activity than dorsalis larvae.

TABLE NO. 6

Comparative Larval Duration at Different Stations

Station	Elev.	Max.Mean ° F.	Min.Mean ° F.	R.H. %	Exp.	Larval Period
Haiku	500'	67	78	76	532	13 days
Kula	3750'	54	70	85	526	14 days
Waikamoi	4250'	55	63	91	534	24 days
Haleakala	7030'	45	65	57	528	24 days
Haleakala	9200'	44	60	49	530	31 days

	Date Eggs		Date Mat.Lar.		Date Puparia		Date Adults	
Haiku	8/17	50	8/31	x	9/1	x	9/18	x
Kula	8/17	50	9/1	x	9/2	x	9/23	x
Waikamoi	8/17	50	9/11	x	9/12	x	10/22	est.
Haleakala	8/17	50	9/11	x	9/13	x	10/31	est.
Haleakala	8/17	50	9/18	x	9/20	x	11/15	est.

	Pupal Period	Cycle
Haiku	17 days	31 days
Kula	21 days	36 days
Waikamoi	40 days *	65 days *
Haleakala	47 days *	74 days *
Haleakala	56 days *	89 days *

* Estimated, based on other experiments.

TABLE NO. 7

Comparative Development of Larvae in Apple, Orange and Banana

Experiment 668 Kula Insectary (3750')

LOTS	1	2	3
FRUITS	orange	apple	banana
DATE	9/21	9/21	9/21
EGGS	100	100	100
DATE	10/2	10/2	10/2
FINDINGS	2nd Instar, large	2nd Instar, small	3rd Instar large
DATE	10/9	10/9	10/9
FINDINGS	2 pupae, 1 M.L. in sand, M.L. in fruit	3rd in fruit	32 pupae, 9 M.L. in sand, few M.L. in fruit
FRUIT AS LARVAL MEDIA	Second	Third	First

Note: Eggs were innoculated into the fruit which was plugged and the plug sealed over with paraffin. Egg hatch in check was on 9/22.

TABLE NO. 8

Larval Competition Between Dacus dorsalis and Ceratitis capitata In California Naval Orange.

Experiment 550.

Lot	Eggs of Dorsalis	Eggs of Capitata	Puparia Recovered	Adults	
				Dorsalis	Capitata
1	100	100	10	3	
2	200		39	36	
3		200	52		39
4		100	1		
5	100		0		
6	100	100	0		

Note: In lots 1, 2 and 3 the orange was plugged and the eggs placed in the pulp. The plug was then replaced and sealed with paraffin. In Lots 4, 5 and 6 the eggs were placed above the rag of the fruit and the slice of skin sealed over the eggs with paraffin. It is evident here, as in Experiment 328 (previous quarterly report) that the rind of the citrus fruit prevents the entry of the larvae of both species of fruit flies.

TABLE NO. 9

Larval Development Inside and Outside the Weather Shelter

Experiment 526. Kula Station - 3750'

Lot	1	2	3	4
Fruit	Banana	Banana	Orange	Orange
Site	Shelter	Outside	Shelter	Outside
Abs. Max.	75° F.	85° F	78° F	85° F
Max. Mean	73° F.	80° F.	73° F.	80° F.
Min. Mean	54° F.	54° F.	54° F.	54° F.
Abs. Min.	50° F.	50° F.	50° F.	50° F.
Date	8/17	8/17	8/17	8/17
Eggs	50	50	50	50
Date	9/8	9/1	9/8	8/31
Mature Larvae	X	X	X	X
Date	9/9	9/2	9/9	9/1
Puparia	X	X	X	X
Total puparia	16	12	22	13
1st Adult	9/23	9/23	9/26	9/23
DURATION				
Larval Period	24	14	21	14
Pupal Period	15	21	16	22
Cycle (plus 2 days egg)	41	37	39	38
Total adults	16	11	22	13
% Emergence	100	91	100	100

Note: Puparia were held in the insectary. Pupal period in weather shelter is about 27 days.

Experiments 887-1077 this quarter.
Experiments 1155-1159 incomplete and will be reported next quarter.

The larval duration in experiments carried on between June and August, 1950, indicate that the duration is fairly constant at 10 days for Hilo, between 10-17 days at Kaumana and between 14-28 days at Pohakuloa.

In mass culture experiments at Hilo some larvae are ready for pupation on the 9th day after hatching.

Results of larval studies are as follows:

Station	Date 1st inster trans.	No. of Larvae	Date pupated	Larval Period	Mean max.	Mean Min.	Exp. No.
Hilo	6/16	10	6/27	11 days	79	66	887
Pohakuloa	6/16	10	7/10-7/14	24-28 days	72	38	889
Hilo	8/4	10	Negative		79	69	1001
Kaumana	8/4	7	8/18-8/21	14-17 days	75	61	1003
Pohakuloa	8/4	8	8/18-8/21	14-17 days	73	43	1005
Hilo	8/11	10	8/21	10 days	82	68	1021
Kaumana	8/11	10	8/28	17 days	76	61	1023
Pohakuloa	8/11	10	8/21-8/28	17 days	72	43	1025
Hilo	8/18	20	8/28	10 days	82	66	1073
Kaumana	8/18	20	8/28	10 days	76	59	1075
Pohakuloa	8/18	20	8/28-9/4	17 days	72	40	1077

Pupal Studies

Summary and Evaluation of Pupal Studies, Maui. In the last ten months we have placed 4,493 puparia at the different climate stations and observed the duration of the pupal period, the percent of emergence, the relative resistance of different ages of puparia and made certain comparative studies between 3 species of fruit flies and 2 species of parasites. The data compiled during this period is tabulated in Table 11. At the higher stations (Haleakala 7030', 9200') the fly can complete its development only during the summer months. C. capitata has a lower threshold of development than dorsalis in the pupal period and emergence was recorded for capitata several months before any adults of dorsalis emerged.

It also appears that the Haleakala Stations are suitable for development of the fruit flies during the summer months, but that the 2 parasites were unable to develop under these climatic conditions. The flies being more tolerant of lower temperatures could conceivably establish themselves in areas where the parasites would be completely killed off during certain times of the year.

Most of the studies were carried on with puparia held in small jars inside the weather shelter. The temperature data for the stations is, therefore, the actual temperatures under which the puparia were held. This would not have been the case if the puparia were held in the ground for ground temperatures and weather shelter air temperatures are not necessarily comparable. A recent experiment (Exp. 570) showed that puparia placed in the ground at Kula had a period of 21 days while similar puparia held in the weather shelter had no emergence for 29 days. As a general rule the minimum temperature in the ground and the weather shelter are very close, however, the maximum may be 50° F. higher in the upper two inches of soil than that recorded in the weather shelter.

Ordinarily pupation would take place in the shade of the host and if the soil was not subjected to the direct rays of the sun the differences might not be more than 5 or 10 degrees from that recorded in the weather shelter.

It should also be pointed out that in a number of instances pupation has been observed to take place within the fruit either on the tree or on the ground. This has been observed in false Kamani, loquat and sandalwood. In one collection of sandalwood of 350 puparia recovered, 50 were inside the small berries.

The emergence of adults during the different months has been diagramatically presented (Table 10) so that the two species of fruit flies (D. dorsalis, C. capitata) and the two species of parasites (Opius longicaudatus, O. persulcatus) can be compared. The significance of capitata emerging at Haleakala (7030', 9200') and Waikamoi (4250') in May while the complete emergence of dorsalis at these three stations was not recorded until July should not be overlooked.

Percent of emergence is reduced when the pupal period is extended, however, it may be noted that capitata emerged after 57 days at Haleakala (9200') and dorsalis emerged after 53 days at Haleakala (7030') and 59 days at Haleakala (9200'). The longest pupal period we have on record is of Opius longicaudatus which emerged after 94 days at Waikamoi.

FIG. No. 7. The Relationship Between Temperature and Adult Emergence on Maui.

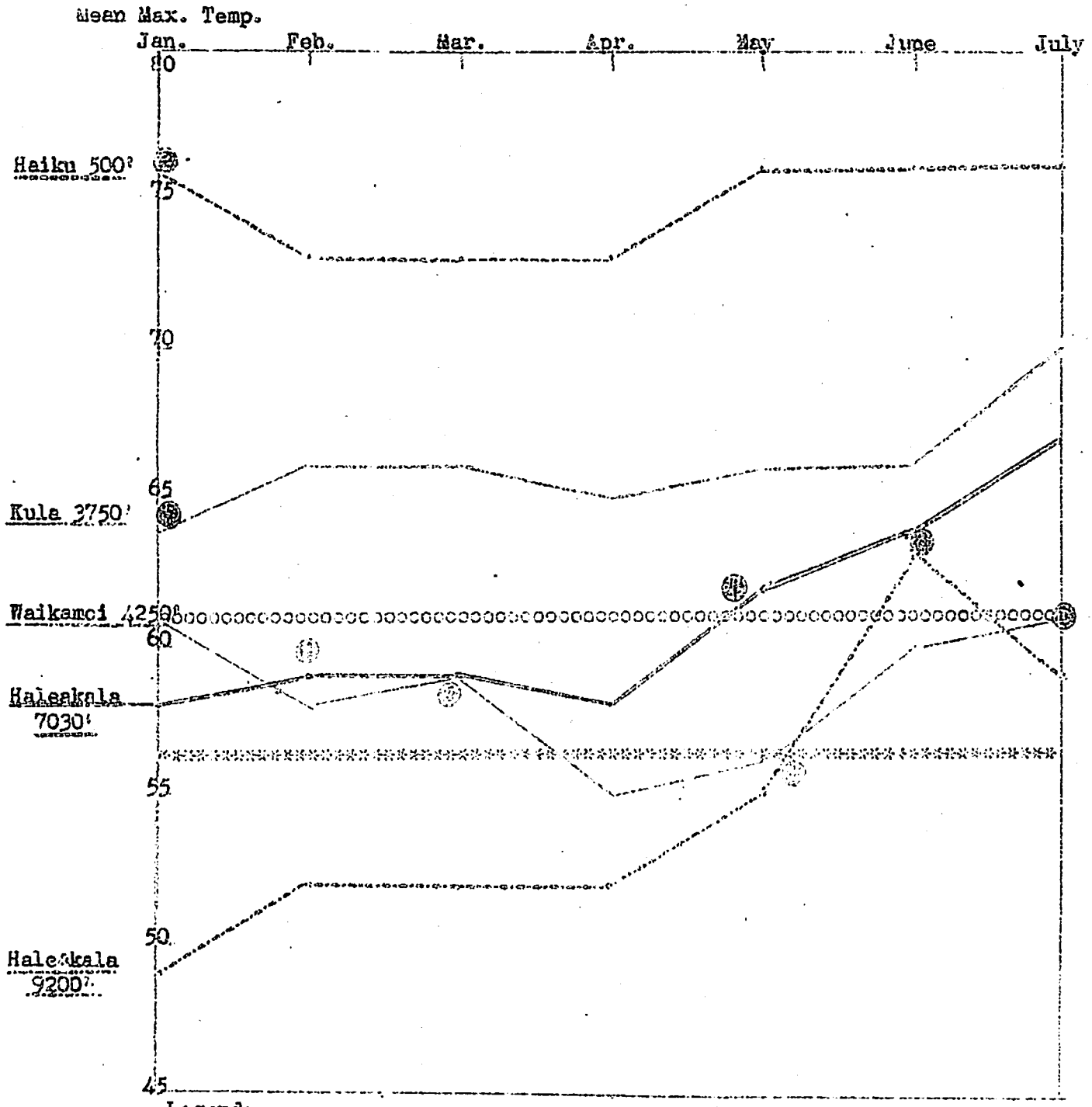
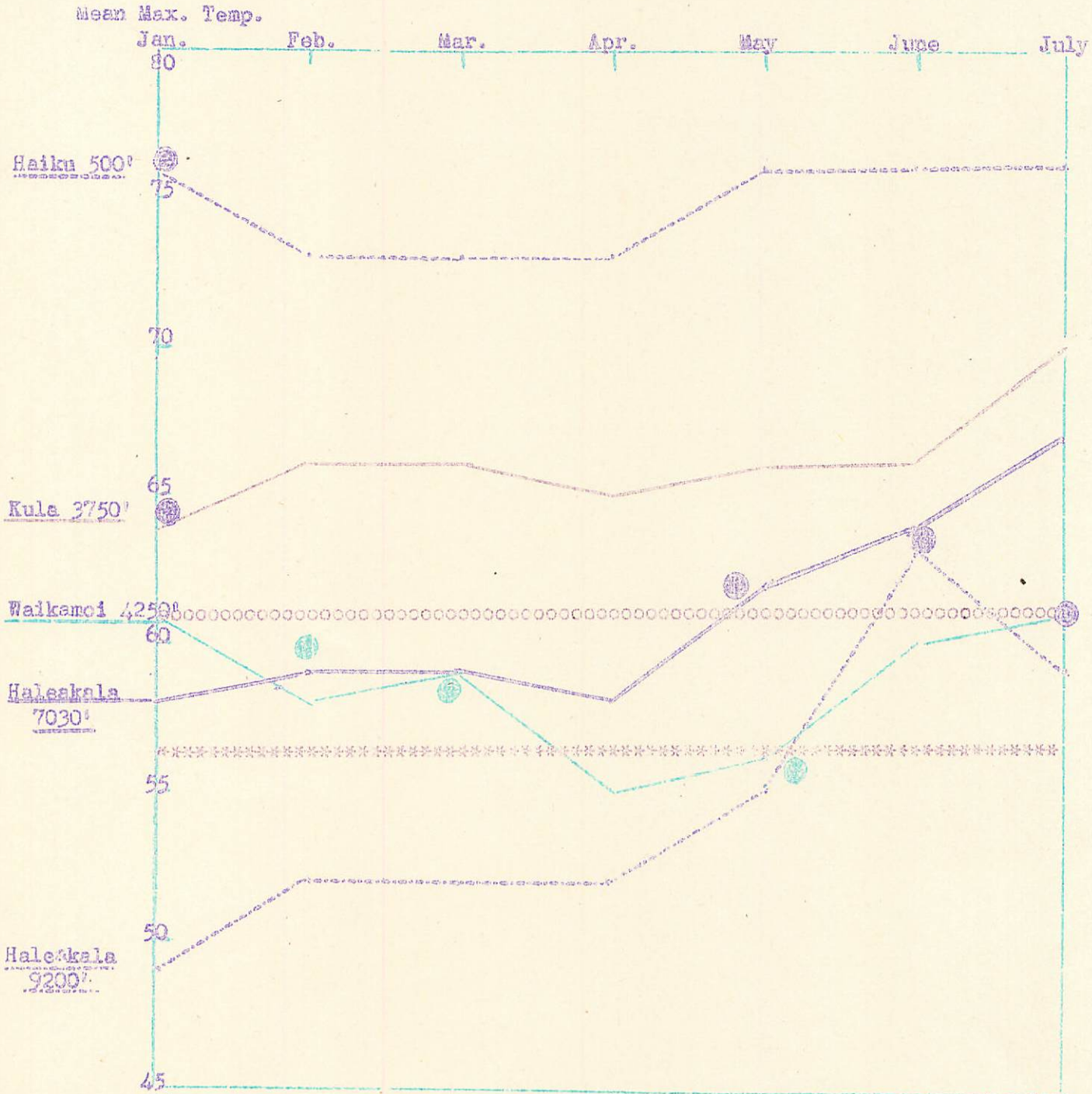


FIG. No. 7. The Relationship Between Temperature and Adult Emergence on Maui.



Legend:

: First Dacus dorsalis adults recovered from puparia
: First Ceratitis capitata adults recovered from puparia

See Table for emergence data

**** : Threshold of adult emergence for C. capitata
oooo : Threshold of adult emergence for D. dorsalis.

TABLE 10.

Maui Summation - Comparative Adult Emergence from Puparia.

Legend: X - Emergence
O - No emergence

Dacus dorsalis

Months	J	F	M	A	M	J	J	A	S	O	N	D
Station												
Kula		X	X	X	X	X	X	X	X			X
Haiku		X	X	X	X	X	X	X	X			X
Haleakala 7030'		O	O		X	X	X	X	X			O
Haleakala 9200'		O	O		O	X	X	X	X			O
Waikamoi		O	O		O	O	X	X	X			O

Ceratitis capitata

Kula		X	X	X	X	X	X	X	X			
Haiku		X	X	X	X	X	X	X	X			
Haleakala 7030'		X	X		X	X	X	X				
Haleakala 9200'		O	O		X	X	X	X				
Waikamoi		O	O		X	X	X	X				

Opius longicaudatus

Kula		X	X	X	X	X	X	X	X			X
Haiku		X	X	X	X	X	X	X				X
Haleakala 7030'		O	O		O	O	O	O				O
Haleakala 9200'		O	O		O	O	O	O				O
Waikamoi		O	O		O	X	X					O

Opius persulcatus

Kula		O	O		X	X	X					X
Haiku		O	O		X	X	X					O
Haleakala 7030'		O	O		O	X	X					O
Haleakala 9200'		O	O		O	O	O					O
Waikamoi		O	O		O	X	X					O

TABLE 11

SUMMATION OF PUPAL STUDIES
(For 10 months)
Maui, T. H.

Legend:

Exp. - Experiment No.
Pupae- No. of puparia
Age - Age of puparia
Day - Duration of pupal perecd based on 1st adult
Emer.- % of emergence of all adults
Adults-D - Dacus dorsalis
M - Ceratitis capitata
L - Opius longicaudatus
P - Opius persulcatus

Station	Month	Exp.	Pupae	Age	Days	Emer.	Adults D	M	L	P
Haiku	Dec.	64	100	1	17	24%	24		1	2
Kula	Dec.	66	100	1	28	4%	1		1	2
Haleakala 7030'	Dec.	62	100	1		0%				
Waikamoi	Dec.	68	39	1		0%				
Haiku	Dec.	72	10	1	16	33%	3			
Kula	Dec.	74	10	1	40	50%	4			1
Haleakala 7030'	Dec.	70	10	1		0%				
Haiku	Feb.	102	36	2	17	11%	4			
Kula	Feb.	104	34	0	42	12%	4			
Haleakala 7030'	Feb.	106	60	3		0%				
Haleakala 9200'	Feb.	108	44	0		0%				
Waikamoi	Feb.	110	40	0		0%				
Haiku	Mar.	146	50	0	18	3%	6			
Kula	Mar.	152	31	0	49	16%			5	
Haleakala 9200'	Mar.	148	54	0		0%				
Haleakala 7030'	Mar.	150	30	0		0%				
Waikamoi	Mar.	144	42	0		0%				
Haiku	Mar.	188	49	0	19	50%	4	9	12	0
Kula	Mar.	186	39	0	37	31%	3	3	6	0
Haleakala 9200'	Mar.	200	35	0		0%				
Haleakala 7030'	Mar.	202	35	0		0%				
Waikamoi	Mar.	204	35	0		0%				
Haleakala 9200'	Mar.	208	100	3		0%				
Haleakala 9200'	Mar.	208	50	4		0%				
Haleakala 9200'	Mar.	208	50	11		0%				

TABLE 11 (cont'd)

Station	Month	Exp.	Pupae	Age	Days	Emer.	Adults D	M	L	P
Kula	Mar.	216	100	1-6	32	5%	2	2	1	
Haleakala 7030'	Mar.	220	100	"	53	4%		4		
Haleakala 9200'	Mar.	218	100	"		0%				
Haiku	Mar.	222	100	"	30	2%			2	
Waikamoi	Mar.	224	100	"		0%				
Control 80o	Mar.	226	100	"	17	32%	17	4	11	
Control 70°	Mar.	228	100	"	28	24%	7	3	13	1
Kula Control 75°	Mar.	214	80	0	23	67%	54			
Haiku	Mar.	236	50	5	21	6%	3			
Kula	Mar.	234	50	5	31	4%	2			
Haleakala 9200'	Mar.	240	50	5		0%				
Haleakala 7030'	Mar.	238	50	5		0%				
Waikamoi	Mar.	242	50	5		0%				
Haiku	May	300	25	1	16	40%	4	1	5	0
Kula	May	292	25	1	35	40%	2		8	
Haleakala 9200'	May	296	25	1		0%				
Haleakala 7030'	May	294	25	1		0%				
Waikamoi	May	298	25	1	57	4%	1			
Kula	May	318	70	2	29	54%	38	1		
Haleakala 9200'	May	340	50	1-4		0%				
Kula	May	356	104	3	28	57%	18	39	2	1
Haleakala 7030'	May	358	84	3	53	2%	2			
Haleakala 9200'	May	360	93	3	53	7%		7		
Haiku	May	362	45	3	20	86%	31	8		
Waikamoi	May	364	70	3	46	68%		48		
Kula shelter	June	366	25 M.L. dry sand	0	34	24%	2		3	1
Kula "	June	moist	" " "	0	33	56%	3		10	1
Kula 75°	June	dry	" " "	0	17	36%	2		5	2
Kula 75°	June	moist	" " "	0	13	80%	7		11	2
Kula 75°	June	368	50		17	60%	30			
Kula shelter	June	368	50		32	68%	34			
Kula	June	370	20	0	31	85%	17			
Haiku	June	372	20	0	19	25%	5			
Haleakala 7030'	June	374	20	0	47	55%	11			

TABLE 11 cont'd

Station	Month	Exp.	Pupae	Age	Days	Emer.	Adults D	M	L	P
Kula	June	384	25	0	33	24%	1	1	1	3
Haiku	June	386	25	0	19	72%	9		2	7
Haleakala 9200'	June	388	25	0		0%				
Kula	June	408	41	0	21	53%	20			2
Haleakala 7030'	June	410	41	0		0%				
Haleakala 9200'	June	412	41	0		0%				
Waikamoi	June	414	41	0		0%				
Haiku	June	416	41	0	14	56%	21			2
Kula	June	422	45	3	28	73%	14	17	2	
Haiku	June	424	47	3	17	78%	8	25	7	
Haleakala 9200'	June	430	56	3	59	41%	5	18		
Haleakala 7030'	June	426	72	3	45	30%	12	18		2
Waikamoi	June	428	48	3	45	39%		15	2	2
Haiku	July	448	50	3	17	68%	4		29	1
Haleakala 7030'	July	450	40	3	31	5%	1			1
Haleakala 9200'	July	452	40	3		0%				
Waikamoi	July	454	40	3	38	55%	19		2	1
Kula	July	456	26	3	27	61%	12		4	
Haiku	Aug.	502	35	2	18	31%		10	1	
Kula	Aug.	504	50	3	24	62%		31	2	
Haleakala 7030'	Aug.	506	50	2	46	66%	1	32		
Haleakala 9200'	Aug.	508	50	2	57	14%		7		
Waikamoi	Aug.	510	50	2	32	62%		31		
Haiku	Aug.	512	50	0	10	70%		35	melon	
Haleakala 7030'	Aug.	516	50	0	40	32%		16	"	
Haleakala 9200'	Aug.	518	50	0						
Waikamoi	Aug.	520	50	0	28	94%		47	melon	
Waikamoi	Sept.	542	50	0	36	4%	2			
Kula	Sept.	544	50	0	28				5	
Kula	Sept.	570 ground	50	0	21	86%	43			
Kula	Sept.	570 weather shelter	50	0	29	84%	42			

TABLE NO. 12

Station	Kula	Haleakala	Haleakala	Haiku	Waikamoi
Elevation	3750'	7030'	9200'	500'	4250'
Experiment	356	358	360	362	364
Abs. Max.	70° F.	72° F.	76° F.	80° F.	66° F.
Max. Mean	66° F.	63° F.	59° F.	76° F.	59° F.
Min. Mean	52° F.	43° F.	42° F.	65° F.	51° F.
Abs. Min.	47° F.	34° F.	37° F.	62° F.	46° F.
Puparia	104	84	93	45	70
Pupated	5/26	5/26	5/26	5/26	5/26
Age	3 days	3 days	3 days	3 days	3 days
D.dorsalis					
1st adult	6/23	7/17	none	6/14	none
Last adult	6/28	7/17		6/14	
Emergence Span	5 days				
Duration	28-33 days	49 days	-	19 days	-
C. capitata					
1st adult	6/22	none	7/17	6/14	7/10
Last adult	6/25			-	-
Emergence Span	3 days				
Duration	27-30 days		49 days	19 days	42 days
Parasite					
1st adult	7/1 O.p. 7/4 O.l.	none	none	none	none
Last adult	-				
Emergence Span	-				
Duration	39 O.l. 36 O.p.				
% Emergence	57%	1%	7%	88%	68%
% Parasitism	O.l. O.p. 3% 3%				

Note: At Haleakala 9200' 21 Ceratitis capitata were observed to have partially left their pupal case. 7 adults completely emerged but no dorsalis adults were recovered.

TABLE NO. 13

Station	Kula	Kailua	Haleakala	Haleakala	Waikamoi
Elevation	3750'	500'	9200'	7030'	4250'
Experiment	422	424	430	426	428
Abs. Max.	74° F.	80° F.	76° F.	78° F.	66° F.
Max. Mean	68° F.	76° F.	60° F.	65° F.	61° F.
Min. Mean	53° F.	65° F.	44° F.	45° F.	53° F.
Abs. Min.	48° F.	62° F.	38° F.	38° F.	49° F.
Puparia	45	47	56	72	48
Pupated	6/9	6/9	6/9	6/9	6/9
Age	3 days	3 days	3 days	3 days	3 days
D.dorsalis					
1st adult	7/6	6/26	8/7	7/24	none
Last adult	7/17	-	8/21	-	-
Emergence span	11 days	-	14 days	-	-
Duration	27 days	15 days	73 days	45 days	-
C. capitata					
1st adult	7/4	6/26	7/31	7/17	-
Last adult	7/6	-	8/7	7/24	-
Emergence span	2 days	-	7 days	7 days	-
Duration	25 days	15 days	52-59 days	38-45 days	45 days
Parasites					
1st adult	O.l. 7/17	O.l. 6/26	none	O.p. 8/7	O.l. 8/7 O.p. 8/7
Last adult	-	6/29		-	-
Emergence span	-	3 days		-	-
Duration	38 days	15-20 days		59 days	59 days
% Emergence	73%	85%	41%	44%	39%
% Parasitism	6% O.l.	17% O.l.	0%	6% O.p.	10% O.l. 10% O.p.

TABLE NO. 14

Station	Haiku	Haleakala	Haleakala	Waikamoi	Kula
Elevation	500'	7030'	9200'	4250'	3750'
Experiment No.	448	450	452	454	456
Abs.Max.	80° F.	74° F.	66° F.	74° F.	74° F.
Max. Mean	77° F.	67° F.	58° F.	63° F.	70° F.
Min. Mean	67° F.	47° F.	43° F.	55° F.	52 F.
Abs. Min.	64° F.	38° F.	36° F.	48° F.	48° F.
Puparia	50	40	40	40	26
Pupated	6/23	6/23	6/23	6/23	6/23
Age	3 days	3 days	3 days	3 days	3 days
D. dorsalis					
1st adult	7/10	7/24	Neg.to date	7/31	7/20
Last adult	-	-		8/7	7/24
Emergence span	-	-		7 days	4 days
Duration	17 days	31 days		36-45 days	27-31 days
C. capitata					
1st adult	none	none		none	none
last adult					
Emergence span					
Duration					
Parasites	O.p. O.l.	O.p.		O.p.	O.l.
1st adult	7/10	7/24		8/15	7/24
Last adult	7/17	-		9/25	7/25
Emergence span	7 days			41 days	1 day
Duration	17-24 days	31 days		94 days	32 days
% Emergence	68%	5%		55%	61%
% Parasitism	91%	50%		13%	26%

Note: Exp. 448 had 29 O. longicaudatus, 1 O. persulcatus and 4 D.dorsalis emerge.

Exp. 454 had 1 O. persulcatus emerge on 8/15 and 2 O. longicaudatus emerge on 8/21 and 8/25. The duration of the pupal period of O. persulcatus was 53 days while O. longicaudatus was 94 days.

TABLE NO. 15

Hawaii Summation - Comparative Adult Emergence from Puparia.

Legend:

X - Emergence
O - No emergence

Dacus dorsalis

Months	J	F	M	A	M	J	J	A	S	O	N	D
Stations												
Hilo	X	X	X	X	X	X	X	X	X			
Keumana	X	X	X	X	X	X	X	X	X			
Pohakuloa	O	O	X	X	O	X	X	X	X			
Keanakolu	O	O	X				X	X				
Waikii		X	O	X	X	X	X	X	X			

Idaa Project I-c-1-3. Miscellaneous Biological Studies

Experiment 931 - Sleeve cage studies with the Oriental and Mediterranean fruit fly at Pohakuloa (Davis)

To determine the response of gravid dorsalis and Mediterranean fruit flies to green and ripe Methley plums enclosed in sleeve cages and to determine the effect of competition between Oriental and Mediterranean fruit flies, 3 sleeve cages were prepared around fruiting branches of Methley plums at Pohakuloa. Three lots of flies, approximately a month old, were released in the cages as follows:

Cage A, 50 pairs Dacus dorsalis, 7-4-50

Approximate number and condition of fruit on branches 87, green, half-ripe and ripe.

Cage B, 50 pairs Dacus dorsalis, 7-4-50
50 pairs Ceratitis capitata, 7-4-50

Approximate number and condition of fruit on branches 130, green, half-ripe and ripe.

Cage C, 50 pairs Ceratitis capitata, 7-21-50

Approximate number and condition of fruit on branches 50, green, half-ripe and ripe.

On the first check of cages A and B on July 5th no punctures were observed on the plums in cage A but in cage B, which contained the mixed populations, punctures on the green plums were very obvious. Some plums had 3 to 4 punctures which had healed rapidly and developed into "scars." When one of these "scars" was examined, 4 eggs were found. From 6 green fruit collected and held at Hilo, 6 Mediterranean fruit flies emerged. It is not unusual for the Med. fly to attack green fruit. At Waikii in May, 1950, numerous oviposition scars were found on green to half-ripe fruit. Apples and peaches are frequently attacked in the green stage. Dorsalis, however, prefers to attack ripe fruit and this appeared to be true in cage A. To separate emergences in the cages from the original flies, pupae and fallen fruit were held in sand in adjacent cages. The total pupae and emergences from the cages are shown as follows:

	Cage A	Cage B	Cage C
Number of pupae	18	416	70
Number dorsalis emerged	14	6	
Number Ceratitis capitata emerged		307	56

Abs. Max.	80° F.
Abs. Min.	31° F.
Mean Max.	73° F.
Mean Min.	41° F.

Pupal recoveries and adult emergences indicate that C. capitata is more aggressive on plums under temperate conditions than the Oriental fruit fly. When its mating habits, life cycle and tolerance to low temperatures are taken into consideration, it appears to have a distinct advantage over D. dorsalis.

Summary and Evaluation of Adult Fruit Fly and Parasite Emergence, Maui
(Baehler)

In Fig. 8 and Table 16 are shown the adult emergence on Maui for the last ten months. The above tabulations are based on 144,707 adults which have emerged from puparia collected from all types of fruit. We have attempted to collect samples as representative as possible of all fruit but certain fruit have contributed more to these figures than others. The reasons for this are two-fold: first certain "commercial" fruits are much more abundant than others, and second, infestation varies greatly in all fruit.

While we collected many different types of fruit during February, March, and April, the bulk of our collection at this time were loquat, for they were abundant and in season. The influence of these collections is manifested in the sharp rise in the percentage of Dacus dorsalis and the relative low percentage of Ceratitis capitata. It may also be observed that the parasite levels followed the dorsalis curve as it ascended.

During May, June, and July peaches were in season and the bulk of the collections were of this fruit. A complete reversal of trend is obvious as the dorsalis and parasite curves descend and the capitata curve rises. This is fairly good evidence that most of the parasites may be attributed to dorsalis although capitata was parasitized, but to a lesser degree.

By the end of August the peaches were about gone and again we have a reversal of trends as collections of guava, mango and other lowland fruit contributed mostly to the adult emergence.

During the first 4 months (October, November, December and January) of our collection O. persulcatus was seldom recovered. The last 4 months (June, July, August and September) it is evident that O. persulcatus has increased considerably and in the last month has even exceeded O. longicaudatus.

TABLE NO. 16

Summation of Fruit Fly and Parasite Emergence, Maui, T.H.

October - September 1950

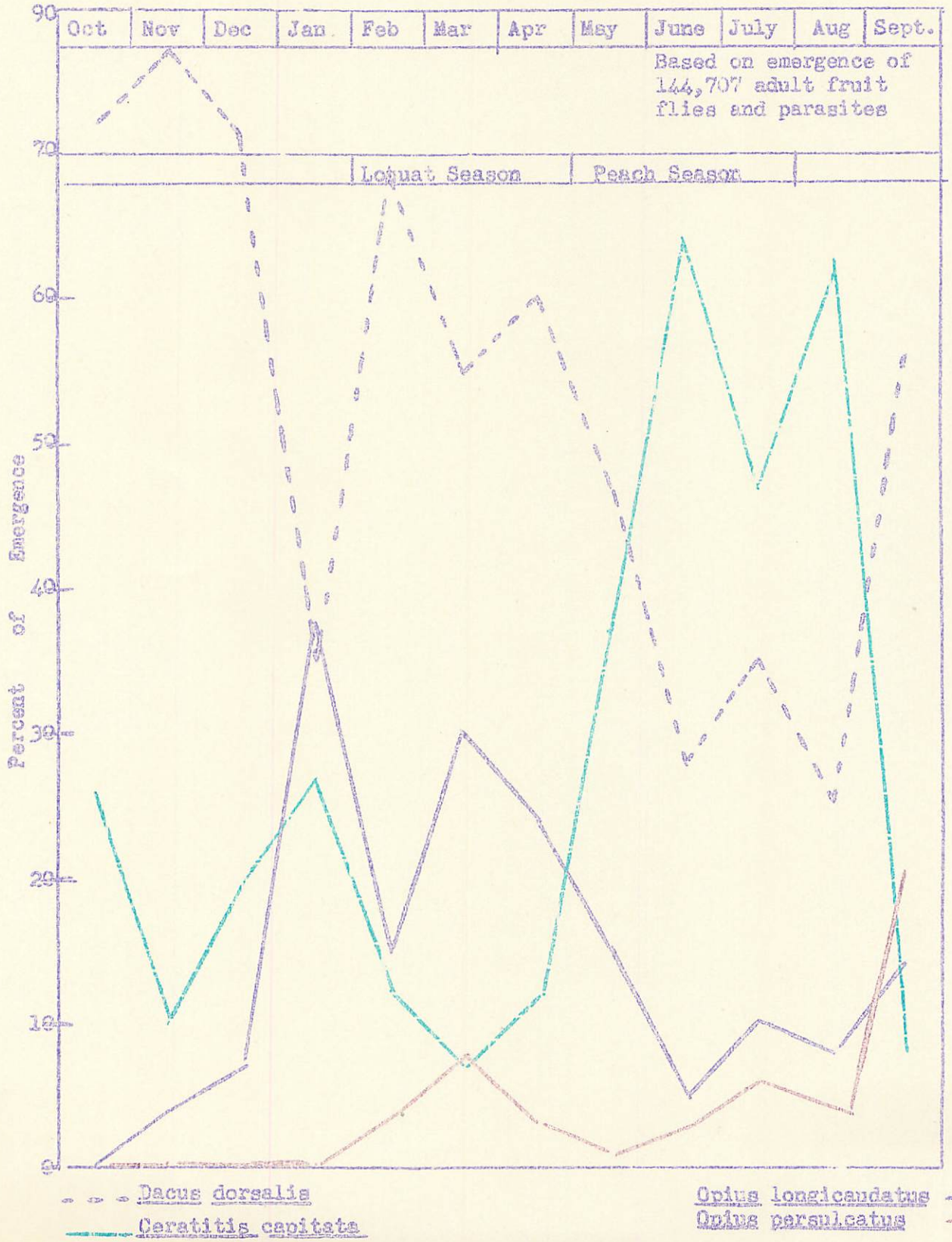
Legend:

Dor: Dacus dorsalis
Med: Ceratitis capitata
Lon: C. longicaudatus
Per: O. persulcatus

Month	Dor.	Med.	Lon.	Per.	Total	D %	M %	L %	P %
Oct.	207	71	0	0	278	74	26	0	0
Nov.	635	80	23	0	738	86	10	4	0
Dec.	1,140	308	104	0	1,552	73	20	7	0
Jan.	109	87	117	0	313	35	27	38	0
Feb.	770	132	162	45	1,109	69	12	15	4
Mar.	2,166	281	1,160	302	3,909	55	7	30	8
Apr.	8,454	1,757	3,408	428	14,048	60	12	24	3
May	10,526	8,433	3,352	230	22,541	47	37	15	1
June	11,426	26,319	2,144	1,025	40,914	28	64	5	3
July	8,663	11,708	2,470	1,874	24,715	35	47	10	7
Aug.	4,708	11,522	1,580	818	18,628	25	62	8	4
Sept.	8,880	1,468	2,263	3,351	15,962	56	9	14	21
TOTAL	57,684	62,166	16,783	8,074	144,707	40	43	11	5
						Average percentage			

FIGURE 8

Summation of Fruit Fly and Parasite Emergence, Maui, T. H.
October 1949 - September 1950



Line Project I-o-1-4. Hosts of Dacus dorsalis.

Evaluation of Host Relations of Dacus dorsalis.

We have collected over 150,000 fruit on Maui and Hawaii. Sample variation has been inundated in this mass of material and a picture of the host relationships of dorsalis is beginning to emerge. The indices of infestation, expressed as an index figure, based on number of puparia per 1000 grams of fruit, has proven to be usable in comparing one host with another.

In the early stages of these surveys it became apparent that conclusions based on inadequate sampling would lead to some erroneous generalities. Samples that are too small, too few, too localized will not tell the story. Samples vary greatly and any procedure which places limitations on the number of samples possible to process is of dubious value. Generalities regarding the altitudinal limitations of a species of fruit fly based on one host are apt to be misleading.

While there is considerable variation in one lot compared to another there appears to be a normal range of infestation for different hosts which is the result of a number of different factors. Listed below are some of the factors responsible for varying degrees of infestation:

1. Host preference of the fruit flies.
2. Elevation at which the hosts occur.
3. The abundance of the host.
4. The ovipositional choice at the time of fruiting.
5. The site of the host. (Isolated or contiguous with other host areas.)
6. The season of fruiting.
7. Mechanical resistance to oviposition and deterrent effect of rind on the entrance of the young larvae.
8. Texture and nutrient make-up of the host.
9. The tendency on the part of the host to crack or bruise which would facilitate oviposition.
10. Meteorological factors such as strong, constant winds, heavy rains, fog, etc.
11. The size of the fruit and the amount of the pulp compared to rind and seed.
12. Population level of the flies at the time the fruit is mature.

These are the more obvious factors which effect the degree in which hosts are infested. Some are pertinent to one host, while others effect another. Here are a few examples of these factors and their effect:

Peach; have a very high index because Ceratitis capitata strongly prefers them. They fruit in an area and at a time where there is very little ovipositional distraction and the fruit, while numerous on the tree, is concentrated and not spread over wide areas like guava. This results in a concentration of oviposition.

Loquat; in the Kula District fruit early in the year when there is very little ovipositional distraction and, while thepopulation of Dacus dorsalis is low, their attack is concentrated. The thin skin offers no mechanical resistance and the fact that there are many fruit on the tree results in a dispersal of eggs and less larval mortality.

Citrus; have a low infestation index because of the rag of the fruit which deters the entrance of the young larvae into the pulp. Fruit on the ground and cracked fruit are frequently infested.

Avocado; have low indices because of the mechanical resistance of the corky rind to oviposition. When the fruits are cracked they are frequently heavily infested.

Plum; have low indices because of the elevation at which they grow precluding dorsalis attack to a large extent and for the reason that capitata does not prefer them as a host.

It is evident then that the indices of infestation is not based on host preference solely but on many other factors acting and interacting.

	MAUI	HAWAII
SECTION I. Hosts of Dacus dorsalis found infested.		
Lots	1,663	1,388
Gram weight	2,118,553	1,189,857
Pounds	4,728	2,655
Number of Fruit	71,294	46,611
Number of Puparia	302,146	64,888
SECTION II. Hosts of Dacus dorsalis found uninfested.		
Lots	57	17
Gram weight	35,147	9,379
Pounds	78	21
Number of Fruit	12,503	300
SECTION III. Fruit not listed as hosts found to be uninfested.		
Lots	23	72
Gram Weight	12,240	16,845
Pounds	27	37
Number of Fruit	1,456	7,939
TOTALS		
Lots	1,743	1,477
Gram weight	2,165,940	1,216,081
Pounds	4,834	2,714
Number of Fruit	85,253	54,850
Number of Puparia	302,146	64,888

COMBINED TOTALS

Lots	3,220
Gram weight	3,382,021
Pounds	7,549
Number of Fruit	140,103
Number of puparia	367,034

Note: Maui Collections (September 1949-September 1950)
Hawaii " (July 1949 - September 1950)

SUMMATION OF INFESTATION OF COMMERCIAL FRUIT ON MAUI

Fruit	Lots	Season	Weight	Number	Pupae	Dor	Med	Lon	Per	Index
PEACH	352	5,6,7	665 lbs.	6,932	99,090	14%	77%	.6%	2%	332
LOQUAT	326	2,3,4	950	34,894	112,633	56%	18%	22%	2%	264
BANANA	24	1-12	74	399	7,288	85%	2%	12%	0%	217
MANGO	55	4-9	202	566	8,266	91%	1%	6%	2%	91
TANGERINE	21	11,12	33	409	694	61%	15%	19%	5%	45
FIG	67	10,11	119	1,813	2,661	46%	52%	0%	1%	49
PAPAYA	26	1-12	58	99	905	98%	0%	2%	.5%	34
AVOCADO	63	10-3	257	391	2,570	95%	.5%	4%	.5%	22
APPLE	37	10-1	77	528	362	1%	99%	0%	0%	15
ORANGE	82	11-12	175	730	562	56%	34%	10%	0%	7
GRAPEFRUIT	34	11-2	84	198	91	69%	2%	23%	0%	2
LEMON	68		108	554	127	52%	48%	0%	0%	2
PLUM	108	7,8,9	125	2,870	130	4%	75%	3%	18%	1.8
LIME	28		40	400	13	66%	33%	0%	0%	.7
GUAVA	182		1133	9,053	41,005	68%	1%	8%	23%	80

SECTION I. HOSTS OF DACUS DORSALIS IN ORDER OF INFESTATION.

TABLE NO. 17

Summation of Maui Fruit Collections
September 1949 - September 1950
Legend:

Lots	:	Lots of fruit collected	Dor	:	Dacus dorsalis
Months	:	Months of collections	Med	:	Ceratitis capitata
Weight	:	Grams and Pounds	Lon	:	Opius longicaudatus
Count	:	Total Fruit	Per	:	Opius persulcatus
Pupae	:	Total Pupae	Index	:	Pupae per 1000 grams of fruit

	Fruit	Lots	Months	Weight	Count	Pupae	Percent of Adults Dor	Med	Lon	Per	Index
1.	SANDALWOOD	8	2,6,7,8	1,259gr. 3 lbs.	1,493	1,051	54%	0%	41%	5%	834
2.	ROSE APPLE	11	4,5,8	6,155 14 lbs.	244	3,026	54%	7%	36%	3%	491
3.	FALSE KAMANI	48	6-12	44,820 100 lbs.	2,371	15,214	72%	2%	19%	7%	339
4.	LOQUAT	288	2,3,4	425,986 950 lbs.	33,894	112,633	56%	18%	22%	2%	264
5.	STRAWBERRY GUAVA	11	5,6,7 8	4,648 10 lbs.	561	1,101	54%	1%	33%	11%	236
6.	BALL KAMANI	12	5,10	31,788 70 lbs.	2,598	230	100%	0%	0%	0%	222
7.	BANANA	24	1-12	33,494 74 lbs.	399	7,288	85%	2%	12%	0%	217
8.	MABOLO	4	8	4,733 11 lbs.	36	1,032	87%	0%	13%	.4%	216
9.	CHERIMOYA	8	1,2,4, 11,12	8,672 19 lbs.	42	1,256	97%	0%	2%	1%	144
10.	JERUSALEM CHERRY	3	2,4,5	149	92	16	81%	0%	0%	19%	107
11.	CHEBULA	4	11,12, 1	3,100 7 lbs.	442	293	72%	0%	17%	10%	94
12.	CASHEW	2	6,8	1,558 3 lbs.	14	135	92%	0%	0%	8%	94
13.	COFFEE ARABIAN	7	2,6,8	1,451 3 lbs.	917	134	5%	3%	39%	53%	92

SECTION I TABLE NO. 17 cont'd

Fruit	Lots	Months	Weight	Count	Pupae	Dor.	Med	Lon	Per	Index
14. MANGO	55	4-10	90,731 202 lbs.	566	8,266	91%	1%	6%	2%	91
15. FERN TREE	2	5	531	475	44	20%	0%	3%	77%	82
16. SURINAM CHERRY	5	6,9,11	2,105	765	263	71%	0%	25%	4%	84
17. GUAVA	182		507,942 1133 lbs.	9,053	41,005	68%	1%	8%	23%	80
18. WHITE SAPOTE	4	5,7,8	1,604 3 lbs.	17	107	83%	0%	0%	17%	66
19. PEACH	352	5,6,7	298,318 665 lbs.	6,932	99,090	14%	77%	5%	2%	44
20. TANGERINE	21	11,12	15,133 33 lbs.	409	694	61%	15%	19%	5%	45
21. PAPAYA	26	1-12	26,057 58 lbs.	99	905	98%	0%	2%	.5%	34
22. FIG	31	9,10,11	19,216 43 lbs.	938	1,314	46%	53%	0%	1%	32
23. MOUNTAIN APPLE	32	6,7,8	47,392 105 lbs.	876	1,507	76%	0%	15%	9%	31
24. AVOCADO	63	11,12,1	115,468 257 lbs.	391	2,570	95%	.5%	4%	.5%	22
25. WI APPLE	12	4,5,6	13,612 30 lbs.	295	212	99%	0%	0%	1%	15
26. PERSIMMON ORIENTAL	9	10,11,12	6,582 15 lbs.	63	87	2%	85%	13%	0%	13
27. CANISTEL	2	5,6	1,985 4 lbs.	7	24	100%	0%	0%	0%	12
28. WIKSTROEMIA UVA-URSI	1	2	170	349	4	100%	0%	0%	0%	11
29. RUKAM	7	5,6,7,8	907	223	9	100%	0%	0%	0%	9
30. SWEET SOP	3	1,5,12	1,395 3 lbs.	5	13	100%	0%	0%	0%	9

SECTION I

TABLE NO. 17 cont'd

	Fruit	Lots	Months	Weight	Count	Pupae	Percentage of Adults Dor.	Med	Lon	Per	Index
31.	POHA	4	1,5,6	.504	145	5	100%	0%	0%	0%	9
32.	JAC FRUIT	4	2,11,5	12,716 28 lbs.	9	105	100%	0%	0%	0%	8
33.	ORANGE	82	11,12, 1	78,349 175 lbs.	730	562	56%	34%	10%	0%	7
34.	STAR FRUIT	17	11,12, 1,8	22,687 51 lbs.	387	130	80%	0%	16%	4%	5
35.	BREADFRUIT	9	1,2,6, 8,10,11	23,223 52 lbs.	35	125	93%	1%	6%	0%	5
36.	WALNUT	2	11,12	848	32	10	40%	60%	0%	0%	5
37.	CACTUS	21	6-10	51,179 114 lbs.	326	225	87%	13%	0%	0%	4
38.	LEMON	68		48,633 108 lbs.	554	127	52%	48%	0%	0%	2
39.	GRAPEFRUIT	34	10,11,12 2,3,4	37,915 84 lbs.	198	91	69%	2%	23%	0%	2
40.	TOMATO	3	11,12	3,495 8 lbs.	36	26	20%	80% Mel.	0%	0%	2
41.	FEIJOA	4	11	4,628 10 lbs.	350	719	1%	85%	14%	0%	1
42.	POMEGRANITE	5	7,11,12	7,467 16 lbs.	28	7					1
43.	LIME	28	11,12,1 2,3	18,148 40 lbs.	400	13	66%	33%	0%	0%	.7
44.	APPLE	37		34,731 77 lbs.	528	362	1%	99%	0%	0%	.4
45.	PLUM	108	7,8,9	56,036 125 lbs.	2970	116	0%	100%	0%	0%	.0

TOTALS:

Lots : 1663
Weight : 2,118,553 grams (4728 lbs.)
Number: 71,294
Puparia : 302,146

SECTION I. (cont'd) TABLE NO. 18

Summation of Hawaii Fruit Collections

July 1949 - September 1950

Legend:

Lots	:	Lots of fruit collected	Dor	:	Dacus dorsalis
Months	:	Months of collections	Med	:	Ceratitis capitata
Weight	:	Grams and Pounds	Lon	:	Opius longicaudatus
Count	:	Total Fruit	Per	:	Opius persulcatus
Pupae	:	Total Pupae	Index	:	Pupae per 1000 grams of fruit

Fruit	Lots	Months	Weight	Count	Pupae	Dor	Med	Lon	Per	Index
1. ROSE APPLE	43	4,5,6,7	32,496 71 lbs.	1,462	13,483	76%	.2%	6%	18%	413
2. LONGAN	8	3,4,7,9	5,246 12 lbs.	947	1,699	96%	1%	3%	0%	323
3. PASSIFLORA MOLLISSIMA	110	3-6,9 10	99,427 220 lbs.	1,756	362	100%	0%	0%	0%	227
4. BAKE KAMANI	2	9,12	1,144 2.5 lbs.	54	318	86%	.4%	14%	0%	236
5. SANDALWOOD	2	7,3	217	209	34	94%	6%	0%	0%	188
6. MOCK ORANGE	3	5,7	339	907	49	59%	11%	19%	11%	126
7. STRAWBERRY GUAVA	9	1,3,6,7,8	3,912 8 lbs.	406	489	83%	.3%	12%	5%	125
8. GUAVA, COMMON	108	2-10	120,128 268 lbs.	2,064	14,256	83%	1%	3%	12%	118
9. SURINAM CHERRY	10	4,5,7	1,508 3 lbs.	345	172	90%	0%	9%	1%	114
10. FALSE KAMANI	12	8	8,743 19 lbs.	363	1,006	90%	0%	9%	1%	101
11. LOQUAT	4	2,3	3,226 7 lbs.	195	323	63%	.4%	35%	0%	100
12. MANGO	22	4,5,6	23,954 53 lbs.	284	2,230	77%	1%	15%	6%	93
13. KUMQUAT	3	1,12	2,951 6 lbs.	87	269	68%	0%	32%	0%	91

SECTION I. TABLE NO. 18 cont'd

Fruit	Lots	Months	Weight	Count	Pupae	Dor	Med	Lon	Per	Index
14. FIG	12	7,8,9	5,806 12 lbs.	218	349	100%	0%	0%	0%	60
15. MOUNTAIN APPLE	14	6,7	14,945 33 lbs.	279	685	67%	0%	8%	24%	45
16. PEACH	78	4,5,6	84,081 187 lbs.	1,806	6,525	60%	19%	11%	8%	42
17. JERUSALEM CHERRY	197	1-12	15,719 35 lbs.	16,460	8,719	7%	90%	2%	1%	38
18. SAPOTE	2	3,4	1,346 3 lbs.	21	47	93%	0%	7%	0%	34
19. MANGOSTEEN	7	5,6,7	5,431 12 lbs.	42	172	100%	0%	0%	0%	31
20. LEMON GUAVA	9	8	4,240 9 lbs.	448	127	47%	0%	4%	49%	30
21. PERSIMMON NATIVE	5	2,3,8	325	240	9	100%	0%	0%	0%	27
22. CUSTARD APPLE	1	9	379	3	10	83%	17%	0%	0%	26
23. WIKSTROEMIA	13	1-4 8,9,11	2,075 4 lbs.	2,796	53	88%	12%	0%	0%	25
24. DATE	1	10	1,077	130	24	100%	0%	0%	0%	22
25. TANGERINE	95	1,2,12	67,702 151 lbs.	1,085	1,228	78%	2%	10%	0%	18
26. FAN PALM	1	5	117	93	2	100%	0%	0%	0%	17
27. ARABIAN COFFEE	4	7,9	1,232	1,046	76	28%	59%	2%	1%	15
28. TANGELO	10	12,3	9,437 21 lbs.	108	121	80%	0%	20%	0%	12
29. AVOCADO	17	3,4,6, 7-9	26,288 58 lbs.	102	297	95%	0%	2%	3%	11
30. WI APPLE	2	1,7	1,362 3 lbs.	39	11	100%	0%	0%	0%	8

SECTION I. TABLE NO. 18 cont'd

Fruit	Lots	Months	Weight	Count	Pupae	Dor	Med	Lon	Per	Index
31. PEPINO	1	7	636	18	5	100%	0%	0%	0%	8
32. GRAPEFRUIT	37	1-7,12	71,170 158 lbs.	268	624	87%	6%	6%	0%	7
33. OHELO	11	2-4, 9,12	688	1,118	5	100%	0%	0%	0%	7
34. POMEGRANITE	3	4,7	1,838	14	12	100%	0%	0%	0%	7
35. TI	4	5	117	93	2	100%	0%	0%	0%	4
36. ORIENTAL PERSIMMON	4	10,12	3,182 7 lbs.	33	12	100%	0%	0%	0%	3
37. ORANGE	156	12,1, 2,3,4	221,346 500 lbs.	1,500	662	90%	1%	8%	1%	3
38. APRICOT	27	6,7,8	20,624 50 lbs.	895	9,053	.4%	98%	1%	.3%	2
39. STAR APPLE	14	4,5,6	18,457 41 lbs.	148	33	70%	0%	20%	10%	2
40. APPLE	15	9,10	66,828 149 lbs.	912	4	66%	33%	0%	0%	2
41. PUMMELO	16	1,12	32,372 72 lbs.	63	52	100%	0%	0%	0%	2
42. STAR FRUIT	12	10	47,755 106 lbs.	654	143	56%	44%	0%	0%	1
43. LEMON	74	1-5,12	91,794 204 lbs.	501	117	99%	0%	1%	1%	1
44. PLUM	164	5,6,7	106,210 265 lbs.	5,890	1,004	6%	92%	.5%	1%	.4
45. LIME	44	1,2, 12	34,586 77 lbs.	455	15	100%	0%	0%	0%	.4

TOTALS:

Lots	:	1,386
Weight	:	1,189,857 grams
Weight	:	2,655 lbs.
Count	:	46,611
Pupae	:	64,888

SECTION II. FRUITS LISTED AS HOSTS OF DACUS DORSALIS WHICH HAVE BEEN COLLECTED AND SHOWN TO BE UNINFESTED ON MAUI.

TABLE NO. 19

Summation of Maui Fruit Collections

Fruit	Lots	Months	Elevation	Weight	Count
1. COFFEA LIBERICA (Liberian Coffee)	1	6	200'	141	20
2. CORDYLINE TERMINALIS	1	4	650'	170	-
3. DIOSPYROS FERREA (Lama)	1	11	1800'	255	22
4. EUGENIA CUMINI (Java Plum)	2	10,11	200'	834	205
5. FRAGARIA CHILOENSIS (Strawberry)	1	11	3650'	57	30
6. GARCINIA XANTHOCHYMUS (Gourka)	3	1,6	650'	446	5
7. GOSSYPIUM BARBADENSE (Cotton)	4	2,7,11	300' 2600'	906	51
8. MAMMEA AMERICANA (Mammee Apple)	4	5,6,7	300'	2,149	12
9. MELIA AZEDARACH (Pride of India)	12	9,11	450' 1700'	14,386	10,000
10. MORINDA CITRIFOLIA (Noni)	4	5,7	200'	3,498	21
11. MORUS NIGRA (Black Mulberry)	2	11,12	750'	170	103
12. PASSIFLORA EDULIS (Lilikoi)	5	1,2,9,12	2600'	5,870	89
13. PASSIFLORA SUBPELTATA (White Passionflower)	1	11	700'	260	23
14. PHOENIX DACTYLIFERA (Date)	2	3,12	750'	623	127

SECTION II. TABLE NO. 19 (cont'd)

Fruit	Lots	Months	Elevation	Weight	Count
15. MACADAMIA TERNIFOLIA (Macademia)	4	5,7,11	300' 2850'	1,718	88
16. SCAEVOLA FRUTESCENS (Half-flower)	6	4,6,7,11	100'	1,576	1,674
17. SOLANUM MOLONGENA (Egg Plant)	1	12	2650'	1,723	11
18. THEVETIA PERUVIANA (Be-still)	1	11	1800'	255	22
19. VACCINIUM RETICULATA (Ohelo Berry)	1	10	5000'	113	-

Note: Month: Indicates the months collected.

TOTALS:

Lots	57
Weight	35,147 (78 lbs)
Count	12,503

SECTION II. FRUITS LISTED AS HOSTS OF DACUS DORSALIS WHICH HAVE BEEN COLLECTED AND SHOWN TO BE UNINFESTED ON HAWAII.

TABLE NO. 20

Summation of Hawaii Fruit Collections

Fruit	Lots	Months	Elevation	Weight	Count
1. CITRULLUS VULGARIS (Water Melon)	1	7	100'	-	3
2. CYDONIA OBLONGA (Quince)	1	9	5400'	91	1
3. EUGENIA CUMINI (Java Plum)	1	9	50'	340	81
4. MORINDA CITRIFOLIA (Noni)	4	3,9	10-300'	4,910	45
5. PASSIFLORA EDULIS (Liliko'i)	5	6,8,10	0-3600'	777	20
6. PHYSALIS PERUVIANA (Poha)	1	3	4500'	32	15
7. SCAEVOLA FRUTESCENS (Half flower)	1	7	20'	91	110
8. OPUNTIA MEGACANTHA (Cactus)	3	7,12	1500'	3,133	25

Total:

Lots	17
Weight	9,379 (20 lbs.)
Count	300

SECTION III. FRUITS NOT LISTED AS HOSTS OF DACUS DORSALIS WHICH HAVE BEEN COLLECTED AND SHOWN TO BE UNINFESTED ON MAUI.

TABLE NO. 21.

Summation of Maui Fruit Collections

Fruit	Lots	Months	Elevation	Weight	Count
1. ACACIA FARNESIANA (Klu)	1	1	50'	141	-
2. ALEURITES MOLUCCANA (Candle Nut)	2	11	700'	3,059	55
3. BREXNIA NIVOSA ROSEO-PICTA (Snow bush)		11	750'	396	123
4. BENINCASA HISPIDA (Gourd)	1	1	50'	1,955	1
5. COPROSMA RHYNCHOCARPA (Pilo)	1	10	7030'	127	-
6. CUCUMIS SATIVUS (Cucumber)	2	1,5	1650'	2608	14
7. CYPHOMANDRA BETACEA (Tree Tomato)	2	11,12	2900'	1,56[illegible]	42
8. DURANTA REPENS (Golden Dew Drop)	1	6	500'	57	-
9. JATROPHA CURCAS (Psycho Nut)	1	11	50'	212	15
10. LIGUSTRUM SP. (Privet)	1	10	3650'	71	-
11. PITTOSPORUM SP. (Pittosporum)	1	11	2900'	71	81
12. PROSOPIS JULIFLORA (Kiawe)	1	1	50'	141	-
13. PRUNUS AMYGDALIS (Almond)	3	5,7,10	3650'	282	15
14. PYRACANTHA SP. (Fire Thorn)	1	11	750'	170	346

SECTION III. TABLE NO. 21 (cont'd)

Fruit	Lots	Months	Elevation	Weight	Count
15. SECHIUM EDULE (Chayote)	1	12	3600'	650	2
16. SOLANUM SODOMEUM (Sodom's Apple)	1	5	2900'	241	11
17. STYPHALEA DOUGLASII (Pukeawe)	1	9	7030'	85	630
18. VITIS SP. (Grape)	2	6,10	2800'	411	121

TOTAL:

Lots : 23
Weight :12,240 (27 lbs.)
Count 1,456

SECTION III. FRUIT NOT LISTED AS HOSTS OF DACUS DORSALIS WHICH HAVE BEEN COLLECTED AND SHOWN TO BE UNINFESTED ON HAWAII.*

TABLE NO. 22.

Summation of Hawaii Fruit Collections

Fruit	Lots	Months	Elevation	Weight	Count
1. ANTIDESMA PULVINATUM (Ha'a or Mehame)	1	4	3380'	14	120
2. ALPINIA NUTANS (Shell Ginger)	1	5	75'	187	49
3. CANTHIUM ODORATUM (Alahee)	1	3	20'	107	373
4. CLERMONTIA HAWAIIENSIS (Oha Kepau)	3	6,8	3500'	156	123
5. COPROSMA RHYNCHOCARPA (Pilo)	5	8,9	4300'	628	219
6. CUCUMIS SATIVUS (Cucumber)	2	3,4	1000'	801	17
7. DIANELLA SANDWICENSIS (Ukiuki)	1	8	4200'	14	-
8. DRACAENA FRAGRANS (	6	5,8	75'	1193	379
9. DRACAENA AUREA (Halapepe)	2	12	2000'	885	527
10. ALYXIA OLIVAEFORMES (Maile)	1	8	4300'	172	203
11. MYOPORUM SANDWICENSE (Bastard Sandalwood)	3	8,9,12	4000'	321	927
12. OSMATHUS SANDWICENSIS (Olopua)	2	12	3500'	740	739
13. OSTEOMELES ANTHYLLIDIFOLIA (Hawaiian Hawthorn)	3	5,12	400' 3500'	362	391
14. PANDANUS ODORATISSIMUS (Lauhala)	1	8	50	590	47

* Mostly Native Plants

SECTION III. TABLE 22 (cont'd)

Fruit	Lots	Months	Elevation	Weight	Count
15. PHYTOLACCA SANDWICENSIS (Pokeberry)	4	3,9	4300' 5200'	191	386
16. PRUNUS AMYGDALUS (Almond)	5	6,7	4700'	1707	183
17. PYRACANTHA SP. (Fire Thorn)	2	4,5	1500' 4000'	26	98
18. PYRUS COMMUNIS (Pear)	2	10	3800'	3233	45
19. RUBUS HAWAIIENSIS (Akala)	7	3,4	4700' 5000'	922	196
20. RUBUS PENETRANS (Blackberry)	2	3,5	5000'	68	94
21. SAPINDUS SAPONARIA (Soapberry)	2	1,12	4000'	614	243
22. SIDEROXYLON SP. (Alaa)	3	12,6	1900'	1905	177
23. SMILAX SANDWICENSIS (Uhi)	1	9	3500'	86	72
24. SOLANUM SODOMEUM (Sodom's Apple)	2	4	2000' 2800'	1316	77
25. STRAUSSIA SANDWICENSIS (Kopiko)	2	7,12	3500' 4600'	231	1256
26. STYPHELIA TAMEIAMEIAE (Pukiawe)	6	2,3,8	5500' 6200'	272	785
27. TAMARINDUS INDICA (Tamarind)	1	5	75'	131	18
28. XYLOSMA HAWAIIENSIS VAR. HILLEBRANDI (Maua)	1	12	2000'	73	195

TOTAL:

Lots	:	72
Weight	:	16,845 (37 lbs)
Count	:	7,939

Evaluation of Plum Survey

The data on this survey is based on 109 lots including 2,970 plums collected in the Kula Area (3100-3900'). Most of the fruit were tree fruit which were ripe although some ground fruit is included. The fruit was collected in areas where peaches were very heavily stung and infested with Ceratitis capitata. At Lightner's orchard, plum trees growing next to peach trees, which were very heavily infested (index 700), were very seldom stung.

The 140 puparia recovered from almost 3,000 plums could easily have been recovered from 1 ripe peach.

Fifty plums collected at 3650' and taken to Haiku and hung in a guava tree for three days resulted in the recovery of 77 puparia and the emergence of 54 dorsalis, 1 O. longicaudatus and 11 O. persulcatus. The fact that plums grown above the range where dorsalis normally occur in any numbers apparently prevent their being heavily infested by this fly. The Med. fly, which has a more restricted host range, does not prefer plums.

Davis in his studies at Waikii observed plums to be stung but the index was 9, which is an extremely low index for C. capitata. The index for peaches on Maui for almost 7,000 fruit was 332 puparia per 1000 grams of fruit.

TABLE NO. 23

PLUM SURVEY, MAUI, T. H.

NOTE:

Lots 1041--1982 included in this September report

A "Lot" of fruit may include from a few to several hundred depending upon availability, size etc.

KEY:

INDEX: Puparia recovered per 1000 grams of fruit
S: Stage of fruit, G: Green R: Ripe
W: Weight in grams
N: Number of fruit
gr: Ground fruit, usually over ripe

EMERGENCE

DOR: Dacus dorsalis
MED: Ceratitis capitata
LON: Opius longicaudatus
PER: Opius persulcatus

LOT	ELEV.	MO	WT	COUNT	PUPAE	DOR	MED	LON	PER	INDEX
1041	3600	5	382	10	3		3			7
1067	3500	5	248	9	0					0
1414	3500	6	552	13	0					0
1415	3500	6	622	3	3		1			5
1416	"	6	481	11	0					0
1417	"	6	552	12	19		11			34
1418	"	6	361	9	8		5			22
1419	"	6	608	7	0					0
1420	"	6	679	8	7		3			10
1421	"	6	650	8	0		0			0
1469	3800	6	297	14	0					0
1470	"	6	325	14	0					0
1471	"	6	347	14	0					0
1472	"	6	269	14	0					0
1473	"	6	297	18	0					0
1474	"	6	297	18	0					0
1477	3900	7	340	15	0					0

LOT	ELEV.	MO	WT	COUNT	PUPAE	DOR	MED	Emergence LON	Emergence PER	INDEX
1478	3900	7	269	15	0					0
1479	"	7	325	15	0					0
1480	"	7	269	15	0					0
1481	"	7	354	15	0					0
1482	"	7	311	15	0					0
1483	"	7	438	15	0					0
1484	"	7	311	15	0					0
1485	"	7	467	15	0					0
1486	"	7	410	15	0					0
1487	"	7	255	15	0					0
1488	"	7	255	15	0					0
1489	"	7	424	15	0					0
1490	"	7	283	15	0					0
1491	"	7	410	15	0					0
1492	"	7	234	15	0					0
1493	"	7	368	15	0					0
1494	"	7	354	15	0					0
1494	3900	7	354	15	0					0
1495	"	7	354	15	0					0
1496	"	7	361	15	0					0
1497	"	7	445	15	0					0
1498	"	7	438	15	0					0
1499	"	7	325	15	0					0
1500	3600	7	191	15	0					0
1501	"	7	290	15	4					13
1502	"	7	276	15	0					0

LOT	ELEV.	MO	WT	COUNT	PUPAE	DOR	MED	LON	Emergence PER	INDEX
1503	3600	7	227	15	0					0
1504	"	7	340	15	0					0
1505	"	7	269	15	0					0
1547	3500	7	679	10	5		2			7
1548	"	7	332	10	0					0
1549	"	7	410	10	0					0
1550	3500	7	764	10	17		10		4	22
1551	"	7	735	10	0					0
1681	3150	7	113	5	0					0
1684	3000	7	227	7	0					0
1695	3650	7	525	30	0					0
1712	"	7	410	19	0					0
1713	"	7	622	37	0					0
1726	3800	7	1077	20	1		1			1
1727	"	7	1330	25	0					0
1792	3650	8	424	25	0					0
1793	"	8	438	25	4	1				
1794	"	8	424	25	0					0
1795	"	8	396	25	8		2			20
1796	"	8	424	25	0					0
1797	"	8	410	25	0					0
1798	"	8	424	25	0					0
1799	"	8	424	25	0					0
1800	"	8	410	25	0					0
1801	"	8	410	25	0					0
1802	"	8	453	25	0					0
1803	3650	8	538	30	0					0

LOT	ELEV.	MO	WT	COUNT	PUPAE	Emergence DOR	MED	LOW	PER	INDEX
1874	3650	8	390	25	42	28		1	8	107
1875	"	8	370	25	35	26			3	94
1893	"	8	396	25	1					2
1894	"	8	792	50	0					
1895	"	8	820	50	1					1
1896	"	8	877	50	0					
1897	"	8	735	50	0					
1898	"	8	792	50	0					
1899	"	8	863	50	0					
1900	"	8	1062	50	0					
1901	"	8	1105	50	16	3	7		1	14
1902	"	8	849	50	0					
1903	"	8	806	50	0					
1904	"	8	778	20	0					
1906	3800	8	1091	20	0					
1907	"	8	1077	20	11		5		1	10
1908	"	8	1202	20	7		5		1	5
1909	"	8	1245	20	3		3			2
1910	3750	8	664	14	0					
1911	"	8	1361	30	0					
1912	"	8	964	50	0					
1965	9650	8	340	25	0					0
1966	"	8	382	25	0					0
1967	"	8	354	25	0					0
1968	"	8	340	25	0					0
1969	"	8	650	25	0					0
1970	"	8	495	25	0					0

LOT	ELEV.	MO	WT	COUNT	PUPAE	DOR	MED	LON	Emergence PER	INDEX
1971	3650	8	481	25	0					
1972	"	8	340	25	0					
1973	"	8	382	25	0					
1974	"	8	386	25	0					
1975	"	8	354	25	0					
1976	"	8	396	25	4					10
1977	3750	8	410	25	0					
1978	"	8	552	25	10		5			18
1979	"	8	1000	25	0					
1980	"	8	679	25	2					2
1981	"	8	622	25	6		5			9
1982	"	8	1000	34	0					

NOTE: Lots 1874 & 1875 were collected in Kula and exposed at Haiku.
More dorsalis adults were recovered from these 50 plums than the 3000 collected in Kula.

Evaluation of Apricot Survey On Hawaii

The data on this survey is based on 27 lots including 895 apricots collected at Waikii (4700'). All but two of the lots were tree fruit picked in the half ripe to ripe stage. Oviposition by Ceratitis capitata began when the fruit was still hard and increased in half ripe fruit. Many of the latter showed considerable numbers of second and third instar larvae. The relative indices of infestation for Dacus dorsalis was 2. If collections were possible at lower elevations infestation by dorsalis would probably be very high.

From 895 apricots were recovered 9,053 puparia from which emerged 31 dorsalis, 6,486 capitata, 65 capitata parasites (probably O. tryoni) and 24 O. persulcatus. This is the highest elevation that O. persulcatus has been recovered under natural conditions.

TABLE NO. 24

FRUIT FLY INFESTATION OF APRICOTS ON HAWAII BASED ON PUPAL RECOVERY

KEY:

Index: Puparia recovered per 1000 grams of fruit
S: Stage of fruit, G: Green, R: Ripe
W: Weight in grams
N: Number of fruit
gr: Ground fruit, usually over-ripe.

Emergence:
DOR: Dacus dorsalis
MED: Ceratitis capitata
LON: Opius longicaudatus
PER: Opius persulcatus

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	*LON	PER	INDEX
1141	6/12	Waikii	4700	Apricot	G	531	19	95		85			179
1221	6/26	"	"	"	R	720	25	55		43			76
1222	"	"	"	"	R	1017	36	124	2	112			122
1296	7/17	"	"	"	R	772	64	323		255	2	1	418
1297	"	"	"	"	R	363	16	144		116	3	4	397
1327	7/24	"	"	"	R	1216	36	293		186			241
1328	"	"	"	"	R	1097	29	332	3	207	2	1	303
1374	7/31	"	"	"	R	445	53	465		356	11	2	1044
1383	"	"	"	"	R	817	30	523	2	276	3		640
1384	"	"	"	"	R	454	22	423	3	339	8		932
1385	"	"	"	"	R	545	20	423		257	10	1	776
1409	8/7	"	"	"	R	636	20	211		130			332
1410	"	"	"	"	R	772	25	361		303			468
1411	"	"	"	"	R	908	34	491		452			541
1412	"	"	"	"	R	636	25	280		242			440

* Parasites presumably Opius tryoni

TABLE NO. 24 cont'd

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	*LON	PER	INDEX
1413	8/7	Waikii	4700	Apricot	R	772	30		390	1	342		1	505
1414	"	"	"	"	R	726	30		337		326			461
1415	"	"	"	"	R	681	27		348	1	329	3		511
1482	8/14	"	"	"	R	997	33		606	2	504			608
1483	"	"	"	"	R	736	30		456	2	360	1	5	620
1485	"	"	"	"	R	784	30		422	2	329			538
1529	8/21	"	"	"	R	548	36		238	9	139		5	434
1530	"	"	"	"	R	920	48		406	2	207		4	441
1531	"	"	"	"	R	1211	64		367		127			303
1532	"	"	"	"	R	930	42		374	1	209			402
1533	"	"	"	"	R	1072	52		479		209			447
1548	8/28	"	"	" gr	R	318	19		87	1	46	22		274

\# Parasites presumably Opius tryoni

SUMMARY

Fruit	Total Lots	Tree Fruit	Ground Fruit	Pupae	Index
Collected	27	26	1	T - 9007	444
Infested	27 (100%)	26 (100%)	1 (100%)	G - 87	274

Total apricots collected: 895

Weight of fruit : 20,624

Puparia recovered : 9,053

Lots of fruit: 27

% parasitism : 1%

Dorsalis index : 2.06

C. capitata index : 432

MAUI FRUIT COLLECTIONS

NOTE:

Lots 1008 - 2003 included in this September Report
Lots 2004 - 2450 which are not complete will be included in the December Report

A "Lot" of fruit may include from a few to several hundred depending upon availability, size etc.

KEY:

INDEX: Puparia recovered per 1000 grams of fruit
S: Stage of fruit, G; Green, R: Ripe
W: Weight in grams
N: Number of fruit
gr: Ground fruit, usually over ripe

EMERGENCE
DOR: Dacus dorsalis
MED: Ceratitis capitata
LON: Opius longicaudatus
PER: Opius persulcatus

TABLE NO. 25

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1008	5/8	Olinda	2300'	Peach gr	R	1231	36	530	5	254	24	0	430
1009	"	"	"	Peach gr	R	1658	45	631	13	357	21	0	380
1010	"	Hauku	600'	Guava	G	184	15	0					0
1011	5/16	Kula	2600'	Peach gr	R	749	18	364	64	94	1	12	485
1012	"	"	3000'	Peach gr	R	728	16	202	8	6	6	2	277
1013	"	"	"	Peach	R	587	12	246	76	83	0	6	419
1014	"	"	2600'	Peach	R	1202	20	239	4	166	1	0	198
1015	"	"	2900'	Peach	R	1209	21	446	5	288	11	0	368
1016	"	"	2960'	Peach	R	1273	23	217	38	81	0	6	170
1017	"	"	2800'	Peach	R	805	17	400	108	123	1	8	496
1018	"	"	3400'	Peach	R	1188	12	61	0	22	1	0	51
1019	"	"	2700	Peach	R	1146	21	327	21	177	0	0	285
1020	"	"	3100'	Peach	R	1202	20	327	15	185	0	0	272
1021	"	"	2900'	Peach	R	1714	32	1059	137	389	9	22	617
1022	"	"	"	Peach	R	1431	24	423	35	218	5	0	295
1023	"	"	2700'	Peach	R	1105	18	276	55	102	10	2	249
1024	"	"	3100'	Peach	R	1112	17	244	11	197	1	0	219
1025	"	"	3000'	Peach	R	1347	29	588	137	135	17	13	436
1026	"	"	"	Peach	R	1062	21	904	66	182	17	9	474

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1027	5/16	Kula	3000'	Peach	R	552	11	371	51	157	6	9	672
1028	"	"	"	Peach	R	1188	24	546	114	152	13	4	459
1029	"	"	2900'	Peach	R	1209	25	753	98	70	5	8	622
1030	"	"	3400'	Peach	R	1077	13	40	0	37	0	0	37
1031	"	"	"	Peach	R	921	9	102	4	80	1	0	110
1032	"	"	"	Peach	R	1160	15	122	1	93	0	0	105
1033	"	"	"	Peach	R	1770	21	18	1	10	1	0	23
1034	"	"	"	Peach	R	1630	18	37	0	32	0	0	22
1035	"	"	"	Peach	R	1146	12	71	4	58	3	0	61
1036	"	"	"	Peach	R	1146	12	82	0	61	3	Melon	71
1037	"	"	"	Peach	R	1252	12	24	0	11	0	0	19
1038	"	"	"	Peach	R	1048	12	33	0	10	0	0	31
1039	"	"	"	Peach	R	1105	12	48	3	27	0	0	43
1040	"	"	3600'	Loquat	R	1848	48	65	17	13	0	0	35
1041	"	"	"	Plum	R	382	10	3	0	3	0	0	7
1042	"	"	3800'	Loquat	R	622	25	116	7	68	0	0	186
1043	"	"	"	Loquat	R	1531	80	290	10	159	0	0	189
1044	"	"	"	Loquat	R	1119	37	38	10	12	0	1	33
1045	"	"	2850'	Banana	R	707	12	253	103	0	29	0	357
1046	"	"	"	Banana	R	778	12	195	114	0	11	0	250
1047	"	"	"	Banana	R	849	12	194	64	2	16	0	228
1048	"	"	"	Banana	R	863	12	119	86	0	3	0	137
1049	"	"	"	Banana	R	538	10	136	50	9	18	0	252
1050	"	"	"	Banana	G	1523	20	177	110	1	0	0	116
1051	"	"	2500'	Tangerine	R	198	6	0	0	0	0	0	0
1052	"	Olinda	3200'	Peach	G	255	8	0	0	0	0	0	0
1053	"	"	2600	Peach	R	227	6	0	0	0	0	0	0

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1054	5/16	Olinda	3200'	Peach	G	396	15	23	0	15	5	0	58
1055	"	"	"	Loquat	R	664	32	17	11	0	0	0	25
1056	"	"	2600'	Peach	R	424	14	0	0	0	0	0	0
1057	"	"	2200'	Peach gr	R	640	22	195	10	90	4	0	300
1058	"	"	"	Peach gr	R	1013	32	297	15	135	15	0	293
1059	"	"	"	Peach gr	R	892	30	262	14	118	7	0	293
1060	"	"	"	Peach gr	R	849	29	284	15	137	8	2	334
1061	"	"	"	Peach gr	R	622	18	159	7	71	5	0	255
1062	"	"	"	Peach gr	R	611	18	151	19	78	5	2	247
1063	"	Kula	3500'	Loquat	R	820	66	142	21	39	6	2	173
1064	"	"	2700'	Peach	G	382	20	15	0	14	0	0	36
1065	"	Olinda	3200'	Peach	G	269	8	8	0	8	0	0	29
1066	"	"	"	Peach	G	212	7	39	0	35	0	0	183
1067	"	Kula	3500'	Plum	G	248	9	0	0	0	0	0	0
1068	"	Olinda	2200'	Peach	R	636	33	436	45	206	7	0	685
1069	"	"	"	Peach	R	538	32	437	32	180	2	5	812
1070	"	"	"	Peach	R	827	37	469	104	170	3	0	567
1071	"	"	"	Peach gr	R	735	25	245	25	60	10	0	333
1072	"	"	"	Peach gr	R	749	26	171	9	57	8	0	328
1073	"	"	1650'	Peach gr	R	636	35	383	71	38	5	0	602
1074	"	"	"	Peach gr	R	580	35	532	147	76	14	4	917
1075	"	"	"	Peach	G	474	26	405	76	27	1	0	854
1076	"	"	"	Peach	G	481	25	378	197	18	0	0	785
1077	"	"	2200'	Peach	G	693	26	418	55	202	0	0	603
1078	"	"	"	Peach	R	212	5	54	3	32	0	0	254
1079	"	"	"	Peach	G	700	29	452	104	127	0	2	645
1080	"	"	"	Peach gr	R	1230	35	307	36	123	7	0	249
1081	"	"	"	Peach gr	R	892	31	275	15	119	8	2	308

LOT	DATE	LOCALITY	ELEV	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1082	5/16	Olinda	1900'	Peach	G	594	12	198	56	52	6	0	333
1083	"	"	1650'	Peach gr	R	735	35	690	210	85	4	0	938
1084	"	"	"	Peach gr	R	806	45	508	209	106	3	0	630
1085	"	"	"	Cucumber	R	1020	2	364	161-Melon		4-Parasite		356
1086	"	Kula	3200'	(Custord Apple)	R	115	1	9	0	8	0	0	78
1087	5/17	Keokea	3000'	Peach	R	495	15	172	4	115	1	0	347
1088	"	"	"	Peach	R	629	21	267	5	207	2	0	424
1089	"	"	"	Peach	R	657	18	213	1	179	1	2	324
1090	"	"	"	Peach	R	1187	29	469	4	172	2	0	394
1091	"	"	"	Peach	R	707	18	193	0	152	0	5	271
1092	"	"	"	Peach	R	806	20	274	3	196	0	1	339
1093	"	"	"	Peach	R	1105	28	354	3	251	1	0	320
1094	"	"	"	Peach	R	1006	30	277	4	213	0	0	275
1095	"	"	"	Peach	R	1027	27	369	7	215	0	0	359
1096	"	"	"	Peach	R	1034	24	299	11	169	3	0	289
1097	"	"	"	Peach	R	545	17	189	0	139	0	0	346
1098	"	"	"	Peach	R	580	19	174	1	140	0	0	300
1099	"	Kamaole	2900'	Peach	R	1112	25	264	1	164	7	2	237
1100	"	"	"	Peach	R	813	24	289	19	117	1	3	355
1101	"	"	"	Peach	R	728	18	284	5	176	0	3	390
1102	"	Kula	3600'	Peach	G	608	20	0	0	0	0	0	0
1103	"	"	3250	Peach	R	566	18	151	11	108	1	3	266
1104	"	"	"	Peach	R	1188	31	371	18	184	1	2	212
1105	"	"	"	Peach	R	1146	36	293	5	192	0	1	255
1106	"	"	"	Peach	G	488	17	200	8	103	0	0	409
1107	"	"	3200	Peach	R	742	23	359	0	99	0	0	483
1108	"	"	"	Peach	G	396	12	59	0	26	0	0	148
1109	"	"	"	Peach	G	566	23	391	0	240	0	0	690

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1110	5/17	Kula	3000'	Peach	R	907	27	598	0	338	0	0	659
1111	"	"	3100'	Peach	G	849	15	277	0	242	0	0	326
1112	"	"	"	Peach	G	640	15	156					240
1113	"	"	"	Peach	R	792	16	190	0	166	0	0	239
1114	"	Kamaole	2900'	Peach gr	R	1347	37	359	0	186	8	0	266
1115	"	"	"	Peach	R	1167	18	436	14	180	0	1	373
1116	"	"	"	Peach	R	502	12	153	0	111	0	0	127
1117	"	"	"	Peach	R	368	8	253	5	178	0	0	687
1118	"	"	"	Peach gr	R	679	12	339	39	171	21	0	199
1119	"	"	"	Peach	R	771	17	338	7	185	1	3	438
1120	"	"	"	Peach	G	608	34	0	0	0	0	0	0
1121	"	"	"	Avocado gr	R	1245	2	0	0	0	0	0	0
1122	"	"	"	Peach	R	914	19	420	2	125	0	0	459
1123	"	"	"	Peach	R	1259	40	850	1	189	1	0	675
1124	"	"	3150	Apple	G	217	6	0	0	0	0	0	0
1125	"	"	"	Peach	R	999	13	228	0	184	5	10	228
1126	"	"	"	Peach	R	193	3	78	0	59	0	2	404
1127	"	"	"	Peach	R	914	17	468	0	311	3	0	512
1128	"	"	"	Peach	R	1287	22	415	0	150	3	5	322
1129	"	"	"	Peach	G	382	23	66	0	48	0	0	172
1130	"	"	"	Peach	R	1034	19	275	0	164	0	0	265
1131	"	"	"	Peach	R	1231	20	243	0	188	1	3	197
1132	"	"	1850	Loquat	R	276	11	1	0	1	0	0	3
1133	"	"	"	Peach	R	907	12	149	0	70	0	0	163
1134	"	"	2850	Peach gr	R	1417	28	414	4	190	6	2	292
1135	"	"	"	Peach	R	1112	32	310	3	145	2	3	278
1136	"	"	"	Peach	R	928	23	379	10	105	3	3	408
1137	"	"	"	Peach	R	992	23	383	7	215	0	0	386

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	MOR	MED	LON	PER	INDEX
1138	5/17	Kamaole	2850'	Peach gr	R	156	11	76	21	12	18	0	487
1139	"	"	2900'	Peach	R	566	39	742	315	3	7	19	1310
1140	"	"	"	Papaya	R	686	1	0	0	0	0	0	0
1141	"	"	"	(Sodomeum Apple)	R	241	11	0	0	0	0	0	0
1142	"	"	2600'	Peach	R	892	25	159	4	111	0	0	178
1143	"	"	2650'	Fig	G	276	21	0	0	0	0	0	0
1144	"	Kanaio	1600'	Peach	R	445	14	174	10	124	0	0	391
1145	"	Ulupalakua	1900'	(Jerusalem Cherry)	R	35	24	0	0	0	0	0	0
1146	"	Haiku	700'	(Filicium Decipens)	R	248		26	2	0	0	24	104
1147	5/26	Makaoloi	300'	Mango	R	2989	6	209	54	1	6	0	182
1148	"	"	"	Mango gr	R	1560	10	1	1	0	0	0	1
1149	"	"	"	Mango	R	1010	5	4	1	0	0	0	3
1150	"	"	"	Mango	R	877	6	0	0	0	0	0	0
1151	"	"	"	Mango	R	1725	9	104	67	0	0	0	60
1152	"	"	"	Mango	R	1389	6	0	0	0	0	0	0
1153	"	"	"	Mango	R	1770	7	91	7	0	8	2	51
1154	"	"	"	Mango	R	1302	5	19	11	0	0	0	14
1155	"	"	"	Mango	R	849	3	60					70
1156	"	"	"	Mango	R	2026	11	39	33	0	0	0	19
1157	"	"	"	Mango	R	2381	6	79	62	0	0	0	33
1158	"	"	"	Avocado	G	1231	3	0	0	0	0	0	0
1159	"	"	"	Avocado	G	1105	3	0	0	0	0	0	0
1160	"	"	"	Avocado (gr	R)	530	3	244	80	0	1	1	460
1161	"	"	"	Avocado	G	1800	4	1	1	0	0	0	1
1162	"	"	"	Papaya	R	710	3	222	146	0	0	0	312
1163	"	"	"	Papaya	R	424	1	0	0	0	0	0	0
1164	5/22	Kula	2850'	Banana	R	415	4	0	0	0	0	0	0
1165	"	Makaoloi	300'	Guava	R	900	14	63	24	0	2	10	70

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	W	PUPAE	DOR	MED	ION	PER	INDEX
1166	5/26	Makaoioi	300'	Guava	R	1160	16	159	83	0	0	43	137
1167	"	"	"	Tangerine	R	396	22	0	0	0	0	0	0
1168	"	"	"	Sweet Sop	R	475	2	3	0	0	0	0	0
1169	"	"	"	(Macadamia Nuts)	G	360	16	0	0	0	0	0	0
1170	"	"	"	(Flacourtia Jangomas)	R	170	41	0	0	0	0	0	0
1171	"	"	"	Poha	R	80		0	0	0	0	0	0
1172	"	"	"	Sandalwood	R	190	205	102	29	0	30	3	536
1173	"	"	"	Fig	R	382	5	4	3	0	0	0	10
1174	"	"	"	Persimmon	G	260	4	0	0	0	0	0	0
1175	"	"	"	Mamme Apple	G	622	4	0	0	0	0	0	0
1176	"	"	"	(Flacourtia Jangomas)	G	141	44	0	0	0	0	0	0
1177	"	Kipahulu	110'	Orange	R	594	4	15	10	0	0	0	25
1178	"	Kaupo	900'	Rose Apple	R	170	8	0	0	0	0	0	0
1179	"	Hamoa	80'	Rose Apple	R	255	13	130	9	0	18	14	509
1180	"	Hana	60'	False Kamani	R	921	55	127	26	0	0	0	137
1181	"	Hamoa	80'	(Strawberry Guava)	G	184	23	80	17	0	1	1	434
1182	"	Kaupo	60'	Calamondin	R	141	8	13	3	0	1	1	92
1183	"	Kipahulu	110'	Orange	R	269	4	0	0	0	0	0	0
1184	"	Hana	310'	Rose Apple	R	269	12	116	20	0	11	11	431
1185	"	Kaupo	900'	Guava	R	1048	12	38	10	0	0	0	36
1186	"	"	"	Guava	R	935	12	30	18	0	1	2	32
1187	"	"	700	Guava	R	863	12	13	7	0	0	2	15
1188	"	"	"	Guava	R	778	16	86	35	0	0	15	110
1189	"	"	960'	Wi Apple	R	580	16	8	0	0	0	1	13
1190	"	Hamoa	40'	Pomegranate	G	1630	8	0	0	0	0	0	0
1191	"	Kaupo	900'	Guava	R	964	15	33	20	0	0	0	34
1192	"	"	"	Guava	R	1048	14	10	5	2	0	0	9

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1193	5/26	Hana	310'	Sour Orange	R	525	3	0	0	0	0	0	0
1194	"	Kaupo	450'	Guava	G	608	14	11	10	0	0	0	18
1195	"	"	"	Guava	R	424	9	48	44	0	0	0	113
1196	"	"	"	Chinaberry	G	608		0	0	0	0	0	0
1197	"	Kipahulu	110'	Rose Apple	G	1658	25	0	0	0	0	0	0
1198	"	Waialua	200'	Guava	R	438	5	219	76	0	0	0	500
1199	"	Nahiku	750'	Rose Apple	R	311	15	291	49	101	51	0	935
1200	"	"	"	Rose Apple	R	368	15	192	117	0	1	0	521
1201	"	Kaupo	60'	Mango	R	495	5	100	58	4	11	0	202
1202	"	Kipahulu	200'	(Morinda Citrifolia)	G	693	5	0	0	0	0	0	0
1203	"	Kaupo	900	Guava	R	1210	21	18	10	0	0	0	14
1204	"	Hamoa	80'	(Strawberry Guava)	R R	511	69	110	19	6	29	0	215
1205	"	Kaupo	700'	"	R	1174	91	0	0	0	0	0	0
1206	"	Hamoa	80'	Wi Apple	G	892	14	0	0	0	0	0	0
1207	"	Hana	310'	(Ficus Heterophylla)	G	227	8	0	0	0	0	0	0
1208	"	"	"	"	G	340	12	0	0	0	0	0	0
1209	"	Kipahulu	200'	(Morinda Citrifolia)	R	269	2	0	0	0	0	0	0
1210	5/27	Kaupo	960'	(Tree Gardenia)	G	113	8	0	0	0	0	0	0
1211	"	Kipahulu	200'	(Artocarpus Heterophyllus)	G	6364	1	0	0	0	0	0	0
1212	"	Lahaina	200'	Kamani	R	375	12	27	12	0	0	0	72
1213	"	"	"	Kamani	R	325	11	129	106	0	0	0	396
1214	"	Kula	3600'	Plum	R	318	18	7	0	6	0	0	22
1215	"	"	"	Plum	R	212	15	0	0	0	0	0	0
1216	"	"	2800	Peach	Rq	1188	22	487	24	276	3	9	409
1217	"	"	"	Peach	R	1146	21	583	30	250	5	1	479
1218	"	Makoloi	300'	Mango	R	1742	10	0	0	0	0	0	0
1219	"	"	"	Mango	R	1538	10	19	11	1	0	0	12
1220	"	"	"	Mango	R	1538	10	0	0	0	0	0	0
1221	5/31	Kula	2600'	Peach	R	1020	20	720	45	386	13	32	705

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	ION	PER	INDEX
1222	5/31	Kula	2600'	Peach	R	914	26	241	38	20	20	6	263
1223	"	"	"	Papaya gr	R	978	2	197	98	1	1	0	201
1224	"	"	"	Peach	R	1020	30	655	61	295	12	7	642
1225	"	"	"	Peach	R	764	22	142	26	38	0	16	185
1226	"	"	"	Peach	R	1160	26	522	165	13	11	81	450
1227	"	"	"	Peach	R	949	29	149	30	43	10	27	157
1228	"	"	"	Peach	R	721	17	272	51	87	20	5	377
1229	"	"	"	Peach	R	657	17	126	28	17	12	8	191
1230	"	"	"	Papaya gr	R	629	3	110	63	0	0	0	174
1231	"	"	"	Peach	R	842	29	462	67	141	35	7	549
1232	"	"	"	Papaya gr	R	834	3	20	7	0	0	0	0
1233	"	"	"	Peach	R	1174	33	316	52	110	21	20	269
1234	"	"	"	Papaya	R	1267	3	20	5	0	0	0	15
1235	"	"	2700	Peach	R	771	19	527	58	188	24	30	693
1236	"	"	"	Peach	R	978	19	530	44	239	2	10	543
1237	"	"	"	Peach	R	693	17	494	32	168	11	7	714
1238	"	"	"	Peach gr	R	978	25	432	54	140	26	15	441
1239	"	"	"	Peach	R	985	17	395	244	21	6	34	403
1240	"	"	"	Peach	R	863	19	180	30	74	11	11	208
1241	"	"	"	Peach	R	742	26	339	0	0	0	0	456
1242	"	"	"	Peach	R	1188	33	317	27	74	35	14	266
1243	"	"	"	Peach	R	914	23	390	39	159	10	3	426
1244	"	"	"	Peach	R	670	27	198	27	28	17	6	295
1245	"	"	"	Peach gr	R	657	18	387	62	106	25	14	589
1246	"	"	"	Peach	R	629	17	204	16	78	6	36	324
1247	"	"	"	Peach	R	1027	20	587	28	113	3	13	571
1248	"	"	"	Peach gr	R	721	15	621	33	163	69	4	861
1249	"	"	"	Peach	R	834	17	448	28	259	11	13	597

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUBE	DOR	MED	LON	PER	INDEX
1250	5/31	Kula	2700'	Peach	R	629	17	398	42	278	1	1	632
1251	"	"	"	Peach gr	R	749	16	420	21	103	47	8	560
1252	"	"	"	Peach	R	997	25	597	172	21	25	80	598
1253	"	"	"	Peach	R	566	17	162					286
1254	"	"	2800'	Peach gr	R	615	14	395	44	56	39	10	642
1255	"	"	"	Peach gr	R	813	16	268	34	50	38	12	329
1256	"	"	2900'	Peach	R	907	22	602	53	244	16	6	663
1257	6/1	Haiku	500'	(Filicium Decipens)	R	60	90	0	0	0	0	0	0
1258	"	"	"	(Duranta Repens)	R	57		0	0	0	0	0	0
1259	"	"	"	Gourka	R	220	2	0	0	0	0	0	0
1260	6/12	Kula	2550'	Peach	R	992	12	22	1	0	7	0	22
1261	"	"	"	Peach gr	R	1330	22	136	0	80	0	0	102
1262	"	"	"	Peach	R	1686	39	77	0	56	0	0	45
1263	"	"	"	Peach	R	735	17	168	0	133	0	0	228
1264	"	"	"	Peach	R	749	20	138	0	131	0	0	184
1265	"	"	"	Loquat	R	467	22	9	0	5	0	0	19
1266	"	"	2850'	Peach gr	R	806	14	280	0	205	6	27	347
1267	"	"	"	Peach	R	410	8	116	0	90	0	15	282
1268	"	"	"	Peach gr	R	1020	18	388	1	257	19	5	380
1269	"	"	"	Peach	R	1119	17	181	0	125	0	8	142
1270	"	"	"	Peach	R	1077	17	128	0	90	2	6	100
1271	"	Olinda	1900'	Guava	R	907	22	39	7	2	2	19	30
1272	"	Kula	2900'	Peach gr	R	1245	28	675	131	111	59	44	530
1273	"	"	"	Peach gr	R	1573	32	674	129	97	55	54	428
1274	"	"	"	Peach gr	R	1062	29	622	116	139	57	39	585
1275	"	"	"	Peach gr	R	1287	38	776	153	127	74	29	602

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1276	6/12	Kula	2900'	Peach	gr	R	978	29	534	105	107	108	54	418
1277	"	"	"	Peach		R	2253	50	1346	190	216	111	70	597
1278	6/13	Iao Valley	300'	Guava	gr	R	2367	51	624	325	0	12	13	488
1279	"	"	"	Guava	gr	R	1707	35	457	264	0	42	33	357
1280	"	"	"	Guava	gr	R	1644	32	531	247	0	29	20	322
1281	"	"	"	Guava	gr	R	1347	27	333	163	1	18	26	247
1282	"	"	"	Guava	gr	R	1048	20	392	232	0	30	15	375
1283	"	"	"	Guava	gr	R	1702	22	396	226	0	23	14	216
1284	"	Haiku	700'	Gourka	gr	R	99	1	0	0	0	0	0	0
1285	"	"	"	(Surinam Cherry)		R	191	92	26	10	0	8	2	136
1286	6/14	Olowalo	20'	(False Kamani)		R	255	16	392	212	0	64	45	1537
1287	"	"	"	(False Kamani)		R	141	12	0	0	0	0	0	0
1288	"	Honokahua	100'	Guava	gr	R	1134	24	167	39	2	16	46	147
1289	"	"	"	Guava		R	964	14	96	15	0	15	21	99
1290	"	Makaoloi	500'	(Citrus Mitis)	gr	R	354	16	81	17	0	2	42	228
1291	"	"	"	(Citrus Mitis)		R	525	22	35	8	0	6	11	66
1292	"	"	50	Breadfruit		R	1202	3	0	0	0	0	0	0
1293	"	"	75'	(Santalum Album)		R	170	212	114	59	1	7	6	670
1294	"	"	"	(Santalum Album)		R	198	262	130	63	0	13	6	656
1295	"	"	100'	(Flacourtia Jangomas)		R	127	28	0	0	0	0	0	0
1296	"	"	25	Papaya		R	849	2	1	1	0	0	0	1
1297	"	"	500	Poha		R	99	34	3	1	0	0	0	30
1298	"	"	300'	Mango		R	1330	5	0	0	0	0	0	0
1299	"	Makaoloi	300'	Mango		R	1109	3	4	2	0	0	0	3
1300	"	"	"	Mango		R	1389	9	162	87	0	2	23	116
1301	"	"	"	Mango	gr	R	2268	9	164	115	0	0	0	72
1302	"	Honolua	200'	Litchi		R	368	22	0	0	0	0	0	0
1303	"	"	"	Litchi		R	538	29	0	0	0	0	0	0
1304	"	"	"	(Artocarpus Heterophyllus)		R	1077	1	0	0	0	0	0	0

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1305	6/14	Honolua	200'	Coffee	R	141	20	0	0	0	0	0	0
1306	6/15	Hamoa	50'	(False Kamani) gr	R	2041	70	1643	623	1	310	77	804
1307	"	Nahiku	750'	(Strawberry Guava)	R	481	79	384	104	0	61	18	293
1308	"	Hamoa	50'	(Ficus Heterophyllus)	R	297	9	0	0	0	0	0	0
1309	"	Hana	60'	(False Kamani) gr	R	1602	79	347	62	0	181	5	216
1310	"	Kipahulu	200'	Wi Apple	R	1828	25	0	0	0	0	0	0
1311	"	Hana	60'	(False Kamani) gr	R	1368	70	153	33	0	83	0	111
1312	"	"	"	(False Kamani) gr	R	721	26	121	11	0	33	13	167
1313	"	Kipahulu	200'	Mt. Apple (Kammo	G	552	28	1	0	0	0	0	1
1314	"	Hamoa	50'	Apple) (Strawberry	G	778	4	0	0	0	0	0	0
1315	"	"	"	Guava) (False	R	212	22	11	5	0	0	1	51
1316	"	Hana	60'	Kamani) gr (False	R	1599	75	290	17	0	90	2	181
1317	"	"	"	Kamani)	R	234	13	190	78	1	41	1	811
1318	"	Nailku	700'	Guava (Seaevola	R	608	9	142	85	0	0	3	233
1319	"	Hana	60'	Frutescens)	R	161	135	0	0	0	0	0	0
1320	"	Waianapanapa	90'	Guava	R	2083	26	348	83	0	2	24	167
1321	"	"	"	Guava	R	2763	3	566					204
1322	"	"	"	Guava gr	R	1785	2	54					30
1323	"	"	"	Guava gr	R	978		36	6	1	10	6	36
1324	"	"	"	Guava gr	R	1941	20	77	23	0	3	22	39
1325	"	"	"	Guava gr	R	1770	29	84	13	1	5	27	48
1326	"	"	"	Guava gr	R	664	10	44					66
1327	"	Hana	60'	Guava gr	R	1302	12	487	124	0	3	1	374
1328	"	"	"	Guava gr	R	892	10	260	30	0	0	0	290
1329	"	"	"	Guava gr	R	1316	15	92	11	0	7	8	69
1330	"	"	"	Pomegranate	R	1316	9	13	8	0	3	0	9
1331	"	Waianapanapa	90'	Guava gr	R	1020	16	137	64	0	11	14	134

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1332	6/15	Waianapanapa	90'	Guava	gr	R	1347	14	125	0	1	0	92	
1333	"	Kaupakalua	1450'	Guava	gr	R	1686	20	143	32	1	10	5	85
1334	"	"	"	Guava	gr	R	1885	21	95	15	0	17	23	50
1335	"	"	"	Guava	gr	R	2735	31	133	37	0	11	8	44
1336	6/14	Makaoloi	30'	(Anacardium Occidentale)		R	127	1	0	0	0	0	0	0
1337	6/19	Iao Valley	300'	Guava	gr	R	650	17	207	109	0	26	16	318
1338	"	"	"	Guava	gr	R	1245	15	218	87	0	0	2	175
1339	"	"	"	Guava	gr	R	1316	21	147					111
1340	"	"	"	Guava	gr	R	1202	22	293	163	0	25	7	247
1341	"	"	"	Guava	gr	R	650	13	285	125	0	10	20	435
1342	"	"	"	Guava	gr	R	1828	28	338	234	0	0	1	184
1343	"	"	"	Guava	gr	R	1460	20	270	177	0	14	17	201
1344	6/19	"	"	Guava	gr	R	949	17	285	108	0	2	2	300
1345	"	"	"	Guava	gr	R	1105	27	145	50	5	1	39	131
1346	"	"	"	Guava	gr	R	1330	20	129	45	0	1	8	95
1347	"	"	"	Guava	gr	R	834	23	44	8	0	2	20	52
1348	"	"	"	Guava	gr	R	1048	26	87	13	0	14	18	83
1349	"	"	"	Guava	gr	R	495	14	253	124	9	0	3	533
1350	6/15	Honolua	200'	(Tree Gardenia)		R	42	2	0	0	0	0	0	0
1351	"	Makaoloi	300'	(Apple Mammae)		G	325	2	0	0	0	0	0	0
1352	"	"	"	(Hura Crepitans)		G	241	4	0	0	0	0	0	0
1353	"	Olinda	1800'	(Coffea Arabica)		R	255	129	48	1	1	12	19	188
1354	6/19	Wailuku	200'	Canistel		R	1474	5	24	22	0	0	0	16
1355	"	Iao Valley	300'	Mango	gr	R	1714	19	117	65	10	6	0	68
1356	"	"	"	Mango	gr	R	1347	12	68	14	0	19	3	50
1357	"	"	"	Mango	gr	R	764	8	80	38	0	5	0	104
1358	6/26		500'	Guava	gr	R	1112	21	269	95	0	8	9	241

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	NO.	PUPAE	DOR	MED	LON	PER	INDEX
1358	6/26	Iao Valley	500'	Guava gr	R	1112	21	269	95	0	8	9	241
1359	"	"	"	Guava gr	R	1342	25	145	43	0	8	19	108
1360	"	"	"	Guava gr	R	1309	26	178	90	0	3	8	135
1361	"	"	"	Guava gr	R	749	19	203	83	0	9	7	271
1362	"	"	"	Guava gr	R	907	20	149	54	0	2	10	164
1363	"	"	"	Guava gr	R	1202	25	363	148	0	16	21	301
1364	"	"	"	Guava gr	R	1516	22	232	100	1	14	24	153
1365	"	"	"	(Coffee Arabica)	R	148	55	5	1				33
1366	"	Olinda	1800'	Guava	R	2918	101	160	70	10	1	0	54
1658	6/27	Kula	3500'	Peach	R	1658	22	461	14	260	7	7	278
1368	"	"	"	Peach	R	1245	17	354	14	200	5	5	284
1369	"	"	"	Peach	R	1658	24	562	42	299	1	11	338
1370	"	"	"	Peach	R	1389	18	377	24	192	5	8	271
1371	"	"	"	Peach	R	1474	22	428	7	211	9	3	290
1372	"	"	"	Peach	R	1630	25	766	15	505	14	1	558
1373	"	"	"	Peach	R	1686	22	434	20	287	21	8	316
1374	"	"	3600'	Peach	R	1020	15	364	5	117	8	6	356
1375	"	Kamaole	2800'	Peach	R	1006	19	228					226
1376	"	Keokea	"	Peach	R	1217	29	150	5	98	4	0	123
1377	"	"	3000'	Peach	R	735	15	288	12	162	2	4	391
1378	"	"	"	Peach	R	650	13	225	2	101	0	13	346
1379	"	Kula	3600'	Peach	R	594	18	180	0	110	9	0	303
1380	"	Kamaole	2900'	Peach	R	707	14	226	0	180	4	0	163
1381	"	Kula	3000'	Peach	R	650	14	241					174
1382	"	"	2900'	Peach	R	636	15	110	0	82	0	0	173
1383	"	"	3500'	Peach	R	1616	21	634	5	376	6	25	392
1384	"	Kamaole &	2900'	Peach	R	849	18	132	0	107	1	0	95

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1385	6/27	Kamaole	2900'	Peach	R	354	9	108	0	49	12	7	305
1386	"	Kula	"	Peach	R	749	17	167	0	122	5	0	120
1387	"	Kamaole	2800'	Peach	R	806	17	203	0	142	0	1	146
1388	"	"	2900'	Peach	R	921	19	288	0	229	4	0	312
1389	"	Kula	3500'	Peach	R	1200	19	419	13	299	0	0	301
1390	"	Kamaole	2900'	Peach	R	834	18	126	0	95	1	0	151
1391	"	Kula	3500'	Peach	R	1398	21	381	8	327	11	3	273
1392	"	"	2800'	Peach	R	735	15	94	0	58	0	0(	67
1393	"	"	2900'	Peach	R	721	16	139	3	113	1	(	
1394	"	"	2800'	Peach	R	1188	28	222	0	142	7	2	
1395	"	"	2900'	Peach	R	1062	21	232	0	167	5	0	166
1396	"	"	2800'	Peach	R	1062	20	125	3	96	5	0	117
1397	"	Kamaole	2900	Peach	R	707	18	167	0	127	9	0	119
1398	"	Kula	2800'	Peach	R	1020	23	284	0	174	13	7	203
1399	"	"	"	Peach	R	1174	22	321	4	210	12	0	273
1400	"	"	2900'	Peach	R	424	11	77	0	43	4	0	181
1401	"	"	2700	Peach	R	735	14	167	1	119	9	0	227
1402	"	"	2800'	Peach	R	935	22	229	0	153	2	2	244
1403	"	Kamaole	2800'	Peach	R	813	17	231	2	107	3	1	284
1404	"	Kula	"	Peach	R	1174	23	262	193	5	0	0	223
1405	"	"	2900'	Peach	R	714	18	213	0	162	5	2	298
1406	"	"	2800'	Peach	R	877	21	213	0	165	3	1	242
1407	"	"	2900'	Peach	R	1034	22	230	0	192	0	0	222
1408	"	"	"	Peach	R	778	16	168	0	122	6	3	215
1409	"	"	2800'	Peach	R	1361	25	313	1	152	1	1	240
1410	"	Kamaole	2900'	Peach	R	1602	24	185	0	115	5	3	115
1411	"	Kula	"	Peach gr	R	467	12	258	13	53	38	45	552
1412	"	"	2700'	Peach	R	1077	28	319	0	181	11	0	296

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1413	6/27	Kamaole	2900'	Peach	R	650	16	170	0	103	22	0	261
1414	"	Kula	2700'	Plum	R	552	13	0	0	0	0	0	0
1415	"	"	"	Plum	R	622	10	3	0	1	0	0	5
1416	"	"	"	Plum	R	481	11	0	0	0	0	0	0
1417	"	"	"	Plum	R	361	9	8	0	5	0	0	22
1418	"	"	"	Plum	R	361	9	8	0	5	0	0	22
1419	"	"	"	Plum	R	608	7	0	0	0	0	0	0
1420	"	"	"	Plum	R	679	8	7	0	3	0	0	10
1421	"	"	"	Plum	R	650	8	0	0	0	0	0	0
1422	6/28	Puukalani	1650'	Guava	R	792	20	46	21	1	1	17	58
1423	"	"	"	Guava	R	559	20	52	24	3	0	13	93
1424	"	"	"	Guava	R	594	20	58	20	0	0	12	97
1425	"	"	"	Guava	R	636	20	52	28	1	2	24	81
1426	"	"	"	Guava	R	693	20	97	46	0	0	29	139
1427	"	"	"	Guava	R	664	20	45	36	0	0	6	67
1428	"	"	"	Guava	R	764	20	115	60	2	1	17	150
1429	"	"	"	Guava	R	650	20	68	38	2	0	11	104
1430	"	"	"	Guava	R	707	19	73	27	2	1	17	103
1431	"	"	"	Guava gr	R	636	20	32	8	0	1	6	50
1432	"	"	"	Guava gr	R	622	20	47	10	7	1	8	75
1433	"	"	"	Guava gr	R	566	20	15	7	1	0	2	26
1434	"	"	"	Guava gr	R	636	20	31	7	5	1	9	48
1435	"	"	"	Guava gr	R	417	20	17	3	1	3	1	40
1436	"	"	"	Guava gr	R	518	20	27	11	1	0	3	52
1437	"	"	"	Guave gr	R	566	20	23	8	3	3	2	40
1438	"	"	"	Guava gr	R	495	20	19	7	0	6	4	38

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1439	6/28	Punkalani	1650'	Guava gr	R	481	20	25	9	2	1	2	51
1440	"	"	"	Guava gr	R	424	17	31	5	2	2	8	73
1441	"	Haikimaile	1450'	Guava gr	R	721	20	27	2	0	1	2	37
1442	"	"	"	Guava gr	R	778	20	32	7	0	0	10	41
1443	"	"	"	Guava gr	R	813	20	25	10	0	0	5	30
1444	"	"	"	Guava gr	R	707	20	23	2	0	5	4	32
1445	"	"	"	Guava gr	R	771	20	17	7	0	1	0	22
1446	"	"	"	Guava gr	R	877	20	16	2	0	4	1	18
1447	"	"	"	Guava gr	R	849	20	22	8	0	3	1	25
1448	"	"	"	Guava gr	R	721	20	9	0	0	0	1	12
1449	"	"	"	Guava gr	R	820	20	12	2	0	1	0	14
1450	"	"	"	Guava gr	R	827	20	19	4	0	2	3	22
1451	"	"	"	Guava gr	R	735	20	18	2	0	1	9	24
1452	"	"	"	Guava gr	R	834	20	32	4	0	4	1	38
1453	"	"	"	Guava gr	R	806	20	28	1	0	3	6	34
1454	"	"	"	Guava gr	R	949	29	37	10	0	2	6	38
1455	"	"	"	Guava gr	R	849	20	49	19	0	0	15	57
1456	"	"	"	Guava gr	R	827	20	77	39	4	0	12	93
1457	"	"	"	Guava gr	R	820	20	0	0	0	0	0	0
1458	"	"	"	Guava	R	964	20	118	45	0	0	29	122
1459	"	"	"	Guava	R	849	20	56	31	0	0	14	65
1460	"	"	"	Guava	R	764	20	94					123
1461	"	"	"	Guava	R	707	16	74	45	0	2	3	104
1462	"	"	600'	Guava	R	1460	27	609	186	1	11	95	417
1463	"	"	"	(Strawberry Guava)	R	693	81	61	6	0	4	7	88
1464	6/27	Kula	3800'	Loquat	R	511	20	17	0	13	0	1	33
1465	"	"	"	Loquat	R	467	20	19	0	15	0	0	40
1466	"	"	"	Loquat	R	573	20	7	0	7	0	0	32

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W.	N	PUPAE	DOR	MED	LON	PER	INDEX
1467	6/27	Kula	3800'	Loquat	R	511	20	0	0	0	0	0	0
1468	"	"	"	Loquat	R	707	28	4	0	3	0	0	5
1469	"	"	"	Plum gr	R	297	14	0	0	0	0	0	0
1470	"	"	"	Plum gr	R	325	14	0	0	0	0	0	0
1471	"	"	"	Plum gr	R	347	14	0	0	0	0	0	0
1472	"	"	"	Plum gr	R	269	14	0	0	0	0	0	0
1473	"	"	"	Plum gr	R	297	18	0	0	0	0	0	0
1474	"	"	"	Loquat gr	R	297	18	0	0	0	0	0	0
1475	6/23	"	2900'	Grape (Cyphomandra Betacea)	R	241	121	0	0	0	0	0	0
1476	"	"	"		R	170	3	0	0	0	0	0	0
1477	7/5	"	3900'	Plum gr	R	340	15	0	0	0	0	0	0
1478	"	"	"	Plum gr	R	269	15	0	0	0	0	0	0
1479	"	"	"	Plum gr	R	325	15	0	0	0	0	0	0
1480	" "	"	"	Plum gr	R	269	15	0	0	0	0	0	0
1481	"	"	"	Plum gr	R	354	15	0	0	0	0	0	0
1482	"	"	"	Plum gr	R	311	15	0	0	0	0	0	0
1483	"	"	"	Plum gr	R	438	15	0	0	0	0	0	0
1484	"	"	"	Plum gr	R	311	15	0	0	0	0	0	0
1485	"	"	"	Plum gr	R	467	15	0	0	0	0	0	0
1486	"	"	"	Plum	R	410	15	0	0	0	0	0	0
1487	"	"	"	Plum gr	R	255	15	0	0	0	0	0	0
1488	"	"	"	Plum gr	R	255	15	0	0	0	0	0	0
1489	"	"	"	Plum gr	R	424	15	0	0	0	0	0	0
1490	"	"	"	Plum gr	R	283	15	0	0	0	0	0	0
1491	"	"	"	Plum gr	R	410	15	8	0	0	0	0	0
1492	"	"	"	Plum gr	R	368	15	0	0	0	0	0	0

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1493	7/5	Kula	3900'	Plum gr	R	368	15	0	0	0	0	0	0
1494	"	"	"	Plum gr	R	354	15	0	0	0	0	0	0
1495	"	"	"	Plum gr	R	354	15	0	0	0	0	0	0
1496	"	"	"	Plum gr	R	361	15	0	0	0	0	0	0
1497	"	"	"	Plum gr	R	445	15	0	0	0	0	0	0
1498	"	"	"	Plum gr	R	438	15	0	0	0	0	0	0
1499	"	"	"	Plum gr	R	325	15	0	0	0	0	0	0
1500	"	"	3600'	Plum gr	R	191	15	0	0	0	0	0	0
1501	"	"	"	Plum	R	290	15	4					13
1502	"	"	"	Plum gr	R	276	15	0	0	0	0	0	0
1503	"	"	"	Plum gr	R	227	15	0	0	0	0	0	0
1504	"	"	"	Plum gr	R	340	15	0	0	0	0	0	0
1505	"	"	"	Plum gr	R	269	15	0	0	0	0	0	0
1506	"	"	"	Peach	G	877	15	0	0	0	0	0	0
1507	"	"	"	Peach gr	R	580	15	31	0	23	0	0	53
1508	"	"	"	Peach	G	1062	15	20	1	19	0	0	18
1509	"	"	3650'	Peach	G	935	15	0	0	0	0	0	0
1510	"	"	"	Peach	G	892	15	190	0	106	0	0	213
1511	"	"	"	Peach	G	949	15	8	0	6	0	0	8
1512	"	"	"	Peach gr	R	693	15	36					5
1513	"	"	"	Peach	G	721	15	82	0	67	2	0	113
1514	"	"	"	Peach	G	629	15	47	1	34	0	0	75
1515	"	"	"	Peach	G	834	15	0	0	0	0	0	0
1516	"	"	"	Peach gr	R	735	15	139	0	122	2	0	189
1517	"	"	"	Peach	G	755	15	71	0	65	0	0	94
1518	"	"	3900'	Loquat	R	1330	50	40	0	32	0	0	30
1519	"	"	"	Loquat	R	1231	50	15	0	10	0	0	12

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1520	7/5	Kula	3900'	Loquat	R	1259	50	93	0	77	0	0	73
1521	"	"	"	Loquat	R	1146	50	67	2	52	0	1	58
1522	"	"	"	Loquat	R	978	50	47	0	19	17	0	48
1523	"	"	"	Loquat	R	1217	50	80	11	48	2	0	65
1524	"	"	"	Loquat	R	1460	50	120	0	118	0	0	82
1525	"	"	"	Loquat	R	1337	50	105	0	81	0	0	78
1526	"	"	"	Loquat	R	679	25	29	0	25	0	0	42
1527	"	"	3600'	Loquat	R	1871	50	139	0	113	0	0	74
1528	"	"	"	Loquat	R	622	22	85	0	68	0	0	136
1529	"	"	"	Loquatgr	R	921	37	5	0	3	0	0	5
1530	"	"	"	Loquat	R	1219	50	53	17	3	5	1	43
1531	"	"	"	Loquat	R	992	50	29	4	0	3	0	29
1532	"	"	"	Loquat	R	1098	50	34	3	5	6	1	30
1533	"	"	"	Loquat	R	1174	50	33	11	0	3	0	28
1534	"	"	"	Loquat	R	664	27	23	1	0	0	0	34
1535	"	"	3650'	Peach gr	R	622	15	165	0	109	9	4	265
1536	"	"	"	Peach gr	R	735	15	208	0	140	7	3	282
1537	"	"	"	Peach gr	R	686	15	97	0	73	7	0	141
1538	"	"	"	Peach gr	R	664	15	103	0	79	4	0	155
1539	"	"	"	Peach gr	R	650	15	240	1	184	10	0	369
1540	"	"	"	Peach gr	R	935	15	231	0	162	24	2	247
1541	"	"	"	Peach gr	R	749	15	147	0	86	7	0	196
1542	"	"	"	Peach gr	R	806	15	129	0	76	6	0	160
1543	"	"	"	Peach gr	R	834	15	210	0	151	8	1	251
1544	"	"	"	Peach gr	R	921	15	279	3	181	17	4	302

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1545	7/5	Kula	3650'	Peach	gr R	764	15	146	0	97	6	0	195
1546	"	"	"	Peach	gr R	834	15	197	0	105	19	0	236
1547	7/11	"	3600	Plum	R	679	10	5	0	2	0	0	7
1548	"	"	"	Plum	gr R	332	10	0	0	0	0	0	0
1549	"	"	"	Plum	gr R	430	10	0	0	0	0	0	0
1550	"	"	"	Plum	gr R	764	10	17	0	10	0	4	22
1551	"	"	"	Plum	gr R	735	10	0	0	0	0	0	0
1552	"	"	"	Peach	R	707	15	180	0	139	10	1	254
1553	"	"	"	Peach	R	749	15	224	2	145	4	3	299
1554	"	"	"	Peach	R	664	15	323	0	201	7	0	486
1555	"	"	"	Peach	R	778	15	335	0	203	0	0	430
1556	"	"	"	Peach	R	679	15	195	0	123	23	0	287
1557	"	"	"	Peach	R	806	15	182	0	125	14	6	225
1558	"	"	"	Peach	R	608	15	206	0	107	0	0	338
1559	"	"	"	Peach	R	907	15	218	0	167	0	0	240
1560	"	"	"	Peach	R	721	15	224	0	157	19	0	310
1561	"	"	"	Peach	R	608	15	213	0	182	0	0	350
1562	"	"	"	Peach	R	1020	15	303	0	193	22	0	297
1563	"	"	"	Peach	R	707	15	236	0	11	18	1	333
1564	"	"	"	Peach	R	978	15	318	0	144	56	6	323
1565	"	"	"	Peach	R	707	15	229	0	165	16	0	323
1566	"	"	"	Peach	R	863	15	192	0	113	11	0	222
1567	"	"	"	Peach	R	580	15	125	0	107	2	0	215
1568	"	"	"	Peach	R	707	15	266	0	207	0	0	376
1569	"	"	"	Peach	R	949	15	181	0	129	12	5	213

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDE
1570	7/11	Kula	3600'	Peach	R	643	15	248	0	204	2	0	38
1571	"	"	"	Peach	R	552	15	182	0	97	22	0	32
1572	"	"	"	Peach	R	749	15	359	0	273	12	0	47
1573	"	"	"	Peach	R	1000	15	186	0	115	19	4	18
1574	"	"	"	Peach	R	622	15	178	0	140	9	0	28
1575	"	"	"	Peach	R	525	15	161	0	135	1	0	30
1576	"	"	"	Peach	R	863	15	262	0	177	12	11	30
1577	"	"	"	Peach	R	650	15	148	0	123	4	2	22
1578	"	"	"	Peach	R	863	15	182	0	77	6	1	21
1579	"	"	"	Peach	R	643	15	239	3	176	7	10	37
1580	"	"	"	Peach	R	622	15	204	0	167	4	2	32
1581	"	"	"	Peach	R	764	15	238	0	190	3	3	31
1582	"	"	"	Peach	R	978	15	266	0	183	19	1	27
1583	"	"	"	Peach	R	629	15	157	0	134	5	0	24
1584	"	"	"	Peach	R	636	15	187	0	130	16	1	29
1585	"	"	"	Peach	R	650	15	174	0	137	12	0	26
1586	"	"	"	Peach	R	806	15	188	0	125	28	0	23
1587	"	"	"	Peach	R	608	15	207	0	162	6	0	34
1588	"	"	"	Peach	R	778	15	234	0	161	16	0	30
1589	"	"	"	Peach	R	594	15	182	0	144	7	0	30
1590	"	"	"	Peach	R	749	15	300	7	240	6	0	40
1591	"	"	"	Peach	R	735	15	357	4	196	68	2	48
1592	"	"	"	Peach	R	622	15	312	3	136	15	4	501
1593	"	"	"	Peach	R	608	15	221	0	171	15	2	363
1594	"	"	"	Peach	R	650	15	216	2	167	4	0	332
1595	"	"	"	Peach	R	594	15	293	0	208	8	0	493
1596	"	"	"	Peach	R	545	15	324	0	282	1	0	594

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LOW	PER	INDEX
1597	7/11	Kula	3600'	Peach	R	552	15	141	0	132	0	0	255
1598	"	"	"	Peach	R	707	15	265	0	209	7	0	374
1599	"	"	"	Peach	R	693	15	275	0	191	17	3	396
1600	"	"	"	Peach	R	693	15	211	0	162	2	0	304
1601	"	"	"	Peach	R	650	15	236	0	182	6	1	363
1602	"	"	"	Peach	R	636	15	214	0	137	4	4	334
1603	"	"	"	Peach	R	907	15	0	0	0	0	0	0
1604	"	Iao Valley	300'	Kamani (Velvet Apple)	GeR	1174	53	1058	772	0	20	4	901
1605	7/21	Makaolai	"	"	R	863	5	64	61	00	0	0	74
1606	"	"	"	"	R	679	5	225	208	0	0	0	331
1607	"	"	"	"	R	707	5	375	301	0	0	0	530
1608	"	"	"	"	R	820	5	205	179	0	0	0	250
1609	"	"	"	"	R	721	5	19	8	0	0	0	26
1610	"	"	"	"	R	735	5	217	51	0	0	4	295
1611	"	"	"	(Citrus matis)	R	255	20	5	2	0	3	0	19
1612	"	"	"	"	R	283	20	0	0	0	0	0	0
1613	"	"	"	"	R	269	20	5	2	0	1	2	18
1614	"	"	"	"	R	227	20	0	0	0	0	0	0
1615	"	"	"	"	R	212	20	0	0	0	0	0	0
1616	"	"	"	"	R	269	20	30	17	0	0	4	111
1617	"	"	"	"	R	170	20	0	0	0	0	0	0
1618	"	"	"	"	R	255	20	0	0	0	0	0	0
1619	"	"	"	"	R	241	20	5	2	0	0	0	20
1620	"	"	"	"	R	241	20	0	0	0	0	0	0
1621	"	"	"	"	R	255	20	2	0	0	0	0	7
1622	"	Lahaina	"	Mango gr	R	735	10	262	215	3	0	0	356

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1623	7/21	Lahaina	300'	Mango gr	R	778	10	248	179	0	0	0	318
1624	"	"	"	Mango gr	R	664	10	259	203	0	0	15	390
1625	"	"	"	Mango gr	R	707	10	403	233	0	27	0	570
1626	"	"	"	Mango gr	R	834	10	245	122	4	0	2	293
1627	"	"	"	Mango gr	R	778	10	391	176	0	1	5	502
1628	"	"	"	Mango gr	R	806	10	122	62	0	0	0	151
1629	"	"	"	Mango gr	R	892	10	388	298	0	0	0	434
1630	"	"	"	Mango gr	R	764	10	275	233	0	11	4	359
1631	"	Makaoloi	"	Mango gr	R	721	10	96	48	0	1	0	139
1632	"	"	"	Mango gr	R	1000	10	33	20	0	2	0	33
1633	"	"	"	Mango gr	R	907	10	43	38	0	0	0	47
1634	"	"	"	Mango gr (Santalum album)	R	85	100	15	4	0	0	0	176
1635	"	"	"	"	R	78	100	28	2	0	19	0	358
1636	"	"	"	(Grape-fruit)	R	693	1	0	0	0	0	0	0
1637	"	"	"	(Wassee apple)	G	424	2	0	0	0	0	0	0
1638	"	Lahaina	"	Cotton	G	184	10	0	0	0	0	0	0
1639	"	Makaoloi &	"	Avocado	G	1545	3	78	52	0	0	4	90
1640	"	"	1640'	(Macadamia nut)	G	297	15	0	0	0	0	0	0
1641	"	"	"	"	G	269	15	0	0	0	0	0	0
1642	"	Olowalu	10	Kamani	G	467	15	0	0	0	0	0	0
1643	"	"	"	Kamani	R	212	15	119	46	3	24	22	561
1644	"	"	"	Kamani	R	227	15	75	29	14	7	15	330
1645	"	"	"	Kamani	R	241	15	141	45	19	8	13	585
1646	"	"	"	Kamani	grR	269	15	176	25	16	13	8	654
1647	"	"	"	Kamani	grR	368	15	355	125	23	13	11	964
1648	"	Makaoloi	"	Hog Plum	R	71	20	0	0	0	0	0	0

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	W	PUPAE	DOR	MED	LOR	PER	INDEX
1649	7/21	Makaoloi	10'	Hog Plum	R	71	20	0	0	0	0	0	0
1650	"	Hana	100	Kamani gr	R	1548	75	175	18	0	74	2	113
1651	"	"	"	Half Flower	R	156	165	0	0	0	0	0	0
1652	"	"	"	"	R	156	165	0	0	0	0	0	0
1653	"	"	"	"	R	127	165	0	0	0	0	0	0
1654	"	"	"	"	R	170	165	0	0	0	0	0	0
1655	"	"	"	(Osteomeles Anthyllidifolia)	R	141	295	0	0	0	0	0	0
1656	"	"	"	Kamani gr	R	1576	75	245	28	0	32	14	155
1657	7/24	Iao Valley	300	Guava gr	R	525	6	202	102	0	2	31	384
1658	"	"	"	Sapota gr	R	414	7	39	10	0	0	2	94
1659	"	"	"	Mt. Apple gr	R	1658	55	26	11	0	2	8	15
1660	"	"	"	" " gr	R	1383	45	17	3	0	3	3	12
1661	"	"	"	Kamani	R	1573	75	181	29	0	79	5	115
1662	"	"	"	Mt. Apple gr	R	1588	55	14	10	0	3	1	8
1663	"	"	"	" " gr	R	1516	55	40	20	0	5	1	26
1664	"	"	"	" " gr	R	1330	50	26	3	0	3	1	19
1665	"	"	"	" " gr	R	1474	55	9	1	0	1	0	6
1666	"	"	"	" " gr	R	1658	60	86	24	0	18	7	51
1667	"	"	"	Guava	R	495	10	5	4	0	0	0	10
1668	7/21	Hana	100	Kamani gr	R	368	15	17	15	0	0	0	46
1669	"	"	"	Kamani gr	R	1829	75	158	124	0	31	48	86
1670	7/24	Iao Valley	300	Guava gr	R	949	20	129	48	0	9	27	135
1671	"	Kaupo	910	Wi Apple gr	R	1146	36	16	12	0	0	0	13
1672	"	Iao Valley	300	Avocado gr	R	1062	4	17	15	0	0	0	16
1673	"	"	"	Lemon gr	R	241	2	0	0	0	0	0	34
1674	7/21	Kaupo	910	Wi Apple gr	R	1029	36	36	20	0	0	0	34
1675	7/24	Kula	3650	Apricot gr	R	260	11	141	0	106	14	4	542
1676	"	"	3150	Cotoeaster Pannosa	R	42	230	0	0	0	0	0	0

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1677	7/24	Kula	3150	Lemon	R	1020	4	0	0	0	0	0	0
1678	7/21	Kaupo	910	Wi Apple	R	1336	36	65	0	0	0	0	48
1679	7/24	Kula	3150	Peach	R	156	5	33	0	0	0	0	211
1680	7/21	Kaupo	910	Wi Apple	R	899	36	51	41	0	0	0	56
1681	7/24	Kula	3150	Almond	G	113	5	0	0	0	0	0	0
1682	7/24	"	3150	"	R	28	47	0	0	0	0	0	0
1683	7/21		910	Wi Apple	R	934	36	28	21	0	0	0	29
1684	7/24	Kula	3000	Plum	R	227	7	0	0	0	0	0	0
1685	"	"	"	Apple	G	707	13	2	2	0	0	0	2
1686	7/21	Kaupo	910	Wi Apple	R	708	24	6	5	0	0	0	11
1687	7/24	Kula	3000	Pomegranate	R	1006	6	2	1	0	0	0	2
1688	7/21	Kipahulu	110	Wi Apple	G	1403	12	0	0	0	0	0	0
1689	"	"	"	" "	G	1431	12	0	0	0	0	0	0
1690	"	"	"	" "	G	1431	12	0	0	0	0	0	0
1691	7/24	Kula	3000	Apple	G	511	8	0	0	0	0	0	0
1692	7/21	Hana	500	Mt. Apple	G	1699	36	0	0	0	0	0	0
1693	7/24	Kula	3000	Tree Tomato	R	71	1	0	0	0	0	0	0
1694	7/21	Hana	500	Mt. Apple gr	R	1627	24	0	0	0	0	0	0
1695	7/24	Kula	3650	Plum gr	R	525	30	0	0	0	0	0	0
1696	7/21	Hana	500	Mt. Apple	R	1641	24	0	0	0	0	0	0
1697	7/24	Kula	3650	Peach gr	R	430	11	98	0	46	23	6	239
1698	7/21	Hana	500	Mt. Apple	G	1629	36	0	0	0	0	0	0
1699	7/24	Kula	3650	Peach gr	R	1938		785	?	493	3	6	391
1700	7/24	Kula	3650	" gr	R	2100	27	386	0	236	59	0	183

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1701	7/24	Kula	3650	Peach	gr	R	2012	45	622	0	250	69	0	304
1702	7/25	Kula	500	Mt Apple		G	1140	24	0	0	0	0	0	0
1703	7/24	Kula	3650	Peach	gr	R	1690	16	365	3	130	55	4	334
1704	7/25	Kula	500	Mt Apple		R	1159	24	28	20	0	0	2	24
1705	"	Kealia	193	" "	gr	R	789	24	105	85	0	0	0	140
1706	"	Kaupo	950	Guava (Psidium cattleianum)		R	177	17	22	6	0	6	0	124
1707	"	Kapalaalaa	200	"		R	368	5	0	0	0	0	0	0
1708	"	"	150	"		R	2161	9	2	0	0	0	0	1
1709	"	Kaupo	950	Papaya		R	987	1	0	0	0	0	0	0
1710	"	"	"	Soursop		R	2146	1	0	0	0	0	0	0
1711	7/24	Kula	3650	Peach	gr	R	2097	44	580	0	232	37	0	276
1712	"	"	"	Plum	gr	R	430	19	0	0	0	0	0	0
1713	"	"	"	"	gr	R	622	37	0	0	0	0	0	0
1714	7/25	Ice Valley	500	Guava	gr	R	2012	40	156	32	0	1	16	77
1715	"	"	"	"	gr	R	1842	40	40	12	0	3	13	21
1716	"	"	"	"	gr	R	1644	40	56	3	1	0	19	34
1717	"	"	"	"		R	1791	20	0	0	0	0	0	0
1718	"	"	"	"		R	2012	40	40	1	0	0	38	19
1719	7/24	O Kula	3150	"	gr	R	2452	30	94	16	0	4	35	38
1720	"	"	"	"	gr	R	2598	30	43	3	0	1	2	16
1721	"	"	"	"	gr	R	2210	30	49	3	0	1	8	22
1722	"	"	"	"	gr	R	1573	30	97	15	0	6	4	61
1723	"	"	"	"	gr	R	2446	30	51	6	0	0	2	32
1724	"	"	"	"	gr	R	2152	30	55	5	0	0	13	25
1725	"	"	"	"	gr	R	1573	30	105	18	0	9	4	66

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1726	7/31	Kula	3800	Plum	R	1077	20	1	0	1	0	0	1
1727	"	"	"	Plum	R	1330	25	0					0
1728	"	Iao Valley	300	Kamani	R	283	25	63	8	2	7	23	22
1729	"	"	"	Guava gr	R	608	13	7	1	0	0	2	11
1730	"	Hailua	550	Sapota W	R	424	5	56	29	1	2	2	132
1731	"	Iao Valley	330	Guava gr	R	1174	20	54	12	0	0	22	45
1732	"	"	"	Guava gr	R	1160	28	90	27	0	0	40	77
1733	8/7	Olinda	2100	Guava gr	R	1231	26	63	37	7	0	6	51
1734	"	"	"	S. Guava	R	834	74	2	1	0	0	0	2
1735	"	"	1800	Guava gr	R	1174	33	6	1	0	0	1	5
1736	"	"	"	Rose Apple	R	297	17	66	22	2	15	18	222
1737	"	"	"	Coffee	R	156	106	69	1	3	6	7	442
1738	"	"	"	Guava	R	749	22	93	23	19	2	26	124
1739	"	Makawao	1700	Guava	R	2918	87	242	80	22	4	69	82
1740	8/8	Iao Valley	300	Guava gr	R	1700	30	89	30	0	1	31	52
1741	"	"	"	Guava gr	R	1785	30	105	34	0	7	26	53
1742	"	"	"	Guava gr	R	2041	30	130	32	0	6	25	63
1743	"	"	"	Guava gr	R	1658	30	64	13	0	3	24	33
1744	"	"	"	Guava gr	R	1551	30	219	75	1	29	68	141
1745	"	"	"	Guava gr	R	1742	30	86	31	0	4	32	49
1746	"	"	"	Guava gr	R	1714	30	115	37	0	5	31	67
1747	"	"	"	Guava gr	R	1756.	30	80	36	0	5	23	43
1748	"	"	"	Guava gr	R	1885	30	159	53	0	11	36	84
1749	"	"	"	Guava gr	R	1927	30	123	41	0	3	35	63
1750	"	"	"	Guava gr	R	2026	30	140	58	0	9	43	69
1751	"	"	"	Guava gr	R	2125	30	68	33	0	1	14	42
1752	"	"	"	Guava	R	2238	30	196	39	0	4	48	87
1753	"	"	"	Guava gr	R	2196	30	207	60	0	5	67	94

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1754	8/8	Iao Valley	300	Guava	gr	R	2026	30	140	58	0	9	43	69
1755	"	"	"	Guava	gr	R	1814	30	182	60	1	11	60	100
1756	"	"	"	Guava	gr	R	1828	30	163	46	0	14	46	89
1757	"	"	"	Guava	gr	R	1920	30	136	48	0	17	37	70
1758	"	"	"	Guava	gr	R	2012	30	215	71	0	17	50	106
1759	"	"	"	Guava	gr	R	1700	30	110	45	0	13	23	64
1760	"	"	500	Guava	gr	R	1202	23	96	33	0	24	6	79
1761	"	"	"	Guava	gr	R	1871	26	81	34	0	4	13	43
1762	"	"	600	Guava	gr	R	1559	30	47	23	0	1	3	30
1763	"	"	"	Guava	gr	R	1516	30	10	2	0	0	2	6
1764	"	"	"	Guava	gr	R	1474	30	47	11	1	6	9	31
1765	"	Wailuku	200	Kamani	gr	R	382	20	45	22	2	0	0	117
1766	"	"	"	Kamani	gr	R	481	23	124	116	1	0	1	257
1767	7/26	Kula	3650	Peach	gr	R	29486	683	10500					356
1768	8/9	Iao Valley	300	Guava	gr	R	32739	480	740					226
1769	"	Honomanu	200	Mt Apple		R	1927	20	150	98	0	19	5	259
1770	"	"	"	"		R	1672	20	92	53	0	10	1	55
1771	"	"	"	"		R	1686	20	75	13	0	12	2	42
1772	"	"	"	"		R	1728	20	76	50	0	14	0	43
1773	"	"	"	"		R	1742	20	31	23	0	0	0	17
1774	"	"	"	"		R	1714	20	51	35	0	3	0	29
1775	"	"	"	"		R	1686	20	116	61	0	5	0	68
1776	"	"	"	"		R	1871	20	109	32	1	12	1	58
1777	"	"	"	"		R	679	9	18	6	0	4	1	26
1778	"	"	"	"	gr	R	1672	20	64	18	0	17	0	38
1779	"	"	"	"	gr	R	1431	20	45	15	0	10	0	25
1780	"	"	"	"	gr	R	1602	20	45	10	0	14	0	28
1781	"	"	"	"	gr	R	1852	20	9					4

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	M	PUPAE	DOE	MED	LON	PER	INDEX
1782	8/9	Honomanu	200	Mt. Apple	gr	R	1488	20	59	23	0	13	2	39
1783	"	"	"	"	gr	R	1699	20	48	13	0	19	0	25
1784	"	"	"	"	gr	R	1460	20	22	10	0	3	0	15
1785	"	"	"	" "	gr	R	1559	20	19	0	0	8	2	12
1786	"	Hana	500	Guava	gr	R	1005	20	0					0
1787	"	"	"	"	gr	R	594	11	0					0
1788	"	Honomanu	200	Guava	gr	R	2438	20	71	10	0	0	13	39
1789	"	"	"	Guava	gr	R	2339	20	103	21	0	0	8	44
1790	"	"	"	"	gr	R	224	18	218	27	0	3	21	98
1791	8/7	Makawao	1700	"		R	2706	83	221	49	3	1	67	81
1792	8/10	Kula	3650	Plum	gr	R	424	25	0					0
1793	"	"	"	"	gr	R	438	25	4	1	0	0	0	9
1794	"	"	"	"	gr	R	424	25	0					0
1795	"	"	"	"	gr	R	396	25	8	0	2	0	0	20
1796	"	"	"	"	gr	R	424	25	0					0
1797	"	"	"	"	gr	R	410	25	0					0
1798	"	"	"	"	gr	R	424	25	0					0
1799	"	"	"	"	gr	R	424	25	0					0
1800	"	"	"	"	gr	R	418	25	0					0
1801	"	"	"	"	gr	R	410	25	0					0
1802	"	"	"	"	gr	R	453	25	0					0
1803	"	"	"	"	gr	R	538	30	0					0
1804	"	"	"	Peach	gr	R	1531	20	353	2	142	43	30	195
1805	"	"	"	"	gr	R	1020	20	376	11	132	110	3	368
1806	"	"	"	"	gr	R	1063	20	266	3	87	61	9	249
1807	"	"	"	"	gr	R	1105	20	370	6	202	98	8	334
1808	"	"	"	"	gr	R	992	20	457	4	253	36	5	460
1809	"	"	"	"	gr	R	1134	20	370	12	104	47	13	204

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1810	8/10	Kula	3650	Peach	gr	R	1188	20	506	15	180	55	11	435
1811	"	"	"	"	gr	R	1245	20	409	18	194	31	10	326
1812	"	Pukalani	1800	Guava	gr	R	1048	45	72	15	3	7	16	68
1813	"	"	"	"	gr	R	1302	50	65	11	2	10	7	49
1814	"	"	"	"	gr	R	1573	50	86	15	3	11	14	55
1815	"	"	"	"	gr	R	1417	50	57	25	5	2	10	40
1816	"	"	"	"	gr	R	1431	50	100	21	4	7	29	71
1817	"	Haiku	550	"	gr	R	1361	25	122	5	0	15	50	89
1818	"	"	"	"	gr	R	1630	25	206	15	0	10	107	126
1819	"	"	"	"	gr	R	1616	25	176	27	1	11	95	208
1820	"	"	"	"	gr	R	1202	25	122	8	0	14	30	101
1821	"	"	"	"	gr	R	1431	25	100	31	0	0	0	69
1822	"	"	"	"	gr	R	1237	25	92	11	0	6	35	75
1823	"	"	"	"	gr	R	964	25	71	4	0	12	25	73
1824	8/11	Lahaina	50	Mango	gr	R	1756	15	18	14				10
1825	"	"	"	"	gr	R	1650	15	64	51	0	0	0	38
1826	"	"	"	"	gr	R	1658	15	43	22			6	25
1827	"	"	"	"	gr	R	1460	15	128	96				67
1828	"	"	"	"	gr	R	1750	15	34	23			1	29
1829	"	"	"	"	gr	R	1686	15	84	39	0	19	0	49
1830	"	"	"	"	gr	R	1545	15	40	25				25
1831	"	"	"	"	gr	R	1620	15	121	28		13	1	74
1832	"	"	"	"	gr	R	1347	15	249	179	0	8	12	184
1833	"	"	"	"	gr	R	1573	15	97	64				63
1834	"	"	"	"	gr	R	1431	15	94	67	0	3	2	66
1835	"	"	"	"	gr	R	1389	15	95	26	0	20	4	68
1836	"	"	"	"	gr	R	1672	15	78	26	0	3	4	46
1837	"	"	"	"	gr	R	1446	15	66	40	0	1	3	45

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUHAE	DOR	MED	LON	PER	INDEX
1838	8/11	Lahaina	50	Mango gr	R	1856	20	153	61	1	18	3	82
1839	"	"	"	" gr	R	2083	20	136	89	0	8	0	65
1840	"	"	"	" gr	R	1899	20	59	29	0	3	5	31
1841	"	"	"	" gr	R	2111	20	86	40	0	4	0	40
1842	"	"	"	" gr	R	2100	20	35	23	0	0	0	17
1843	"	"	"	" gr	R	1856	20	70	27	0	4	1	37
1844	"	"	"	" gr	R	1531	15	31	17	0	3	1	20
1845	"	"	"	" gr	R	1770	17	17	9				9
1846	"	"	"	Papaya	R	1090	7	0					0
1847	"	"	"	"	R	1308	7	0					0
1848	"	"	"	Soursop	R	585	1	230	110	0	3	57	393
				gr	R	1573	4	0					0
1850	"	"	"	Guava gr	R	2381	21	50			2	31	20
1851	"	"	"	Cashew Nut	R	1431	21	135	94			8	94
1852	"	"	"	Breadfruit	R	2579	5	9	9				3
1853	"	"	"	" gr	R	1231	3	103	69	1	5		83
1854	"	"	"	Velvet Apple gr	R	1160	8	341	257		6		293
1855	"	"	"	" gr	R	1446	12	490	267	0	54	0	339
1856	"	"	"	" gr	R	1090	8	188	102	0	33	3	172
1857	"	"	"	" gr	R	1077	8	13	4				12
1858	"	Olowalo	10	Kamani gr	R	1335	56	2312	867	10	364	164	1731
1859	"	"	"	" gr	R	1210	48	2244	813	6	225	143	1854
1860	"	"	"	" Green		650	58	58	30	0	4	0	89
1861	"	Lahaina	50	Soursop gr	R	622	1	98					158
1862	"	Honolua	200	Guava gr	R	1330	20	139	34	0	3	66	100
1863	"	Lahaina	50	" gr	R	849	20	353	20	0	20	98	415
1864	"	"	"	" gr	R	877	17	466	165	0	10	80	531
1865	"	"	"	Starfruit gr	R	710	16	10	4				14

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1866	8/11	Iao Valley	300	Kamani	gr	R	800	58	170	20	3	36	67	212
1867	"	Honolua	200	Sandalwood		R	80	145	28	9	0	1	7	350
1868	"	"	"	Coffee		R	290	47	0					0
1869	"	"	"	Phyllanthus Sp (Flacourtia Jangomas)		R	280	48	0					0
1870	"	"	"	"		R	170	37	9	3				52
1871	"	"	"	"		R	156	33	0					0
1872	"	Lahaina	50	Fig (Terminalia edulis)		R	241	7	42	39			1	174
1873	"	Honolua	200			R	10	15	0					0
1874	8/10	Kula	3650	Plum		R	390	25	42	28	0	1	8	107
1875	"	"	"	"		R	370	25	35	26			3	94
		Lots 1874 & 1875 were exposed at Haiku from 8/10 to 8/14/50												
1876	"	Iao Valley	500	Kamani	gr	R	992	60	234	67	16	11	76	235
1877	"	"	500	"	gr	R	1006	63	199	72	9	8	49	197
1878	"	"	"	Guava	gr	R	2359	31	69	12			29	29
1879	"	"	700	"	gr	R	2523	41	119	35	0	0	6	47
1890	"	"	"	Kamani	Green		1231	96	3				2	2
1891	"	Haiku	600	Sapota W		R	255	3	12	5				47
1892	8.9	Kaipiki	"	Guava		R	1389	16	27	3			4	19
1893	8/15	Kula	3650	Plum	gr	R	396	25	1					2
1894	"	"	"	"	gr	R	792	50	0					0
1895	"	"	"	"	gr	R	820	50	1					1
1896	"	"	"	"	gr	R	877	50	0					0
1897	"	"	"	"	gr	R	735	50	0					0
1898	"	"	"	"	gr	R	792	50	0					0
1899	"	"	"	"	gr	R	863	50	0					0
1900	"	"	"	"	gr	R	1062	50	0					0
1901	"	"	"	"	gr	R	1105	50	16	3	7	0	1	14
1902	"	"	"	"	gr	R	849	50	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1903	8/15	Kula	3650	Plum	Gr R	806	50	0					0
1904	"	"	"	Plum	Gr R	778	50	0					0
1905	"	"	"	Peach	R	453	12	199	7	76	8	69	439
1906	"	"	3800	Plum	Gr R	1091	20	11	0	5	1	0	10
1908	"	"	"	Plum	Gr R	1202	20	7	0	5	1	0	5
1909	"	"	"	Plum	Gr R	1245	20	3	0	3			2
1910	"	"	3750	Plum	Gr R	664	14	0					0
1911	"	"	"	Plum	Gr R	1361	30	0					0
1912	"	"	"	Plum	Gr R	964	50						0
1913	"	"	"	Quince	G	849	4	0					0
1914	8/17	Lahaina	100	Mango	Gr R	2026	25	217	25	0	16	4	107
1915	"	"	"	Mango	Gr R	2111	25	240	92	0	41	0	113
1916	"	"	"	Mango	Gr R	1913	25	145	49	0	34	2	75
1917	"	"	"	Mango	Gr R	2041	25	95	62	0	13	0	46
1918	"	"	"	Mango	Gr R	1970	25	38	25				19
1919	"	"	"	Mango	Gr R	1998	25	48	21	0	2	0	24
1920	"	"	"	Mango	Gr R	2130	25	36	13				16
1921	"	"	"	Mango	Gr R	2055	25	48	22	0	2	0	23
1922	"	"	"	Mango	Gr R	2055	25	19	13	0	1	0	10
1923	"	"	"	Mango	Gr R	2466	25	11	2	0	2	0	4
1924	"	"	"	Mango	Gr R	2409	25	60	6	0	12	0	24
1925	"	"	"	Mango	Gr R	2310	25	84	38				36
1926	"	"	"	Mango	Gr R	2154	25	64	27	0	4	1	30
1927	"	"	"	Mango	Gr R	2159	25	39	27	0	1	0	18
1928	"	"	"	Mango	Gr R	2339	25	7	4				3
1929	"	"	"	Mango	Gr R	2296	25	13	12				5
1930	"	"	"	Mango	Gr R	2367	25	8	5				3

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1931	8/17	Lahaina	100	Mango Gr	R	2069	25	(38	24				19
1932	"	"	"	Mango Gr	R	2253	25	7	3				3
1933	"	"	"	Mango Gr	R	2452	25	68	68				27
1934	"	"	"	Mango Gr	R	1375	15	20	12				14
1935	"	"	50	Starfruit	R	1259	25	35	20		4	1	27
1936	"	"	"	" Gr	R	1160	25	5					4
1937	"	"	"	" Gr	R	1063	25	0					0
1938	"	"	"	" Gr	R	1134	25	0					0
1939	"	"	"	" Gr	R	1146	25	0					0
1940	"	"	"	" Gr	R	1119	25	1					1
1941	"	"	"	" Gr	R	1658	38	1					1
1942	8/21	Olinda	2300	Guava	R	1105	34	11	4	2	0	1	9
1943	"	"	2000	Guava	R	115	30	115	52	7	0	7	103
1944	"	"	2300	Guava	R	1602	30	89	60	2	0	23	55
1945	"	"	2200	Guava	R	978	23	96	15	2	0	29	98
1946	"	"	2000	Guava	R	1785	50	135	36	10	2	34	75
1947	"	"	1800	Guava Gr	R	1431	30	77	10	1	10	12	53
1948	"	Iao Valley	400	Passiflora subpeltata	R	212	15	0					0
1949	"	"	"	Kamani Gr	R	410	37	36	3	0	14	13	87
1950	"	"	"	Guava Gr	R	1105	20	26	7	0	1	6	23
1951	"	"	"	Guava Gr	R	1531	25	92	40	0	17	6	60
1952	8/22	Kula	2700	Fig Gr	R	566	15	122	65	10	2	0	215
1953	"	"	"	Fig	R	928	22	46	13	4	1	4	49
1954	"	"	2860	Fig	R	892	16	39	7	6	1	0	45
1955	"	"	2700	Fig	R	935	23	74	12	23	4	4	79
1956	"	"	"	Fig	R	650	19	6	1	1			9
1957	"	"	2900	Fig	R	622	9	8	1				12

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1958	8/22	Kula	2900	Fig	R	764	17	26	4	1			34
1959	"	"	2700	Fig	R	525	13	67	20	12	1	1	127
1960	"	"	2640	Fig	R	1202	23	81	36	15			67
1961	"	"	3000	Fig	R	1287	23	21	7				16
1962	"	"	2700	Fig	R	1375	18	23	6	1			16
1963	"	"	"	Fig	R	863	15	15	6	(1 melon)			17
1964	"	"	"	Fig	R	1134	19	14	8				12
1965	8/23	"	3650	Plum	Gr R	340	25	0					0
1966	"	"	"	Plum	Gr R	382	25	0					0
1967	"	"	"	Plum	Gr R	354	25	0					0
1968	"	"	"	Plum	Gr R	340	25	0					0
1969	"	"	"	Plum	Gr R	650	25	0					0
1970	"	"	3600	Plum	Gr R	495	25	0					0
1971	"	"	3650	Plum	Gr R	481	25	0					0
1972	"	"	"	Plum	Gr R	340	25	0					0
1973	"	"	"	Plum	Gr R	382	25	0					0
1974	"	"	"	Plum	Gr R	386	25	0					0
1975	"	"	"	Plum	Gr R	354	25	0					0
1976	"	"	"	Plum	Gr R	397	25	4					10
1977	"	"	"	Plum	Gr R	410	25	0					0
1978	"	"	3750	Plum	Gr R	552	25	10		5			18
1979	"	"	"	Plum	Gr R	1000	25	0					0
1980	"	"	"	Plum	Gr R	679	25	2					2
1981	"	"	"	Plum	Gr R	622	25	6		5			9
1982	"	"	"	Plum	Gr R	1000	34	0					0
1983	"	Lahaina	50	Mango	Gr R	2132	25	19	8				8
1984	"	"	"	Mango	Gr R	1885	25	31	6				16

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1985	8/23	Lahaina	20	Mango	Gr R	1799	25	110	30			1	61
1986	"	"	"	Mango	Gr R	1871	25	45	22				24
1987	"	"	"	Mango	Gr R	1799	25	63	29				35
1988	"	"	"	Mango	Gr R	1347	25	131	44		1	1	97
1989	"	"	"	Mango	Gr R	1799	25	66	31		1	1	36
1990	"	"	"	Mango	Gr R	1749	25	22	11		1	1	12
1991	"	"	"	Mango	Gr R	1885	25	54	30				29
1992	"	"	"	Mango	Gr R	1714	25	17	5				9
1993	"	"	"	Mango	Gr R	1658	25	16	4				9
1994	"	"	"	Mango	Gr R	1446	25	13	5				8
1995	"	"	"	Mango	Gr R	2201	25	12	2				5
1996	"	"	"	Mango	Gr R	1856	25	49	14		2		26
1997	"	"	"	Mango	Gr R	1777	25	40	16				22
1998	"	"	"	Mango	Gr R	2452	31	4					1
1999	"	"	"	Starfruit	Gr R	1672	41	1					1
2000	"	"	"	Guava	Gr R	852	16	834	124	0	3	7	978
2001	"	"	"	Guava	Gr R	721	15	90	6	0	4	18	124
2002	8/24	Kula	3800	Poha	R	57	13	0					0
2003	"	"	"	Passiflora laurifolia	R	85	3	0					0

HAWAII FRUIT COLLECTIONS

NOTE:

Lots 1029-1564 included in this September Report
Lots 1565 -2600while are not complete will be included in the December report.

A "Lot" of fruits may include from a few to several hundred depending upon availability, size, etc.

KEY:

INDEX: Puparia recovered per 1000 grams of fruit
S: Stage of fruit, G: green, R, Ripe
W: Weight in grams
N: Number of fruit
gr: Ground fruit, usually over-ripe
EMERGENCE
DOR: Dacus dorsalis
MED: Ceratitis capitata
LON: Opius longicaudatus
Per: Opius Persulcatus

TABLE NO. 26

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1029	5/26	Piihonua	1200	Rose apples	R	945	40	461	216		13	42	488
1030	"	"	"	" "	R	837	40	543	304		1	61	649
1031	"	"	"	" "	R	777	40	368	196		2	67	474
1032	"	"	"	" "	R	925	40	342	195		2	53	370
1033	"	"	"	" "	R	1075	40	625	339		6	53	581
1034	"	"	"	" "	R	953	40	408	314			41	428
1935	"	"	"	" "	R	983	40	264	157		5	47	269
1036	"	"	"	" "	R	1130	40	328	163			50	290
1037	"	"	"	" "	R	975	40	459	300		6	46	471
1038	"	"	"	" "	R	1158	40	535	269		2	63	462
1039	"	Hilo	100	" "	R	970	40	299	158		2	49	308
1040	"	"	"	" "	R	970	40	417	258		9	12	430
1041	"	"	"	" "	R	638	26	262	125		3	55	411
1042	"	"	"	D. fragrans	R	80	32	0					
1043	"	"	"	Ti fruit	R	40	94	0					
1044	"	Waikii	4700	Plum	R	499	21	29		24			58
1045	5/29	M.L.T.T.	5100	Jer.cherry	R	83	100	0					

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1046	5/29	M.L.T.T.	4600	Jer. Cherry	R	93	100	0						0
1047	"	"	4250	"	R	102	100	33	7	26				324
1048	"	"	4000	"	R	105	100	0	8					86
1049	"	"	"	"	R	4	4	0						0
1950	"	"	"	"	R	4	3	0						0
1051	"	Volcano	"	Plum	gr R	1795	67	0						0
1052	"	"	"	"	gr R	1540	76	0						0
1053	"	"	"	"	gr R	1545	64	0						0
1054	"	Mt. View	1400	Peach	R	509	18	42	30					83
1055	"	Kopuwai	6000	Plum	R	1453	82	0						0
1056	"	"	"	"	R	1498	103	0						0
1057	"	Keenakolu	5200	Yellow Plum	R	999	146	0						0
1058	"	"	"	Red plum	R	726	49	0						0
1059	6/1	Hilo	75	Mt. apple	R	953	20	27	16			4		28
1060	"	Keenakolu	5200	Red plum	R	999	77	0						0
1061	"	"	"	" "	R	1680	112	0						0
1062	"	"	"	" "	R	499	29	0						0
1063	"	"	"	P.mollissimaR		817	9	0						0
1064	"	"	"	" "	R	726	9	0						0
1065	"	"	"	" "	R	408	13	0						0
1066	"	"	"	" "	gr R	636	6	0						0
1067	"	"	"	" "	R	1680	17	0						0
1068	5/29	Waikii	4700	Jer. Cherry	R	83	100	109		106				1313
1069	6/1	Kaumana	440	Rose apple	R	863	40	214	66	17	37	32		248
1070	"	Hilo	75	Mt. apple	R	1090	24	48	41		3			44
1071	"	"	"	" "	R	1135	24	69	55		3	9		61

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1072	6/2	Piihonua	1200	Rose apple		R	1952	78	715	444		1	9	366
1073	"	"	"	"	"	R	2315	90	772	466		4	19	333
1074	"	"	"	"	"	R	2270	88	730	418		5	51	322
1075	"	"	"	"	"	R	1362	52	240	124			10	176
1076	6/3	Hookena	Sea Lev.	Passion fruit		R	60	7	0					0
1077	"	S.Kona	860	Mango	gr	R	2270	24	74	46		9	2	33
1078	"	Pahoehoe	"	Peach		R	908	21	50	13	1	5	6	55
1079	"	Honaunau	1400	Winter avocado	gr	R	3178	11	1	1				.3
1080	"	Huehue R.	1900	Peach		R	1362	36	153	77		1	25	112
1081	"	"	"	Mango		R	908	8	71	31		9	5	78
1082	"	"	"	Alaa		R	155	78	0					10
1083	"	Puwaawaa R.	2400	Peach		R	454	25	76	24		5	20	167
1084	"	Waimea	2760	Plum		R	817	33	0					0
1085	"	"	"	Peach		R	409	13	15	4				37
1086	"	"	"	"		R	817	24	0					0
1087	"	"	"	Grapefruit		R	1453	5	30	24				21
1088	"	Ahualoa	2080	Peach		R	45	6	53	45	1		2	1178
1089	"	"	"	Orange		R	454	5	7	3				15
1090	"	"	2000	Peach		R	545	32	145	97		7	27	266
1091	"	Pohakea	1700	"		R	863	20	165	72	39	20	6	191
1092	"	"	1380	Guava		R	545	13	106	20	1	2	36	194
1093	6/5	Volcano	3800	Plum		R	1816	84	0					0
1094	"	"	"	"		R	1725	62	0					0
1095	"	"	"	"		R	1362	43	0					0
1096	"	M.L.T.T.	5100	Jer.cherry		R	88	100	3					34

Lot	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1097	6/5	M.L.T.T.	4600	Jer.cherry	R	98	100	0					0
1098	"	"	4250	" "	R	88	100	22	1	18			250
1099	"	"	4000	" "	R	94	100	9	6				96
1100	6/6	Waikii	4700	Plum	R	405	16	0					0
1101	"	Keanakolu-Ookala Tr.	3600	Tree lobelia	R	25	21	0					0
1102	"	"	"	" "	R	46	47	0					0
1103	"	Keanakolu	5200	P.mollissima	R	432	8	0					0
1104	"	"	"	" "	R	577	9	0					0
1105	6/5	Waikii	4700	Almond	R	158	14	0					0
1106	"	"	"	Plum	R	71	15	7		5			99
1107	"	"	"	"	R	199	13	0					0
1108	"	"	"	Jer.cherry	R	93	100	124		120			1333
1109	6/6	Keanakolu	5200	P.mollisima	R	930	12	0					0
1110	"	"	"	" "	R	633	9	0					0
1111	"	"	"	" "	R	670	8	0					0
1112	"	"	"	" "	R	862	12	0					0
1113	"	"	"	" "	R	567	8	0					0
1114	"	"	"	" "	R	1055	17	0					0
1115	"	"	"	" "	R	1090	16	0					0
1116	"	"	"	" "	R	980	15	0					0
1117	"	"	"	" "	R	1230	18	0					0
1118	6/5	Waikii	4700	Plum	R	887	25	5		5			6
1119	"	"	"	"	R	860	32	16		15			19
1120	6/8	Hilo	75	Apple	R	905	5	3	2				3
1121	6/9	Pohoa	250	Mangosteen (Gourka)	R	715	5	10	2				14
1122	"	"	"	" "	R	783	6	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1123	6/9	Kapoho	250	Rose apple		R	545	23	70	32		1	10	128
1124	"	"	"	Waiawi(Red)		R	285	52	150	106		22	4	526
1125	"	Kalapana	25	Guava	gr	R	2045	30	585	245		7	11	286
1126	"	"	"	"	gr	R	1425	25	326	179		9	21	229
1127	"	"	"	"	gr	R	2860	45	799	567		22	19	279
1128	"	"	"	"	gr	R	3178	45	296	126		7	17	93
1129	"	"	"	"	gr	R	2542	35	553	224		30	65	218
1130	"	"	"	"	gr	R	2179	30	453	382		7	9	208
1131	"	"	"	"	gr	R	2406	35	447	208		25	65	186
1132	"	"	"	"	gr	R	2179	30	525	354		18	23	241
1133	"	"	"	"	gr	R	908	12	19	6		3	6	21
1134	"	"	"	"	gr	R	953	14	37	25		2	1	39
1135	6/9	Waikii	4700	Plum		R	372	16	35		28		3	94
1136	6/12	M.L.T.T.	4600	Jer.cherry		R	99	100	0					0
1137	"	"	5200	"	"	R	93	100	0					0
1138	"	"	4000	"	"	R	109	100	5	4				46
1139	"	"	4250	"	"	R	99	100	1		1			10
1140	"	Waikii	4700	"	"	R	114	100	129		121			1132
1141	"	"	"	Apricot		R	531	19	95		85			179
1142	"	"	"	Plum		R	344	20	4		4			12
1143	"	"	"	"		R	327	21	6		5			18
1144	"	"	"	Almond		R	302	21	0					0
1145	"	"	"	"		R	304	22	0					0
1146	"	"	"	Plum		R	1226	50	8		7			7
1147	"	"	"	"		R	1271	50	42				1	33
1148	"	"	"	"		R	1180	50	19		16			16

LOT	DATE	LOCALITY	ALT.	FRUIT		S	W	M	PUPAE	HOR	MED	LOW	PER INDEX
1149	6/9	Waiki	4700	Plum		R	1771	68	70	4	54		40
1150	6/12	Volcano	3800	"		R	1816	75	3	3			2
1151	"	"	"	"		R	1952	75	5	3			2
1152	"	"	"	"		R	1861	75	0				0
1153	"	"	"	"		R	1725	75	1	1			.5
1154	"	"	"	"		R	1771	75	0				0
1155	"	"	"	"		R	1816	75	0				0
1156	"	"	"	"		R	2633	97	1	1			.3
1157	6/13	Keauhou	5200	P.molissima		R	1680	25	0				0
1158	"	"	"	"	"	R	565	10	0				0
1159	"	"	"	Plum		R	817	50	0				0
1160	"	"	"	"		R	863	52	0				0
1161	"	Umikoa	3500	Peach		R	545	16	8		7		15
1162	"	"	"	"		R	499	16	31	4	26		62
1163	"	"	"	"	gr	R	863	20	69	2	55	4	80
1164	"	"	"	"	gr	R	681	16	87	10	46		96
1165	"	"	"	"		R	1271	26	11	7	3		9
1166	6/15	Hilo	75	Rose apple		R	545	30	339	102		50 158	622
1167	"	"	"	"	"	R	681	30	286	50		25 59	460
1168	"	"	"	"	"	R	863	40	334	169		34 83	387
1169	"	"	"	"	"	R	450	26	274	127		10 100	609
1170	"	"	"	"	"	R	908	53	0				0
1171	"	Waiki	4700	Plum		R	272	27	5		5		16
1172	"	"	"	"		R	636	34	22		21		35
1173	"	"	"	"		R	908	42	19	1	9		21
1174	6/19	H.L.T.T.	5100	Jer.cherry		R	75	100	0				0

Lot	DATE	LOCALITY	ELEV.	FRUIT	S.	W	N	PUPAE	IOR	MED LON PER INDEX
1175	6/19	M.L.T.T.	4600	Jer.cherry	R	104	100	0		0
1176	"	"	4250	" "	R	125	100	0		0
1177	"	"	4000	" "	R	97	100	12	11	124
1178	"	"	4000	" "	R	3	4	0		0
1179	"	"	"	" "	R	6	6	0		0
1180	"	Volcano	3800	Plum	R	681	30	0		0
1181	"	"	"	"	R	772	38	4	3	5
1182	"	"	"	"	R	953	30	1	1	1
1183	"	"	"	"	R	1090	30	0		0
1184	"	"	"	"	R	636	30	0		0
1185	"	"	"	"	R	681	30	0		0
1186	"	"	"	"	R	908	30	2	2	2
1187	"	"	"	"	R	545	30	0		0
1188	6/20	Keanakolu	5200	P.mollissima	R	863	15	0		0
1189	"	"	"	" "	R	1090	15	0		0
1190	"	"	"	" "	R	999	16	0		0
1191	"	"	"	" "	R	1090	19	0		0
1192	"	"	"	" "	R	1317	23	0		0
1193	"	"	"	" "	R	1135	16	0		0
1194	"	"	"	" "	R	953	16	0		0
1195	"	Keanakolu-Ookala tr.	5000	" "	R	454	11	0		0
1196	"	Keanakolu	5200	" "	R	1544	17	0		0
1197	"	"	"	" "	R	681	12	0		0
1198	"	"	"	" "	R	999	16	0		0
1199	"	"	"	Plum	R	454	40	0		0
1200	"	"	"	"	R	272	30	0		0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S.	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1201	6/20	Keanakolu	5200	Plum		R	454	42	0					0
1202	"	"	"	"		R	545	50	0					0
1203	"	"	"	"		R	590	54	0					0
1204	"	"	"	"	gr	R	409	30	0					0
1205	"	"	"	"	gr	R	545	44	0					0
1206	"	"	"	"	gr	R	772	60	0					0
1207	"	"	"	"	gr	R	409	40	0					0
1208	"	"	"	"	gr	R	454	47	0					0
1209	"	Umikoa	3500	Peach		R	545	15	5	5				9
1210	"	"	"	"		R	817	20	28	18	7			34
1211	"	"	"	"		R	1226	31	42	20	15		1	34
1212	"	"	"	"		R	1362	36	35	8	26			26
1213	"	Hakalau		Waiawi		R	318	56	125	51		13	1	393
1214	"	Umikoa	3500	Plum		R	1180	46	0					0
1215	"	Laupahoehoe		Guava		R	908	20	231	112		2	17	254
1216	"	"		"		R	681	16	0					0
1217	6/21	Hilo	75	Rose apple		R	590	42	313	158		9	85	531
1218	"	"	"	Mt. apple		R	545	14	47	14		4	25	86
1219	6/26	Waikii	4700	Jer. cherry		R	116	100	84	1	79		1	724
1220	"	"	"	Plum		R	1210	61	25	8	13		2	21
1221	"	"	"	Apricot		R	720	25	55		43			76
1222	"	"	"	"		R	1017	36	124	2	112			122
1223	"	Pohakuloa (cage 16)	6511	Jer. cherry		R	1	1	0					0
1224	"	Pohakuloa (cage 15)	"	"	"	R	2	2	0					0
1225	"	M.L.T.T.	4600	"	"	R	5	5	0					0
1226	"	"	5100	"	"	R	101	100	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1227	6/26	M.L.T.T.	4600	Jer. cherry		R	78	100	0					0
1228	"	"	4250	"	"	R	90	100	19	3	15			211
1229	"	"	4000	"	"	R	96	100	10	9	1			104
1230	"	Waikii	4700	Plum		R	293	20	0					0
1231	"	Volcano	3800	"	gr	R	1317	60	1	1				.7
1232	"	"	"	"	gr	R	1271	60	0					0
1233	"	"	"	"	gr	R	1317	60	0					0
1234	"	"	"	"	gr	R	1226	60	0					0
1235	6/28	Hilo	75	Mt. apple		R	2088	43	234	141		7	51	112
1236	"	"	"	"	" gr	R	2179	43	103	35		13	18	47
1237	6/27	Umikoa	3500	Peach		R	1725	39	31	2	22		2	18
1238	"	"	"	"	gr	R	1771	37	26	9	9	3	1	15
1239	"	Kukaiau	3000	Guava		R	363	11	10	7	1			28
1240	"	Umikoa	3500	Plum		R	227	17	1					4
1241	"	"	"	"		R	363	18	0					0
1242	"	Keanakolu	5200	P.mollissima		R	423	5	0					0
1243	"	"	"	Plum		R	1165	86	0					0
1244	"	"	"	P.mollissima		R	1450	21	0					0
1245	6/29	Paauilo		Guava	gr	R	1044	20	62	38			1	59
1246	"	"		"	gr	R	1271	25	112	55			27	88
1247	"	"		"	gr	R	1180	26	152	123		1	21	129
1248	6/30	Kaumana	1000	Rose apple	grR		636	29	95	27		22	22	149
1249	"	"	"	"	" gr	R	772	26	106	29		19	23	137
1250	7/3	M.L.T.T.	4250	Jer. cherry		R	93	100	3	2				32
1251	"	"	4000	"	"	R	69	100	34	18			3	493
1252	"	"	4600	"	"	R	9	10	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1253	7/3	M.L.T.T.	4250	Jer.cherry		R	2	2	0					0
1254	"	"	4000	"	"	R	3	7	0					0
1255	"	"	"	"	"	R	4	5	1	1				250
1256	"	Waikii	4700	"	"	R	113	100	115		113			1018
1257	"	"	"	Plum		R	144	15	0					0
1258	7/3	Mt.View	2000	Guava		R	1144	20	53	29			3	46
1259	7/4	Keanakolu	5200	P.mollissima		R	65	14	0					0
1260	7/5	Hilo	75	Mt.apple	gr	R	636	13	7	4			2	11
1261	"	"	"	"	" gr	R	451	11	19	7		1	2	42
1262	7/10	Volcano	3800	Plum	gr	R	318	23	0					0
1263	"	"	"	"	gr	R	454	36	0					0
1264	"	"	"	"	gr	R	590	40	0					0
1265	7/11	Keanakou	5200	P.mollissima		R	409	8	0					0
1266	"	Ookala	600	Guava		R	681	12	75	37			13	110
1267	"	Kukaiau	"	"		R	772	15	61	25			21	79
1268	"	Umikoa	3500	Plum		R	726	31	0					0
1269	"	"	"	Peach		R	772	13	81	25	41			105
1270	"	"	"	Plum	gr	R	454	33	0					0
1271	7/12	Hilo	75	Navel orange	gr	R	1544	9	22	15				14
1272	"	"	"	Mt. apple		R	681	10	53	9		15	19	78
1273	7/10	M.L.T.T.	4600	Jer. cherry		R	122	100	5		5			41
1274	"	"	4250	"	"	R	87	100	15		13	1		172
1275	"	Waikii	4700	"	"	R	119	100	106		98			890
1276	"	M.L.T.T.	5100	"	"	R	2	2	0					0
1277	"	"	4600	"	"	R	12	10	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1278	7/10	M.L.T.T.	4600	Jer. cherry		R	2	2	0					0
1279	"	"	4000	"	"	R	5	4	0					0
1280	"	"	4000	"	"	R	2	1	0					0
1281	7/12	Ninole	400	Avocado	gr	R	1135	6	63	53				56
1282	"	"	"	Wi	gr	R	454	32	0					0
1283	"	"	"	Mt. apple	gr	R	409	5	0					0
1284	"	"	"	SurinamCherry		R	272	28	0					0
1285	"	"	"	Waiawi (yellow)	gr	R	908	46	116	30	11	47	1	128
1286	"	Ahualoa	2080	Passion fruit	gr	R	545	7	495	99	1(305 melon flies)			908
1287	"	"	"	Peach	gr	R	863	17	99	39		27	12	115
1288	"	Waimea	3500	Grapefruit	gr	R	1226	3	0					0
1289	"	"	"	Plum		R	146	6	0					0
1290	"	Ninole	400	Grape		R	52	39	0					0
1291	7/17	M.L.T.T.	4600	Jer. cherry		R	98	100	0					0
1292	"	"	5100	"	"	R	87	100	0					0
1293	"	Waikii	4700	"	"	R	155	100	184	159				1187
1294	"	"	"	Red plum		R	888	47	5	3				6
1295	"	"	"	Yellow plum		R	681	68	49	35				72
1296	"	"	"	Apricot		R	772	64	323	255			1	418
1297	"	"	"	"		R	363	16	144	116			4	397
1298	"	"	"	Almond		R	272	20	10					37
1299	"	"	"	Cherry plum		R	187	12	2	2				11
1300	"	M.L.T.T.	4600	Jer.cherry		R	2	2	0					0
1301	"	"	"	"	"	R	9	11	0					0
1302	"	"	4000	"	"	R	2	3	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	FPX	INDEX
1303	7/17	M.L.T.T.	5100	Jer. cherry	R	4	5	0						0
1304	7/18	Ookala	700	Guava	R	1335	16	184	106	1		38		138
1305	"	"	"	"	R	1362	16	144	104	1		18		106
1306	7/21	Hilo	75	"	R	1226	12	52	15			25		42
1307	"	"	"	"	R	1044	11	78	23		1	21		75
1308	"	"	"	"	R	1226	10	101	57		1	19		82
1309	"	"	"	"	R	908	9	50	21			19		55
1310	"	"	"	"	R	939	12	123	66			43		123
1311	"	"	"	"	R	908	10	53	33			1		58
1312	"	"	"	"	R	953	12	159	72			68		167
1313	"	"	"	"	R	817	9	190	62		1	74		233
1314	"	"	"	" gx	R	1816	16	61	18			39		34
1315	"	Kamuela	1900	"	R	1335	14	37	7			24		33
1316	"	Hilo	75	Avocado gx	R	2179	9	1	1					.5
1317	"	Kamuela	1900	Mt. apple	R	1226	16	10	10					8
1318	"	Hilo	75	Star apple	R	1317	12	2	2					2
1319	"	"	"	" " gx	R	1271	9	0						0
1320	"	"	"	Longan	R	681	60	0						0
1321	"	"	"	Coffee	R	60	53	0						0
1322	"	"	"	Rasas lime	R	182	8	0						0
1323	"	"	"	Naval orange	R	1544	8	31	27					20
1324	"	"	"	" " gx	R	1362	10	10	7					7
1325	"	"	"	" " gx	R	1907	13	11	9				1	6
1326	7/24	Waiohi	4700	Jer. cherry gx	R	121	100	121		112				1000
1327	"	"	"	Apricot	R	1216	36	293		186				241

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1328	7/24	Waikii	4700	Apricot	R	1097	29	332	3	207		1	303
1329	"	"	"	Plum	R	400	31	3		3			8
1330	"	Pohakuloa	6511	"	R	441	42	46		27			104
1331	"	M.L.T.T.	5100	Jer. cherry	R	4	5	0					0
1332	"	"	4600	" "	R	5	5	0					0
1333	"	"	"	" "	R	101	100	1	1				10
1334	"	"	"	" "	R	7	8	0					0
1335	"	"	4000	" "	R	3	3	0					0
1336	7/25	Hilo	75	Guava	R	1010	11	66	35			22	65
1337	7/27	"	"	Kamani (false) gr	R	953	46	91	82		1	5	95
1338	"	"	20	" gr	R	1135	86	9	9				8
1339	"	"	"	" gr	R	999	33	88	85			1	88
1340	"	"	"	" gr	R	863	45	35	31	1		1	41
1341	"	"	"	" gr	R	1044	37	108	88			6	103
1342	"	"	"	" gr	R	1090	70	0					0
1343	"	"	"	" gr	R	1090	57	52	42			5	48
1344	"	"	"	" gr	R	999	33	31	30			1	31
1345	"	"	"	" gr	R	953	31	40	30			1	42
1346	"	"	"	Guava	R	1680	19	60	41			3	36
1347	"	"	"	"	R	1407	16	26	3			1	18
1348	"	"	"	"	R	1180	13	34	29			2	29
1349	"	"	"	"	R	772	8	13	7			5	17
1350	"	Kaumana	1000	"	R	2179	29	17	11			1	8
1351	7/27	Hilo	75	Orange	R	1861	12	8	3		1		4
1352	"	"	"	Star apple gr	R	1317	11	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1353	7/27	Hilo	75	Apple of sodum		R	272	37	0					0
1354	"	"	"	Longan		R	318	40	0					0
1355	"	"	"	Star apple	gr	R	1180	10	0					0
1356	"	"	"	Navel orange	gr	R	1720	14	25	10		5	3	14
1357	"	"	"	Star apple		R	1317	10	0					0
1358	"	"	"	Mt. apple	gr	R	1135	19	9	1		3	2	8
1359	"	"	"	" "	gr	R	1907	31	10	7		1	2	5
1360	"	"	20	Naupaka		R	91	110	0					0
1361	7/31	Pahoa	250	Rose apple		R	318	22	76	11		22	35	239
1362	"	"	"	Guava		R	817	11	35	22			7	43
1363	"	Kona exp. station	1600	Pepino		R	636	18	5	3				8
1364	8/1	Kalapana	50	Lauhala		R	590	47	0					0
1365	"	Ookala	700	Guava		R	908	16	62	41	7		3	68
1366	"	Pahoa	250	"	gr	R	454	6	19	10			4	42
1367	7/31	Waikii	4700	Plum		R	136	19	0					
1368	"	Holualoa	1500	Avocado		R	1453	9	12	8				8
1369	"	Waikii	4700	Plum		R	272	57	40		19		2	147
1370	"	"	"	"		R	272	11	5	3	2			18
1371	"	Pahoa	250	Mangosteen (Gourka)		R	1362	10	33	22				24
1372	"	Kukaiau	1000	Guava		R	544	22	89	48			37	164
1373	"	"	"	"		R	817	17	105	10			14	129
1374	"	Waikii	4700	Apricot		R	445	53	465		356		2	1044
1375	"	"	"	Almond		R	454	52	0					0
1376	"	Holualoa	1500	Coffee		R	182	137	18	1	5	2	4	99
1377	"	Kawaihae	1000	Banyan fig		R	227	45	0					0

EOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1378	7/31	Waikii	4700	Plum	R	318	54	30		23			94
1379	"	"	"	"	R	545	67	23		21			42
1380	"	"	"	"	R	454	99	35	5	24			77
1381	8/1	Kukaiau	1000	Guava	R	863	16	27	20			2	31
1882	"	"	"	"	R	908	12	5	3			2	6
1383	7/31	Waikii	4700	Apricot	R	817	30	523	2	276			640
1384	"	"	"	"	R	454	22	423	3	339			932
1385	"	"	"	"	R	545	20	423		257		1	776
1386	"	M.L.T.T.	5100	Jer. cherry	R	98	100	0					0
1387	"	Waikii	4700	" "	R	121	100	66		44			545
1388	"	Kalapana	50	Mock orange	R	145	437	0					0
1389	"	"	"	Waiawi(red)	R	222	25	0					0
1390	"	M.L.T.T.	4250	Jer. cherry	R	106	100	116	17	75			1094
1391	"	"	4600	" "	R	119	100	13	12				101
1392	"	Kona	1900	Kopiko	R	10	25	0					0
1393	"	M.L.T.T.	4000	Jer. cherry	R	5	4	0					0
1394	8/3	Hilo	75	Navel orange	R	2134	9	4				1	2
1395	"	Keaukaha	10	Banyan fig	R	45	10	0					0
1396	"	"	"	D. fragrans	R	218	9	0					0
1397	"	"	"	False kamani	R	499	25	90	61		2	8	180
1398	"	"	"	" "	R	499	25	78	42			11	156
1399	"	"	"	" "	R	742	25	145	109		2	12	195
1400	"	"	"	" " gr	R	713	25	113	98		2	12	158
1401	"	"	"	" " gr	R	765	25	135	98			5	176
1402	"	"	"	" " gr	R	622	25	109	94		2	13	175
1403	8/4	Kapapala	3260	Ohelo	R	45	151	0					0

LOT	DATE	LOCALITY	ELEV.	FRUIT		S.	W	F	PUPAE	DOR	MED	LON	PER	INDEX
1404	8/4	Kapapala	3040	Guava	R	545	22	238	116			49		437
1405	"	"	3020	"	R	908	28	95	65	1		1		105
1406	"	"	2900	"	R	409	16	57	52					139
1407	"	"	2720	"	R	863	26	266	252					308
1408	"	Kau (Ohai kea)	2900	"	R	908	32	233	96			9	76	257
1409	8/7	Waikii	4700	Apricots	R	636	20	211		130				332
1410	"	"	"	"	R	772	25	361		303				468
1411	"	"	"	"	R	908	34	491		452				541
1412	"	"	"	"	R	636	25	280		242				440
1413	"	"	"	"	R	772	30	390	1	342		1		505
1414	"	"	"	"	R	726	30	337		357				464
1415	"	"	"	"	R	681	27	348	1	329				511
1416	"	"	"	Plum	R	499	77	57	1	41				114
1417	"	"	"	"	R	363	12	0						0
1418	"	"	"	Yellow plum	R	91	44	23		19				253
1419	"	"	"	" "	R	363	54	10		8				28
1420	"	"	"	" "	R	409	61	11		9				27
1421	"	Mt. View	2000	Waiawi(yellow)	R	533	84	4	3					8
1422	"	" "	"	" "	R	136	38	43	28		3	9		316
1423	"	" "	"	Guava	R	953	12	19	11			4		20
1424	8/4	Pohakuloa	6511	Plum	R	228	27	7		5	2			31
1425	8/7	Waikii	4700	Jer. cherry	R	92	100	89		45				967
1426	"	M.L.T.T.	4000	" "	R	91	100	25	14	1				275
1427	"	"	4600	" "	R	122	100	30	18	7				246
1428	"	"	4250	" "	R	118	100	82	13	67				695
1429	"	"	"	" "	R	13	11	14	1	11				1077

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1430	8/7	M.L.T.T.	5100	Jer. cherry	R	4	6	0					0
1431	8/8	S. Kona	1800	Edible fig	R	454	9	119	90				262
1432	"	Huehue R.	1900	" "	R	454	29	3	3				7
1433	"	" "	1900	Star apple gr	R	1090	13	4	1				4
1434	"	Honaunau	1800	Guava	R	545	11	37	11			22	68
1435	"	Kona Exp.St.	1700	Avocado	R	1180	3	0					0
1436	"	Huehue	1900	Star apple	R	953	12	0					0
1437	"	"	"	" "	R	999	16	0					0
1438	"	S. Kona	1800	Edible fig	R	681	12	58	43			2	85
1439	"	" "	1800	" "	R	863	17	155	119				180
1440	"	Kahuku-Kau	1940	Guava	R	908	15	81	36			20	89
1441	"	" "	1940	Guava	R	953	16	71	39			13	75
1442	"	Kona Exp.St.	1700	Avocado gr	R	1589	5	78	42		2	6	49
1443	"	" " "	1700	" gr	R	681	8	0					0
1444	"	" " "	1700	" gr	R	953	5	6	4				6
1445	"	" " "	1700	" gr	R	908	5	19	17				21
1446	"	Huehue	1900	Surinam cherry	R	227	73	6	4		1	1	26
1447	8/9	Hilo	75	Star apple gr	R	681	8	2			1	1	3
1448	"	"	75	Navel orange gr	R	1362	10	0					0
1449	"	"	75	" " gr	R	1317	10	0					0
1450	"	Stainback's Hi-way	280	Red waiawi	R	412	52	7	5			2	17
1451	"	" "	340	Guava	R	953	11	55	27			17	58
1452	"	" "	460	"	R	817	11	49	18			29	60
1453	"	" "	560	"	R	1317	17	51	37			6	39
1454	8/10	Keaukaha	10	False kamani gr	R	817	32	47	36			2	58
1455	"	"	"	" " gr	R	863	35	62	44		2	11	72

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1456	8/10	Keaukaha	10	False kamani gr	R	953	40	94	92			2	99
1457	"	"	10	" " gr	R	726	30	76	58			8	105
1458	"	"	10	" " gr	R	636	25	57	50			1	90
1459	"	"	10	" " gr	R	908	43	47	44				52
1460	"	"	10	" " gr	R	726	38	29	19		1	4	40
1461	8/9	Hilo	75	Pueblo avocado	R	530	4	0					0
1462	"	"	75	Mulberry	R	63	67	0					0
1463	"	"	75	Partridge eye fig	R	221	12	2	2				9
1464	"	"	75	Mission Fig	R	378	15	2	2				5
1465	8/10	Ohaikea	4460	Jer. cherry	R	23	31	0					0
1466	"	"	4000	" "	R	543	631	140	3	42	2	6	258
1467	"	M.L.T.T.	4300	" "	R	421	416	152	4	106		1	361
1468	"	"	4300	Maile	R	172	203	0					0
1469	"	"	4200	Jer. cherry	R	154	149	147	8	68	3	4	955
1470	8/14	"	4300	Coprosma r. Pilo	R	31	110	0					
1471	"	"	5100	Jer. cherry	R	97	100	0					
1472	"	"	4600	" "	R	16	15	3		3			188
1473	"	"	4600	" "	R	109	100	59	36	10			541
1474	"	"	4250	" "	R	96	100	40	11	22			417
1475	"	"	4000	" "	R	6	7	0					0
1476	"	Mt. View	2000	Yellow waiawi	R	458	36	12	8		1	1	26
1477	"	" "	2000	Guava	R	746	14	15	10		1		20
1478	"	" "	2000	Yellow waiawi	R	457	40	0					0
1479	8/14	Kaumana	1180	Guava	R	1035	18	14			1	2	17
1480	"	"	1180	Guava	R	1572	21	37	13			14	24

LOT	DATE	LOCALITY	ELEV.	FRUIT		S	W	N. PUPAE	DOR	MED	LON	PER	INDEX
1481	8/14	Kaumana	1240	Guava		R	1065	21	9	6			9
1482	"	Waikii	4700	Apricot		R	997	33	606	2	504		608
1483	"	"	4700	"		R	736	30	456	2	360	1 5	620
1484	"	"	4700	Jer. cherry		R	99	100	10		2		101
1485	"	"	4700	Apricot		R	784	30	422	2	329		538
1486	8/15	Ookala	860	Guave		R	908	12	122	61		42	134
1487	"	"	860	"		R	681	8	65	45		13	95
1488	"	"	1280	"		R	817	18	6		4		7
1489	"	"	1980	"		R	863	14	5		2		6
1490	"	"	1980	"		R	1273	24	1				.3
1491	"	Umikoa	3500	Peach	gr	R	545	12	39	4	21	5	72
1492	"	"	3500	Plum	gr	R	772	38	0				
1493	8/16	Kalapana	20	Guava		R	1453	18	192	44		85	132
1494	"	"	100	Mango	gr	R	772	10	55	38		7	71
1495	"	Pahoa	760	Mangosteen Gourka	grR		454	5	0				0
1496	"	Kalapana	20	Guava		R	863	12	54	29		15	63
1497	"	"	20	"		R	817	12	24	5		11	29
1498	"	"	20	"		R	1407	14	134	23		41	95
1499	"	Pahoa	760	Red Waiawi		R	318	29	23	11		4 4	72
1500	"	"	760	Rose apple		R	91	7	0				0
1501	"	Kalapana	20	Akia		R	99	335	0				0
1502	"	"	10	Akia		R	55	284	0				0
1503	"	"	10	Lama		R	12	12	6				500
1504	8/17	Ohaikea	4220	Jer. Cherry		R	351	342	139		60		396
1505	"	"	4000	"	"	R	508	573	39	9	4	1	77
1506	"	"	4000	"	"	R	363	403	61	5	24	1	168
1507	"	"	3740	"	"	R	39	56	0				0

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1508	8/17	Ohaikea	3640	Jer. cherry	R	517	612	23		4		1	44
1509	"	"	3640	Lilikoi	R	267	285	0					0
1510	"	"	3600	Jer. cherry	R	28	29	0					0
1511	"	Mt. View	1850	Yellow Waiawi	R	491	38	0					0
1512	"	" "	1090	" "	R	586	69	4	3				7
1513	"	" "	1090	" "	R	380	54	0					0
1514	"	Kurtistown	990	Red Waiawi	R	633	76	34	17	1	2	8	54
1515	8/21	M.L.T.T.	5100	Jer. cherry	R	90	100	0					0
1516	"	"	5100	" "	R	10	12	0					0
1517	"	"	4600	" "	R	107	100	64	6	54	1		598
1518	"	"	4600	" "	R	6	6	4		2			667
1519	"	"	4250	" "	R	6	7	1		1			167
1520	"	"	4250	" "	R	88	100	101	15	67	1	8	1148
1521	"	"	4250	" "	R	10	9	0					0
1522	"	"	4000	" "	R	86	100	46	5	12			535
1523	"	"	4000	" "	R	3	4	2	1				667
1524	"	"	4000	" "	R	13	15	0					0
1525	"	"	4300	Coprosma r. Pilo	R	25	83	0					0
1526	"	Mt. View	1090	Yellow Waiawi	R	330	19	2	2				6
1527	"	" "	2000	" "	R	869	70	62	9		1	45	71
1528	"	" "	2000	Guava	R	590	12	163	91			19	276
1529	"	Waikii	4700	Apricot	R	548	36	238	9	139			434
1530	"	"	4700	"	R	920	48	406	2	207		4	441
1531	"	"	4700	"	R	1211	64	367		127			303
1532	"	"	4700	"	R	930	42	374	1	209			402
1533	"	"	4700	"	R	1072	43	479		209			447
1534	"	"	4700	Plum	R	480	97	15		4			31

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	N	PUPAE	DOR	MED	LON	PER	INDEX
1535	8/21	Waikii	4700	Plum	R	587	116	11		5		2	19
1536	"	"	4700	Jer. cherry	R	105	100	8		8			76
1537	8/22	Umikoa	3500	Peach gr	R	426	11	54		35	10		127
1538	"	"	3500	Plum gr	R	573	18	0					0
1539	"	"	3500	"	R	739	30	6	3				8
1540	"	"	3500	"	R	685	20	8	1	5			12
1541	8/23	Kalapana	10	Guava	R	790	11	60	16			38	76
1542	"	"	10	Akia	R	231	587	0					0
1543	"	"	10	Lama	R	23	20	0					0
1544	8/24	Keaukaha	20	False kamani	R	1090	60	218	86		26	72	200
1545	"	"	20	" " gr	R	1022	54	123	52		9	46	120
1546	8/25	Kalapana	20	Mango gr	R	1005	10	50	3		17	7	50
1547	8/28	Waikii	4700	Jer. cherry	R	124	100	9		9			73
1548	"	"	4700	Apricot gr	R	318	19	87	1	46			274
1549	"	"	4700	Plum	R	136	16	16		13			118
1550	"	"	4700	"	R	136	20	20		19			147
1551	"	"	4700	"	R	159	20	22		19			138
1552	"	"	4700	"	R	136	20	16		13			118
1553	"	"	"	"	R	136	20	15		10			110
1554	"	"	"	"	R	182	22	16		12			88
1555	"	"	4700	" gr	R	227	25	37		26			163
1556	"	M.L.T.T.	4000	Jer. cherry	R	103	100	46	21	1		2	447
1557	"	"	4250	" "	R	119	100	52	13	24		5	437
1558	"	"	4600	" "	R	118	100	131	6	107			1110
1559	"	"	5100	" "	R	118	100	14	9				119

LOT	DATE	LOCALITY	ELEV.	FRUIT	S	W	M	PUPAE	DOR	MED	LON	PER	INDEX
1560	8/28	M.L.T.T.	4000	Jer. cherry	R	20	6	2	2				100
1561	"	"	4250	" "	R	19	5	2	2				105
1562	"	"	4600	" "	R	26	13	12	1	9			462
1563	8/29	Ookala	1800	Guava	R	772	20	5	3				6
1564	"	"	749	"	R	1317	20	102	44			87	77

SUMMARY

CALIFORNIA FRUIT EXPOSED TO DACUS DORSALIS IN THE FIELD AND IN CAGES ON OAHU

Commercial Fruits etc.

January 1950 - September 1950

\+ = moderate to heavy infestation (6+)
\- = light infestation (less than 5)
0 = not infested
The number of these signs = number of replications

FRUIT	FIELD	CAGE
ALMONDS		
Mixed var. from Winters, Yolo Co.		
Immature	0000	00--
Drake		
Immature	00000	00000
Ripe	0	0
IXL		
Immature	00000	00000
Ripe	0	0
Non Pareil		
Immature	00000	00000
Ripe	0	0
Peerless		
Immature	00000	00000
Ripe	0	0
APPLES		
Gravenstein		
Immature	00++-+	++
	00000000000	00000000-++
Ripe	--+00+	+---++-
APRICOTS		
Blenheim Sacramento, California		
Immature	0000++	00++
Ripe	+++	+++0
Royal Winters, Yolo Co.		
Immature	00000++	-00++
Ripe	+++++++	++++++-

FRUIT	FIELD	CAGE
APRICOTS (Cont.)		
Tilton Winters, Yolo Co.		
Immature - #1 and #2 Trees	COO++++	COO++++
Ripe	++—	+++++
Wiggins Seedling		
Immature		
Ripe	++O+++	++++++
Perfection		
Ripe	++	++
BLACKBERRIES		
Variety ?		
Immature	OO	OO
Ripe	OO	OO
CHERRIES		
Bing		
Immature	—O	++
Ripe	++	++
Black Oregon		
Immature	OO	++
Ripe	O	+
Chapman		
Immature	OO	+
Ripe		+
Lambert		
Immature	—O—	++
Ripe	+++	+++
Royal Ann		
Immature	O+	+—
Ripe	O++	+++
Tartarian		
Immature	—	++
Ripe	++	++

FRUIT	FIELD	CAGE
GRAPES		
Alicante Bouschet		
Immature	00	00
Ripe	0000	000-
Carignan		
Immature	00	00
Ripe	0000	000-
Mission		
Immature	00	00
Ripe	0000	00--
Thompson Seedless		
Ripe	00-000	0--0+0
Tokay		
Immature	00	--
Ripe	--00	00+0
Zinfandel		
Immature	00	00
Ripe	0000	0000
NECTARINES		
John Rivers		
Immature		++
Ripe	+	
#1		
Immature	++-+	++++
Ripe	+-0	0+
Quetta		
Ripe	+0	++
ORANGE		
Sunkist		
Ripe	00	--
? - Orange Co.		
Ripe	00	--
PAWLONIA FRUIT		
Immature	0	0

FRUIT	FIELD	CAGE
PEACH		
#2		
Immature	00+	00+
#1		
Immature	++	++
Ripe	++	++
Fortuna		
Ripe	++	++
Elberta		
Ripe	0+	++
Strawberry		
Ripe	+	+
Paloza		
Ripe	0+-0+-++	+++++
Cling - Ripe		0+-00+
PEAR		
Bartlett		
Immature	++++	++++
Ripe	++	++
Winter Nelis		
Immature	0000	000+
Hardy		
Immature	-0	+0
Comice		
Immature	--	++
PLUM		
Duarte		
Immature	+0++++	++++0-
Ripe	0+00++	++-+
Satsuma		
Immature	+-	0+0
Ripe	+-00	++++

FRUIT	FIELD	CAGE
PLUM (Cont.)		
Late Duarte		
Immature	0	0
Santa Rosa		
Immature		++
Ripe	+++	++
Climax		
Ripe	++	++
Mammoth		
Ripe	+	+
Burbank		
Ripe	0-	++
#2		
Immature	-	++-
Ripe	00++	++++
Sharkey		
Ripe	+++	+
PRUNES		
French		
Ripe	00-0	0+++
Imperial		
Ripe	+00-	++++
QUINCE		
#1		
Immature	00	00
WALNUT		
Persian Walnut		
Franquette		
Immature	000	000
COTTON BOLL		
Acala		
Ripe	+-	+-

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/17/50	8/21/50	Prunes, var. Imperial Mature	3		109	9/ 5/50	50	9/11/50	4♂♂ 5♀♀	
							9/ 8/50	22D	9/12/50	5♂♂ 7♀♀	
									9/13/50	5♂♂ 2♀♀	
									9/14/50	1 ♂	
									9/15/50	3♂♂ 3♀♀	
									9/16/50	1 ♂	
									9/18/50	4♂♂ 7♀♀	65.3
2	"	"	"	"	3		137	9/ 5/50	1	9/8/50	1 ♂ 1 ♀
							9/ 8/50	44D	9/15/50	3♂♂ 4♀♀	
									9/19/50	9♂♂ 6♀♀	
									9/20/50	1 ♀	55.5
3	"	"	Prunes, var. French Mature	5		85	9/ 5/50	0	9/16/50	1 ♀	
							9/ 8/50	0	9/19/50	2♂♂	
							9/13/50	8D		4♀♀	87.5
4	"	"	"	"	5		84	9/ 5/50	0	9/19/50	6♂♂
							9/ 8/50	1		7♀♀	
							9/13/50	35D	9/22/50	1 ♀	
									9/23/50	1 ♀	
									9/26/50	1 ♂	44.4

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
5	8/17/50	8/21/50	Cotton Bolls Acala	5		108	9/ 5/50	14	9/ 6/50	1 ♂	
							9/ 8/50	OD	9/11/50	3♂♂	
										1 ♀	
									9/ 8/50	2♂♂	
										4♀♀	78.6
6	"	"	"	"	5	105	9/ 5/50	8	9/ 6/50	1 ♂	
							9/ 8/50	OD		1♀	
									9/ 8/50	2♀♀	50.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/30/50	9/ 3/50	Cling Peach, var. Tree #2 Osborn Orchard	1		226	9/11/50 9/19/50	0 0D			0.0
2	"	"	"	1		221	9/11/50 9/19/50	5 61D	9/19/50 9/21/50 9/29/50 10/ 1/50	2♀♀ 1 ♀ 1 ♀ 5♂♂ 9♀♀	27.27
3	"	"	"	1		260	9/11/50 9/19/50	0 8D	9/27/50	1♂	12.5
4	"	"	"	1		260	9/11/50 9/19/50	0 0D			0.0
5	"	"	"	1		320	9/11/50 9/19/50	0 1D			0.0
6	"	"	"	1		248	9/11/50 9/19/50	223 2D	9/15/50 9/16/50 9/17/50 9/18/50 9/19/50	24♂♂ 48♀♀ 14♂♂ 29♀♀ 16♂♂ 11♀♀ 11♂♂ 9♀♀ 8♂♂ 6♀♀	78.22

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/21/50	8/25/50	Grapes, var. Thompson Seedless green-ripe			125	9/ 5/50 9/ 8/50 9/13/50	0 7 2D	9/15/50 9/20/50	2♂♂ 4♀♀ 1 ♀	77.7
2	"	"	" "			123	9/ 5/50 9/ 8/50 9/13/50	0 0 0D			0.0
3	"	"	Grapes, var. Mission green -ripe			131	9/ 5/50 9/ 8/50 9/13/50	1 0 3D	9/14/50	1 ♀	25.0
4	"	"	" "			134	9/ 5/50 9/ 8/50 9/13/50	0 1 1D	9/19/50 9/22/50	1♂ 1 ♂	100.0
5	"	"	Grapes, var. Aliconte Bouchet green-ripe			144	9/ 5/50 9/ 8/50 9/13/50	0 0 0D			0.0
6	"	"	" "			124	9/ 5/50 9/ 8/50 9/13/50	1 1 0D	9/12/50	1 ♂	50.0
7	"	"	Grapes, var. Zinfadel			157	9/ 5/50 9/8/50 9/13/50	0 0 0D			0.0
8	"	"	" "			149	9/ 5/50 9/ 8/50 9/13/50	0 0 0D			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
9	8/21/50	8/25/50	Grapes, var. Carignane green-ripe			152	9/ 5/50 9/ 8/50 9/ 13/50	0 0 0D			0.0
10	"	"	"	"		134	9/ 5/50 9/ 8/50 9/13/50	2 3 6D	9/12/50 9/19/50 9/20/50	1♂ 1 ♂ 1 ♀ 1 ♂ 1♀	45.5
11	"	"	Grapes, var. Tokay green-ripe			173	9/ 5/50 9/8/50 9/13/50	0 2 8D	9/18/50 9/19/50 9/20/50	2♂♂ 3♀♀ 4♂♂ 1 ♀	100.0
12	"	"	"	"		162	9 /5/50 9/ 8/50 9/13/50	0 0 0D			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. BORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/25/50	8/29/50	Grapes, var. Tokay Mature			133	9/8/50 9/13/50	0 OD			0.0
2	"	"	" "			135	9/ 8/50 9/13/50	0 OD			0.0
3	"	"	Grapes, var. Alicante Bouschet Mature			112	9/ 8/50 9/13/50	0 OD			0.0
4	"	"	" "			132	9/ 8/50 9/13/50	0 OD			0.0
5	"	"	Grapes, var. Mission Mature			121	9/ 8/50 9/13/50	0 OD			0.0
6	"	"	" "			118	9/ 8/50 9/13/50	0 OD			0.0
7	"	"	Grapes, var. Carignane			83	9/ 8/50 9/13/50	0 OD			0.0
8	"	"	" "			93	9/ 8/50 9/13/50	0 OD			0.0
9	"	"	Grapes, var. Thompson Seedles Mature			68	9/ 8/50 9/13/50	0 1D	9/21/50	1 ♀	100.0
10	"	"	" "			86	9/ 8/50 9/13/50	0 OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence Date	Pupation and Emergence No. Pupae	Pupation and Emergence Date	No. Flies	% Emergence over Pupation
11	8/25/50	8/29/50	Grapes, var. Zinfandel			109	9/8/50 9/13/50	0 OD			0.0
12	8/25/50	8/29/50	" "			90	9/8/50 9/13/50	0 OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/17/50	8/21/50	Apples, var. Gravenstein Mature	1		169	9/5/50	0	9/25/50	18♀♀	
							9/8/50	0		10♂♂	
							9/11/50	44D			63.63
							9/13/50	0			
2	"	"	"	"	1	105	9/ 5/50	0	9/25/50	2♂♂	
							9/ 8/50	0		2♀♀	
							9/13/50	0			
							9/19/50	18D			22.22
3	"	"	"	"	1	107	9/ 5/50	0	9/25/50	1 ♂	
							9/ 8/50	0		2♀♀	
							9/13/50	1			
							9/19/50	10D			27.27
4	"	"	"	"	1	129	9/ 5/50	0	9/25/50	1 ♂	
							9/ 8/50	0			
							9/13/50	0			
							9/19/50	14D			7.16
5	"	"	"	"	1	145	9/ 5/50	0	9/25/50	17♂♂	
							9/ 8/50	0		26♀♀	
							9/13/50	0			
							9/19/50	53D			81.13

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
6	8/17/50	8/21/50	Apples, var. Gravenstein	1		158	9/ 5/50	0	9/25/50	1 ♂	
							9/ 8/50	0		3♂♂	
							9/13/50	0	9/26/50	2♂♂	
							9/19/50	47D		5♂♂	
									9/27/50	1 ♂	
										2♂♂	
									9/28/50	7♂♂	
										3♂♂	
									9/29/50	3♂♂	
										1 ♀	
									10/ 1/50	1 ♀	61.70
7	"	"	Apples, var. Gravenstein green-ripe	1		104	9/ 5/50	0	9/25/50	1 ♂	
							9/ 8/50	0			
							9/13/50	0			
							9/19/50	4D			25.00

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (*Mangifera indica*)	8/17/50	8/21/50	Apples, var. Gravestein Mature	1	107	9/ 5/50	0	9/26/50	3 0.l.	
						9/ 8/50	0	10/ 1/50	2♂♂	
						9/19/50	19D		2♀♀	
									2 0.p.	
								10/ 3/50	2 0.p.	21.05
"	"	"	"	"	1	118	9/ 5/50	5			
						9/ 8/50	0	9/12/50	1 ♀	
						9/13/50	1		1 0.l.	
						9/19/50	31D	9/18/50	2 0.p.	
								9/21/50	1 0.l.	
								10/1/50	2♂♂	8.1
"	"	"	"	"	1	96	9/ 5/50	1	9/25/50	3♂♂
						9/ 8/50	2		2♀♀	
						9/13/50	0		1 0.l.	
						9/19/50	23D	9/26/50	2♂♂	
									1 ♀	
									1 0.l.	
								9/27/50	2 0.p.	
								10/1/50	2 0.p.	30.76
"	"	"	Apples, var. Gravestein green-ripe	1	108	9/ 5/50	4	9/21/50	1 0.l.	
						9/ 8/50	0	9/27/50	2 0.p.	
						9/13/50	0			
						9/19/50	25D			0.0
"	"	"	"	"	1	137	9/ 5/50	2	9/26/50	1 0.p.
						9/ 8/50	1			
						9/13/50	1			
						9/19/50	1D			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies P	% Emergence over Pupation
Mango Tree (*Mangifera indica*)	8/17/50	8/21/50	Apples, var. Gravenstein Mature	1	136	9/ 5/50	0			
						9/ 8/50	0			
						9/13/50	0			
						9/19/50	7D			0.0
"	"	"	"	"	1	124	9/ 5/50	0	9/25/50	1♂
						9/ 8/50	0			1♀
						9/13/50	0	9/26/50		1♀
						9/19/50	36D	9/27/50		2♀♀ 1♂
								10/ 1/50		4♂
										7♀♀ 47.22

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/25/50	8/29/50	Grape, Tokay Mature	1	150	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	" "	2	138	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	Grape, Alicante	3	114	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	" "	4	136	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	Grape, Mission	5	115	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	" "	6	104	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	Grape, Carignane	7	106	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	" "	8	136	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	Thompson Seedless	9	88	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	" "	10	122	9/ 8/50 9/13/50	0 OD			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence Date	Pupation and Emergence No. Pupae	Pupation and Emergence Date	Pupation and Emergence No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/25/50	8/29/50	Grape, Zinfandel	11	173	9/ 8/50 9/13/50	0 OD			0.0
"	"	"	" "	12	162	9/ 8/50 9/13/50	0 OD			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/21/50	8/25/50	Grapes, var. Thompson Seedless, green-ripe		108	9/ 5/50	2	9/14/50	2??	
						9/13/50	1D			
						9/ 8/50	0			66.7
"	"	"	" "		129	9/ 5/50	0			
						9/ 8/50	0			
						9/13/50	OD			0.0
"	"	"	Grapes, var. Mission green-ripe		158	9/ 5/50	2			
						9/ 8/50	0			
						9/13/50	OD			0.0
"	"	"	" "		137	9/ 5/50	1			
						9/ 8/50	0			
						9/13/50	OD			0.0
"	"	"	Grapes, Var. Aliconte Bouchet green-ripe		132	9/ 5/50	0			
						9/ 8/50	0			
						9 /13/50	OD			0.0
"	"	"	" "		137	9/ 5/50	0			
						9/ 8/50	0			
						9/13/50	OD			0.0
"	"	"	Grapes, var. Zinfandel green-ripe		109	9/ 5/50	0			
						9/ 8/50	0			
						9/13/50	OD			0.0
"	"	"	" "		157	9/ 5/50	0			
						9/ 8/50	0			
						9/13/50	OD			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (*Mangifera indica*)	8/21/50	8/25/50	Grapes, var. Carignane green-ripe		142	9/5/50 9/8/50 9/13/50	0 0 0D			0.0
"	"	"	"	"	152	9/ 5/50 9/ 8/50 9/13/50	0 0 0D			0.0
"	"	"	Grapes, var. Tokay green-ripe		176	9/ 5/50 9/ 8/50 9/13/50	2 0 0D	9/14/50 9/20/50	1 ♀ 1 ♀	100.0
"	"	"	"	"	169	9/ 5/50 9/ 8/50 9/13/50	1 3 2D	9/17/50	2♂♂ 1 ♀	50.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D° DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/17/50	8/21/50	Prunes, var. Imperial Mature	3	135	9/5/50 9/8/50 9/13/50	0 0 0D			0.0
"	"	"	" "	3	155	9/ 5/50 9/ 8/50 9/13/50	1 2 5D	9/20/50	2♀♀	25.0
"	"	"	Prunes, var. French Mature	5	86	9/ 5/50 9/ 8/50 9/13/50	0 3 0D	9/17/50 9/19/50	1 ♂ 1 ♀ 1♂	100.0
"	"	"	" "	5	77	9/ 5/50 9/ 8/50 9/13/50	1 0 10D	9/11/50 9/21/50 9/22/50 9/27/50	1 0.p. 4 0.p. 1 0.p. 1 0.p.	9.0
"	"	"	Cotton Bolls Acala	5	92	9/ 5/50 9/ 8/50	40 3D	9/ 6/50 9/ 8/50 9/11/50 9/12/50	2♂♂ 3♀♀ 6♂♂ 4♀♀ 8♂♂ 5♀♀ 2♂♂	
									2♀♀	86.1
"	"	"	" "		68	9/ 5/50 9/ 8/50	3 4	9/ 9/50 9/11/50	1 ♂ 2♀♀ 1 ♂	
									1 ♀	71.4

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of fruit	Quantity	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 5/50	6/ 9/50	Apricots - market stage, var. Royal	8	300	6/21/50 6/26/50	9 258	6/30/50	1 ♀ 1 persulcatus	
								7/ 3/50	35♂♂ 29♀♀	
								7/ 4/50	3♂♂ 5♀♀	
								7/ 5/50	1 ♀ 4 persulcatus 2 longicaudatus	
								7/ 6/50	5♂♂ 6♀♀ 3 persulcatus	
								7/ 7/50	4♂♂ 7♀♀ 1 persulcatus	36.0
"	"	"	" "	9	300	6/21/50 6/26/50	37 147	6/26/50	4♂♂ 5♀♀ 2 longicaudatus	
								6/28/50	1 longicaudatus	
								6/29/50	1 longicaudatus	
								6/30/50	2♀♀	
								7/ 1/50	1 ♂ 3♀♀ 1 longicaudatus	
								7/3/ 50	1 ♀ 1 longicaudatus	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 5/50	6/ 9/50	Apricots, var. Royal market stage					7/ 4/50	7♂♂ 8♀♀ 2 longicaudatus	
								7/ 5/50	3♂♂ 5♀♀ 5 longicaudatus 1 persulcatus	
								7/ 6/50	3 longicaudatus	
								7/ 7/50	1 ♂ 1 longicaudatus	
								7/ 8/50	2 longicaudatus	21.7
"	"	"	Apricots, var. Royal Early market stage for long distance shipping.	8	200	6/21/50 6/26/50	42 211	6/26/50	2♂♂ 2♀♀	
								6/27/50	1 ♂	
								6/28/50	2♂♂ 2♀♀ 1 longicaudatus	
								6/29/50	2♂♂ 1 longicaudatus	
								7/ 1/50	1 ♂	
								7/2 /50	1 persulcatus 2 longicaudatus	
								7/ 3/50	32♂♂ 44♀♀ 1 persulcatus 4 longicaudatus	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango tree (Mangifera indica)	6/ 5/50	6/ 9/50	Apricots, var. Royal Early market stage for long distance shipping.	8	200			7/ 4/50	4♂♂ 2♀♀ 3 O.l. 4 O.p.	
								7/ 5/50	16♂♂ 13♀♀ 7 O.l. 1 O.p.	
								7/ 6/50	4♂♂ 9♀♀ 5 O.l. 9 O.p.	
								7/ 7/50	5♂♂ 2♀♀ 2 O.l. 6 O.p.	
								7/ 8/50	3 O.l. 2 O.p.	
								7/ 9/50	5 O.l. 3 O.p.	
								7/10/50	2 O.l. 1 O.p.	
								7/11/50	1 O.l. 1 O.p.	56.5

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango tree (*Mangifera indica*)	6/ 5/50	6/ 9/50	Apricots, var. Royal Early market stage for long distance shipping.	8	200	6/21/50 6/26/50	36 179	6/26/50 6/27/50 6/28/50 6/29/50 6/30/50 7/ 1/50 7/ 3/50 7/ 4/50 7/ 5/50 7/ 6/50 7/ 7/50 7/ 8/50	1 ♀ 2 ♂♂ 1 ♂ 2 ♂♂ 1 ♀ 2 ♂♂ 4 ♀♀ 1 ♂ 2 ♀♀ 1 O.l. 2 O.l. 24 ♂♂ 24 ♀♀ 15 O.p. 2 ♂♂ 2 ♀♀ 1 O.l. 6 ♂♂ 8 ♀♀ 1 O.p. 8 ♂♂ 11 ♀♀ 1 ♂ 1 ♀ 1 O.l. 2 O.p.	47.9

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over pupation
Mango tree (Mangifera indica)	6/ 5/50	6/ 9/50	Apricots, var. Royal Market stage.	9	300	6/21/50	65	6/26/50	3♂♂	
						6/26/50	168		1 ♀	
									1 O.l.	
								6/27/50	2 O.l.	
									1 O.p.	
								6/28/50	2♂♂	
									2♀♀	
									1 O.l.	
								6/29/50	1 ♂	
									4♀♀	
									2 O.l.	
								6/30/50	1 ♂	
									5♀♀	
									1 O.l.	
								7/ 1/50	3♀♀	
								7/2 /50	35♂♂	
									26♀♀	
									1 O.l.	
								7/ 3/50	2 O.l.	
									1 O.p.	
								7/ 5/50	1 ♂	
									2♀♀	
									1 O.l.	
									3 O.p.	
								7/ 6/50	8♂♂	
									6♀♀	
									2 O.l.	
								7/ 7/50	7♂♂	
									12♀♀	
									1 O.l.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 5/50	6/ 9/50	Apricots, var. Royal Market stage.					7/ 8/50	2♂♂ 1 ♀ 2 0.l.	
								7/11/50	1 0.l.	52.4
"	"	"	Apricots, var. Royal Early market stage for long distance shipping.	8	200	6/21/50 6/26/50	102 117	6/26/50 6/27/50	1 ♂ 2♂♂ 1 ♀ 1 0.l.	
								6/28/50	2♂♂ 3♀♀ 2 0.l.	
								6/29/50	5♂♂ 2♀♀ 1 0.l.	
								6/30/50	2♂♂ 2♀♀ 2 0.l.	
								7/ 1/50	1 ♂ 1 0.l.	
								7/ 2/50	13♂♂ 10♀♀ 6 0.l.	
								7/ 3/50	1 ♂ 3 0. l.	
								7/ 4/50	2♂♂ 4♀♀ 4 0.l.	
								7/ 5/50	6♂♂ 2♀♀	26.9

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 7/50	6/11/50	Cherries, var. Lambert mature		29	6/26/50	31	6/27/50	1 ♂	
								6/28/50	1 ♂	
									1 O.l.	
								6/29/50	1 O.l.	
								6/30/50	1 ♂	
									1 ♀	
									1 O.l.	
								7/ 1/50	1 ♂	
								7/ 2/50	1 ♂	
									1 O.l.	
								7/ 3/50	3♂♂	
									2♀♀	
									2 O.l.	
								7/ 4/50	1 O.l.	
								7/ 5/50	3♂♂	
									1 ♀	
									1 O.l.	
								7/ 6/50	1 ♂	
								7/ 7/50	1 ♂	
									5♀♀	
										70.96
"	"	"	"	"	174	6/26/50	70	6/27/50	1 O.p.	
								6/30/50	1 ♂	
									1 O.p.	
									3 O. l.	
								7/ 1/50	2♂♂	
									3♀♀	
									1 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 7/50	6/11/50	Cherries, var. Lambert mature					7/ 2/50	10♂♂ 14♀♀ 4 O.l. 1 O.p.	
								7/ 3/50	3♂♂ 6♀♀ 12 O.p. 2 O.l.	
								7/ 4/50	7 O.l. 6 O.p.	
								7/ 5/50	1 ♂ 1 ♀ 8 O.l. 2 O.p.	
								7/ 6/50	2♂♂ 2♀♀ 3 O.l. 4 O.p.	
								7/ 7/50	1 ♀ 3 O.l.	
								7/ 8/50	1 ♀ 1 O.p.	
								7/ 9/50	1 O.l.	
								7/13/50	1 O.l.	67.1
"	"	"	Cherries, var. Royal Ann. Mature.		116	6/26/50	89	6/27/50	1 O.p.	
								6/30/50	1 ♀ 1 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 7/50	6/11/50	Cherries, var. Royal Ann mature					7/ 1/50	1 ♂ 6♀♀ 2 O.p.	
								7/ 2/50	15♂♂ 21♀♀ 4 O.p.	
								7/ 3/50	9♂♂ 14♀♀ 8 O.p.	
								7/ 4/50	7 O.l. 4 O.p.	
								7/ 5/50	1 ♂ 1 ♀ 3 O.l. 15 O.p.	
								7/ 6/50	6 O.p. 1 O.l.	
								7/ 7/50	4 O.p.	
								7/ 8/50	1 O.p.	
								7/13/50	1 O.p.	77.5
Mango tree (Mangifera indica)	"	"	"	"	119	6/26/50	71	6/29/50	3♂♂ 2♀♀	
								6/30/50	5♂♂ 7♀♀ 3 O.p.	
								7/ 1/50	13♀♀ 9♂♂ 4 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango tree (Mangifera indica)	6/ 7/50	6/11/50	Cherries, var. Royal Ann, mature					7/ 2/50	2♂♂ 2♀♀ 4 O.p.	
								7/ 3/50	1 ♂ 1 ♀ 7 O.p.	
								7/ 4/50	6 O.p.	
								7/ 5/50	2♂♂ 3♀♀ 12 O.p.	
								7/ 6/50	2♂♂ 1 ♀ 2 O.p.	
								7/ 7/50	1 ♂ 5♀♀	83.1
"	"	"	Cherries, var. Bing mature		96	6/26/50	194	6/29/50	1 ♂ 1 O.p.	
								6/30/50	2♂♂ 5♀♀	
								7/ 1/50	2♂♂ 2♀♀ 2 O.l. 1 O.p.	
								7/ 2/50	17♂♂ 11♀♀	
								7/ 3/50	58♂♂ 46♀♀ 7 O.l. 3 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 7/50	6/11/50	Cherries, var. Bing mature					7/ 4/50	3♂♂	
								7/ 5/50	1 ♂	
									1 ♀	
									3 O.p.	
								7/ 6/50	1 O.l.	
									1 O.p.	76.8
"	"	"	Cherries, var. Tartarian, mature		83	6/26/50	61	6/30/50	4♀♀	
								6/29/50	1♀♀	
								7/ 1/50	6♂♂	
									5♀♀	
								7/ 2/50	1 O.l.	
									1 O.p.	
								7/ 3/50	18♂♂	
									16♀♀	
									1 O.l.	
									2 O.p.	
								7/ 4/50	3 O.p.	
								7/ 5/50	1 ♀	
									1 O.p.	
								7/ 6/50	3 O.p.	
								7/ 7/50	2 O.p.	
								7/ 8/50	1 ♀	
								7/16/50	1 ♀	
									1 O.l.	73.8

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 9/50	6/13/50	Apple, var. Gravenstein Immature	8	300	6/23/50 6/29/50	0 OD			0.0
"	"	"	" "	9	300	6/23/50 6/29/50	0 OD			0.0
"	"	"	" "	8	300	6/23/50 6/29/50	0 OD			0.0
"	"	"	" "	7	300	6/23/50 6/29/50	0 OD			0.0
"	"	"	" "	8	300	6/23/50 6/29/50	0 OD			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/ 9/50	6/13/50	Apple, var. Gravenstein Immature	8	300	6/23/50 7/11/50	0 OD	6/29/50	0	0.0
"	"	"	" "	7	300	6/23/50 7/11/50	0 OD	6/29/50	0	0.0
"	"	"	" "	8	300	6/23/50 7/11/50	0 OD	6/29/50	0	0.0
"	"	"	" "	10	300	6/23/50 7/11/50	0 OD	6/29/50	0	0.0
"	"	"	" "	8	300	6/23/50 7/11/50	0 OD	6/29/50	0	0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Emergence: Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/13/50	6/17/50	Apricots, var. Blenheim	11	300	6/29/50	95D	7/ 6/50	5♂♂ 6♀♀ 2 O.p.	
								7/ 7/50	5♂♂ 2♀♀ 3 O.p.	
								7/ 8/50	1 ♂ 2 O.p.	
								7/ 9/50	3♂♂ 5♀♀ 2 O.l. 3 O.p.	
								7/10/50	1 ♂ 1 O.l. 6 O.p.	
								7/11/50	1 O.l. 2 O.p.	
								7/12/50	2 O.p.	
								7/13/50	2 O.p.	
								7/15/50	1 O.l.	29.5
"	"	"	" "	10	300	6/29/50	59D	7/ 6/50	3♂♂ 2♀♀	
								7/ 7/50	1 ♀ 4 O.l.	
								7/ 8/50	3♂♂ 5♀♀ 1 O.l. 1 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Emergence: Date	Emergence: No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/13/50	6/17/50	Apricots, var. Blenheim					7/ 9/50	3♂♂ 6♀♀ 4 O.l. 1 O.p.	
								7/10/50	2 O.l. 2 O.p.	
								7/11/50	1 O.l. 1 O.p.	
								7/12/50	2 O.l. 1 O.p.	38.98
"	"	"	Apricots, var. Perfection	5	300	6/29/50	49D	7/ 5/50	1 ♂ 2 O.p.	
								7/ 6/50	1 ♂ 1 ♀	
								7/ 7/50	3♂♂ 1 ♀	
								7/ 8/50	3♂♂ 1 ♀ 3 O.l.	
								7/ 9/50	2♂♂ 1 ♀ 2 O.l.	
								7/10/50	2 O.l. 2 O.p.	
								7/11/50	1 O.p.	28.6

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango tree (Mangifera indica)	6/13/50	6/17/50	Apricots, var. Perfection	5	300	6/29/50	253D	7/ 3/50	1 ♂	
									1 ♀	
								7/ 5/50	10♂♂	
									10♀♀	
									2 O.p.	
									9 O.l.	
								7/ 6/50	35♂♂	
									17♀♀	
									10 O.l.	
									1 O.p.	
								7/ 7/50	17♂♂	
									14♀♀	
									5 O.l.	
									6 O.p.	
								7/ 8/50	2♂♂	
									4♀♀	
									2 O.l.	
									5 O.p.	
								7/ 9/50	10♂♂	
									2♀♀	
									7 O.l.	
									1 O.p.	
								7/10/50	1 O.p.	
									4 O.l.	48.6

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango tree (Mangifera indica)	6/20/50	6/24/50	Persian Walnut var. Franquette	9	204	6/29/50 7/ 6/50	0 0D			0.0
"	"	"	Almonds, var. Peerless	17	200	6/29/50 7/ 6/50	0 0D			0.0
"	"	"	Almonds, var. Drake	21	200	6/29/50 7/ 6/50	0 0D			0.0
"	"	"	Almonds, var. IXL	17	200	6/29/50 7/ 6/50	0 0 D			0.0
"	"	"	Almonds, var. nonpareil	17	200	6/29/50 7/ 6/50	0 0D			0.0
"	"	"	Pawlonia Fruit	19	150	6/29/50 7/ 6/50	0 0D			0.0
"	"	"	Apricots, var. Royal	12	205	6/29/50 7/ 6/50 7/11/50	0 63 98D	7/15/50 7/17/50 7/18/50 7/19/50	7♂♂ 6♀♀ 42♂♂ 48♀♀ 1 ♂ 3♀♀ 5 O.p. 1 ♂ 2♀♀ 1 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	6/20/50	6/24/50	Apricots, var. Royal					7/20/50	2♂♂ 2♀♀	
								7/21/50	2♂♂ 1 ♀	72.7
"	"	"	Apricots, var. Blenheim	11	205	6/29/50 7/ 6/50 7/11/50	0 66 33D	7/13/50	2♂♂ 2♀♀	
								7/15/50	11♂♂ 6♀♀	
								7/17/50	22♂♂ 26♀♀	
								7/23/50	1 ♂	70.7
"	"	"	Plum, var. Satsuma	12	209	6/29/50 7/ 6/50 7/11/50	0 0 20D	7/18/50 7/19/50 7/20/50	1 ♂ 1 ♂ 1 ♂	
								7/21/50	3♀♀ 1 ♂ 1 ♀	
								7/23/50	2♂♂ 6♀♀	80.0
"	"	"	Plum, var. Duarte	12	206	6/29/50 7/ 6/50 7/11/50	0 0 26D	7/16/50	2♂♂ 1 ♀	
								7/17/50	3♂♂ 1 ♀	
								7/18/50	3♂♂ 2♀♀	
								7/19/50	2♂♂ 1 ♀	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango tree (*Mangifera indica*)	6/20/50	6/24/50	Plum, var. Duarte					7/20/50	1 ♂	
									1 ♀	
								7/21/50	1 ♂	
									2♀♀	76.9
"	"	"	Plum, var. Late Duarte	32	200	6/29/50	0			
						7/ 6/50	0			
						7/11/50	OD			0.0
"	"	"	Pear, var. Bartlett	5	351	6/29/50	0	7/17/50	1 ♀	
						7/ 6/50	0	7/18/50	2♂♂	
						7/11/50	16		2♀♀	
						7/14/50	17	7/21/50	1 ♂	
						7/17/50	31D	7/23/50	17♂♂	
									14♀♀	
								7/24/50	2♂♂	
									2♀♀	
								7/25/50	6♂♂	
									6♀♀	
								7/26/50	1 ♀	
								7/30/50	1 ♂	85.9

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango tree (Mangifera indica)	6/22/50	6/26/50	Apricots, var. Tilton Ripe	9	337	7/ 7/50	59	7/13/50	1 ♀	
						7/11/50	107D	7/20/50	10♂♂	
									2 ♀	
									4 0.l.	
								7/15/50	6♂♂	
								7/17/50	5♂♂	
									6♀♀	
									10 0.l.	
								7/18/50	4♂♂	
									2♀♀	
									7 0.p.	
								7/19/50	5♂♂	
									10♀♀	
									3 0.l.	
								7/21/50	3 0.l.	
								7/23/50	1 0.l.	
									1 0.p.	30.7
"	"	"	Plum, var. Santa Rosa, immature	10	304	7/ 7/50	2	7/17/50	1 0.l.	
						7/11/50	4	7/18/50	1 ♂	
						7/14/50	9		1 ♀	
						7/17/50	31	7/19/50	1 ♀	
								7/20/50	1 0.l.	
								7/23/50	1 ♂	
									2♀♀	
								7/24/50	2♂♂	
									1 ♀	
								7/25/50	3♂♂	
									10♀♀	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	6/22/50	6/26/50	Plum, var. Santa Rosa, immature					7/26/50	2♂♂ 6♀♀	
								7/28/50	1 ♀	67.4
"	"	"	Nectarines, var. John Rivers, green ripe	4	339	7/ 7/50 7/11/50	108 132D	7/13/50 7/14/50	1 ♂ 1 ♂ 1 ♀ 3 O.l. 1 O.p.	
								7/15/50	1 ♂ 2♀♀ 4 O.l. 1 O.p.	
								7/16/50	1 ♀ 4 O.l. 1 O.p.	
								7/17/50	12♂♂ 16♀♀ 5 O.l. 5 O.p.	
								7/18/50	47♂♂ 39♀♀ 3 O.p. 1 O.l.	
								7/19/50	1 ♂ 2♀♀ 3 O.l.	
								7/20/50	3♀♀ 2 O.l.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	6/22/50	6/26/50	Nectarines, var. John Rivers, green ripe					7/21/50	2♂♂ 2♀♀ 3 O.p.	54.6
"	"	"	Apple, var. Gravenstein immature	8	348	7/7/50 7/11/50	0 0D	7/24/50		0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	6/28/50	7/ 2/50	Apricots, var. Tipton Tree #2, more than 1/2 size. Still green and hard. Osborn Orchard.	5	195	7/12/50 7/17/50	227 4D	7/18/50 7/19/50	1 ♀ 16 ♂♂ 32 ♀♀ 2 O.p.	
								7/20/50	56 ♂♂ 41 ♀♀ 4 O.p.	
								7/21/50	12 ♂♂ 7 ♀♀ 12 O.p.	
								7/23/50	1 ♂ 1 ♀ 1 O.l. 10 O.p.	
								7/24/50 7/25/50	1 O.p. 1 ♂ 2 ♀♀ 1 O.p.	73.6
"	"	"	"	"	5	206	7/12/50 7/17/50 7/20/50	0 20 41D	7/24/50 7/26/50 7/28/50	1 ♂ 1 ♀ 7 ♂♂ 5 ♀♀	
								7/30/50 7/31/50	5 O.p. 1 ♀ 7 O.p.	
								8/ 1/50	1 O.p.	22.95

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	6/28/50	7/ 2/50	Apricots, var. Tipton Tree #1. Nearly full size, slight color, hard. Osborn Orchard	4	208	7/12/50	47	7/19/50	1 ♂	
						7/17/50	60		3♀♀	
						7/20/50	91D	7/20/50	11♂♂	
									8♀♀	
									1 O.p.	
								7/21/50	3♂♂	
									3♀♀	
									4 O.p.	
								7/23/50	6♂♂	
									10♀♀	
									8 O.p.	
								7/24/50	4♂♂	
									2♀♀	
									5 O.l.	
									1 O.p.	
								7/25/50	5♂♂	
									3♀♀	
									3 O.p.	
								7/26/50	1 ♀	
									1 O.p.	
								7/27/50	2♂♂	
									5♀♀	
								7/28/50	33♂♂	
									20♀♀	
								7/30/50	1 ♀	
								7/31/50	11♂♂	
									7♀♀	70.2

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	6/28/50	7/ 2/50	Apricots, var. Tipton Tree #1. Nearly full size, slight color, hard. Osborn Orchard	4	218	7/12/50 7/17/50	234 8	7/18/50	1 ♂ 3♀♀	
								7/19/50	50♂♂ 96♀♀	
								7/20/50	11♂♂ 14♀♀	
								7/21/50	6♂♂ 4♀♀ 6 O.p.	
								7/23/50	1 ♂	
								7/24/50	1 ♂	77.3
"	"	"	"	"	7	157	7/12/50 7/17/50	0 42D	7/23/50	3♀♀ 4♂♂
								7/24/50	2♂♂ 2♀♀ 5 O.p. 1 O.l.	
								7/25/50	4 O.p. 1 O.l.	
								7/26/50	4 O.p.	
								7/27/50	1 ♂ 2 O.p.	
								7/28/50	3♂♂ 1 O.p.	
								7/30/50	3 O.p.	35.7

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	6/28/50	7/ 2/50	Apricots, var. Tipton Tree #1. Nearly full size, slight color, hard. Osborn Orchard.	7	147	7/12/50 7/17/50	0 41D	7/24/50	1 ♂ 3 ♀♀ 2 O.p.	
								7/25/50	1 ♂ 1 ♀ 5 O.p.	
								7/26/50	1 ♂ 9 O.p.	
								7/27/50	1 ♀ 7 O.p.	
								7/31/50	6 O.p.	19.5
Suriman Cherry (Eugenia uniflora)	"	"	Peach, var. ? Tree #2 Green and hard. Osborn Orchard.	4	151	7/12/50 7/17/50	0 0D			0.0
"	"	"	" "	4	146	7/12/50 7/17/50	0 0D			0.0
"	"	"	Quince, var. ? Tree #1. Osborn Orchard	5	149	7/12/50 7/17/50	0 0D			
"	"	"	" "	5	153	7/12/50 7/17/50	0 0D			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	Pupation and Emergence: No. Pupae	Pupation and Emergence: Date	Pupation and Emergence: No. Flies	% Emergence over Pupation
Surinam Cherry (Eugenia uniflora)	6/28/50	7/ 2/50	Peach, var. Tree #1 More than 1/2 size, slight color but still hard. Osborn Orchard.	4	275	7/12/50 7/17/50 7/20/50	10 290 117D	7/19/50 7/20/50 7/23/50 7/24/50 7/25/50 7/26/50 7/27/50 7/28/50 7/30/50	1 ♀ 2♂♂ 1 ♀ 24♀♀ 23♂♂ 41♂♂ 39♀♀ 9 O.p. 8♂♂ 7♀♀ 9♂♂ 11♀♀ 16 O.p. 21♂♂ 37♀♀ 7♂♂ 6♀♀ 1 O.p. 2♂♂ 3 O.p.	57.3
"	"	"	"	4	259	7/12/50 7/17/50	9 303D	7/23/50 7/24/50	22♂♂ 24♀♀ 1 O.p. 47♂♂ 27♀♀ 14 O.l. 3 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. [illegible]SALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Surinam Cherry (Eugenia uniflora)	6/28/50	7/ 2/50	Peach, var. Tree #1 More than 1/2 size, slight color but still hard. Osborn Orchard.	4	259			7/25/50	5♂♂ 4♀♀ 14 O.p.	
								7/26/50	7♀♀ 4♂♂	
								7/27/50	4♂♂ 6♀♀ 4 O.p.	
								7/28/50	2♂♂ 8 O.p.	
								7/30/50	2 O.p.	48.7

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	6/30/50	7/ 4/50	Blackberries* Picked immature red stage.		50	7/13/50	OD			0.0
"	"	"	" "		50	7/13/50	OD			0.0
"	"	"	Blackberries, ripe.		50	7/13/50	OD			0.0
"	"	"	" "		50	7/13/50	OD			0.0

* Fruit breaks down and dries up very soon.

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (*Mangifera indica*)	7/ 3/50	7/ 7/50	Plum, var. Santa Rosa Shipping stage	4	176	7/13/50 7/20/50	0 24D	7/26/50 7/27/50 7/28/50 7/31/50 8/16/50	1 O.p. 1 ♂ 2 O.p. 4♂♂ 9♀♀ 2 O.l.	58.3
"	"	"	" "	4	285	7/13/50 7/20/50	2 34D	7/26/50 7/28/50 7/30/50 7/31/50 8/ 1/50 8/ 2/50	1 ♂ 1 O.l. 3♂♂ 3♀♀ 1 ♂ 1 ♀ 8♂♂ 7♀♀ 1 O.p. 3 O.p. 4 O.p.	66.7
"	"	"	Plum, var. Duarte Tree picked, immature. Crystalizes sugar in plum.	6	192	7/13/50 7/20/50	0 0D			0.0
"	"	"	" "	6	182	7/13/50 7/20/50 7/27/50	3 0 27D	7/31/50 8/ 1/50 8/ 2/50 8/ 3/50 8/ 4/50	4♂♂ 2♂♂ 4♀♀ 4♂♂ 9♀♀ 2♂♂ 3♀♀ 2♂♂	100.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/ 3/50	7/ 7/50	Plum, var. Climax Shipping stage	4	217	7/13/50 7/20/50	3 9D	7/27/50 7/31/50	1 0.l. 2♂♂ 4♀♀ 1♀ Med.	50.0
"	"	"	" "	4	235	7/13/50 7/20/50	3 48D	7/26/50 7/27/50 7/28/50 7/30/50 7/31/50 8/ 2/50	1 ♂ 1 0.p. 1 ♂ 3♀♀ 1 0.p. 2♂♂ 5♀♀ 2 0.p. 2♂♂ 1 ♀ 6 0.p. 3 0.l. 2♂♂ 3♀♀ 3 0.p. 3 0.p.	39.2
"	"	"	Plum, var. Mammoth Shipping stage.	3	285	7/13/50 7/20/50	0 51D	7/27/50 7/31/50 8/ 1/50	1 0.p. 3♂♂ 9♀♀ 2 0.l. 3 0.p. 1 0.l. 2 0.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/ 3/50	7/ 7/50	Plum, var. Mammoth Shipping stage.					8/ 2/50	1 O.p.	
								8/ 3/50	1 O.p.	
								8/ 4/50	2 O.p.	
								8/16/50	1 O.l.	23.5
"	"	"	Plum, var. Burbank Shipping stage.	5	174	7/13/50	0	8/ 2/50	4 O.p.	
						7/20/50	0	8/ 3/50	1 O.p.	
						7/27/50	17D	8/ 4/50	2♂♂	
									1 O.p.	
								8/ 8/50	2 O.p.	11.8
"	"	"	" "	5	181	7/13/50	0			
						7/20/50	0D			0.0
"	"	"	Pear, var. Bartlett Picked green and hard.	3	300	7/13/50	0	7/31/50	1 ♂	
						7/20/50	0	8/ 8/50	7♂♂	
						7/27/50	20D		4♀♀	60.0
"	"	"	Pear, var. Winter Nelis. Picked green, small and hard.	5	165	7/13/50	0	7/20/50	0	
						7/20/50	0			0.0
"	"	"	" "	5	172	7/13/50	0	7/20/50	0	0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (*Mangifera indica*)	7/ 5/50	7/ 9/50	Plum Tree #2, green and hard.	23	212	7/24/50	0	8/ 8/50	1 ♀	
						7/27/50	0	8/11/50	1 ♂	
						7/31/50	2			
						8/ 8/50	1D			66.7
"	"	"	Plum, var. Duarte Green - some.	10	237	7/24/50	5	8/ 2/50	1 ♂	
						7/27/50	30	8/ 4/50	7♂♂	
						7/31/50	32		11♀♀	
						8/ 8/50	0D		1 O.p.	
								8/ 8/50	1 O.p.	
									9♂♂	
									15♀♀	
								8/11/50	1 ♂	
									1 ♀	
								8/ 6/50	1 ♂	
									2♀♀	
									1 O.p.	71.6
"	"	"	Plum, var. Satsuma Pre harvest stage.	8	261	7/24/50	2	8/ 3/50	2♂♂	
						7/27/50	2	8/ 8/50	1 O.p.	
						7/31/50	0	8/13/50	3♀♀	
						8/ 8/50	1D			100.0
"	"	"	Apricot, var. Blenheim Pre ripe.	9	227	7/24/50	195	7/27/50	1 ♂	
						7/27/50	75D		3♀♀	
									2 O.p.	
								7/28/50	1 ♂	
									1 ♀	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence Date	Pupation and Emergence No. Pupae	Emergence Date	Emergence No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/ 5/50	7/ 9/50	Apricot, var. Blenheim Pre-ripe.					7/30/50	1 ♀	
								7/31/50	3♀♀	
								8/ 1/50	4♂♂	
									7♀♀	
									2 O.p.	
								8/ 2/50	12♂♂	
									17♀♀	
									1 O.p.	
								8/ 3/50	6♂♂	
									6♀♀	
								8/ 4/50	9♂♂	
									3♀♀	
									2 O.p.	
								8/ 6/50	1 ♂	
									4 O.p.	
									1 O.l.	27.8
"	"	"	Apricot, var. Royal Pre-ripe.	9	271	7/25/50	220	7/25/50	1 O.p.	
						7/27/50	6	7/26/50	1 ♂	
								7/27/50	31♂♂	
									33♀♀	
								7/28/50	5♂♂	
									7♀♀	
									2 O.l.	
									10 O.p.	
								7/30/50	1 ♀	
									2 O.p.	
									1 O.l.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/ 5/50	7/ 9/50	Apricot, var. Royal Pre-ripe.					7/31/50	2 O.p. 8 O.p.	
								8/ 1/50	2 O.p.	
								8/ 2/50	2 O.p.	
								8/ 4/50	1 O.l.	
								8/ 6/50	3♂♂ 1 ♀ 2 O.p.	
								8/16/50	2 O.p. 2 O.l.	36.3
"	"	"	Almonds, var. Peerless Green.	16	172	7/25/50 7/27/50	0 OD			0.0
"	"	"	Almonds, var. Drake Green.	17	142	7/25/50 7/27/50	0 OD			0.0
"	"	"	Almonds, var. Nonpareil Green	17	173	7/25/50 7/27/50	0 OD			0.0
"	"	"	Almonds, var. IXL Green	17	195	7/25/50 7/27/50	0 OD			0.0
"	"	"	Apples, var. Gravenstein Green and hard.	3	260	7/25/50 7/31/50 8/ 8/50	0 0 OD	7/27/50	0	0.0
"	"	"	Apples, var. Gravenstein Green and hard.	3	259	7/25/50 7/31/50 8/ 8/50	0 0 OD	7/27/50	0	0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/12/50	7/16/50	Apricot, var. Tipton Tree #1, mature	4	249	7/25/50	18	7/31/50	1 O.p.	
						8/ 8/50	25D	8/ 2/50	1 ♂	
									1 ♀	
									1 O.p.	
									1 O.l.	
								8/ 3/50	2 O.p.	
								8/ 9/50	1 ♀	
									1 O.p.	
									1 O.l.	6.97
"	"	"	"	"	4	174	7/25/50	25	7/31/50	1 ♂
						8/ 8/50	60D		4♀♀	
								8/ 1/50	1 ♂	
									4♀♀	
								8/ 2/50	1 ♀	
									1 O.l.	
									2 O.p.	
								8/ 9/50	2♂♂	
									1 ♀	
									1 O.l.	
								8/12/50	1 ♀	
									1 O.p.	17.6
"	"	"	Pear, var. Bartlett Green.	2	186	7/25/50	0	8/17/50	2♂♂	
						8/ 8/50	53D		1 ♀	
								8/18/50	1 ♀	
								8/20/50	2♀♀	
									1 ♂	13.2

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/12/50	7/16/50	Pear, var. Bartlett Green.	2	292	7/25/50 8/ 8/50	5 194D	8/11/50	1 ♀ 1 O.p.	
								8/12/50	1 ♂	
								8/13/50	2♂♂ 1 O.p.	
								8/14/50	1 ♂ 3♀♀ 1 O.p.	
								8/15/50	1 ♂ 1 ♀	
								8/16/50	1 ♂	
								8/17/50	4♂♂	
								8/18/50	1 ♂ 1 ♀	
								8/22/50	1 ♂ 1 ♀ 2 O.p.	
								8/23/50	1 O.p.	9.5
"	"	"	Nectarine Tree #1, green and hard.	6	162	7/25/50 8/ 8/50	0 23D	8/12/50	2♀♀ 4 O.p.	
								8/13/50	1 ♀	
								8/16/50	1 ♂ 1 O.p.	17.4
"	"	"	" "	6	177	7/25/50 8/ 8/50	0 55D	8/ 9/50	1 ♂ 1 ♀ 1 O.p.	
								8/11/50	1 ♀ 12 O.p.	

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/12/50	7/16/50	Nectarine Tree #1, green and hard.					8/12/50	2♂♂	
									1 ♀	
									2 O.p.	
								8/14/50	6 O.p.	
								8/16/50	1 ♂	
									1 ♀	
								8/17/50	1 ♀	
								8/23/50	1 ♂	
									1 O.p.	18.2
"	"	"	Peach Tree #1, mature	2	245	7/25/50	2	8/ 9/50	1 ♂	
						8/ 8/50	26D		3♀♀	
									1 O.p.	
								8/11/50	8♂♂	
									5♀♀	
									3 O.l.	
								8/12/50	2♂♂	
									1 O.p.	67.9
"	"	"	" "	2	187	7/25/50	0	8/ 9/50	1 ♀	
						8/ 8/50	15D	8/11/50	1 ♂	
									1 ♀	
								8/12/50	3♀♀	40.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/19/50	7/23/50	Oranges, mature Sunkist, Riverside Co.	2	400	8/ 8/50	0			
						8/11/50	0			
						8/22/50	OD			0.0
"	"	"	Oranges, unmarked Orange Co.	2	350	8/ 8/50	0			
						8/11/50	0			
						8/22/50	OD			0.0
"	"	"	Oranges, Sunkist, Riverside Co.	2	343	8/ 8/50	0			
						8/11/50	0			
						8/22/50	OD			0.0
"	"	"	Oranges, unmarked var. Orange Co.	2	318	8/ 8/50	0			
						8/11/50	0			
						8/22/50	OD			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	7/21/50	7/25/50	Almonds, var. IXL Mature	10	127	8/ 8/50 8/11/50	0 OD			0.0
"	"	"	Almonds, var. Nonpareil Mature	10	112	8/ 8/50 8/11/50	0 OD			0.0
"	"	"	Almonds, var. Peerless Mature	10	137	8/ 8/50 8/11/50	0 OD			0.0
"	"	"	Almonds, var. Drake Mature	10	86	8/ 8/50 8/11/50	0 OD			0.0
"	"	"	Plum, var. ? Tree #2, green ripe	8	91	8/ 8/50 8/11/50	0 OD			0.0
"	"	"	" "	8	152	8/ 8/50 8/11/50	0 OD			0.0
"	"	"	Plum, var. Duarte#1 Green ripe	6	185	8/ 8/50 8/11/50	0 0 D			0.0
"	"	"	" "	6	175	8/ 8/50 8/11/50 8/17/50	2 9 11D	8/20/50 8/21/50 8/24/50 8/27/50 8/28/50	2♂♂ 2♀♀ 1 ♂ 1 ♂ 1 ♂ 3♀♀ 1 ♂ 2♀♀	59.1

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/21/50	7/25/50	Plum, var. Satsuma Mature	5	193	8/ 8/50	0	8/20/50	1 ♂	
						8/11/50	15	8/21/50	1 ♂	
						8/17/50	26D		2♀♀	
								8/22/50	1 ♂	
									2♀♀	
								8/23/50	2♂♂	
									2♀♀	
									4 O.p.	
								8/24/50	1 O.l.	
								8/27/50	1 O.p.	26.8
"	"	"	Apples, var. Gravenstein Immature	3	200	8/ 8/50	0	8/30/50	3 O.p.	
						8/11/50	0	8/31/50	5 O.p.	
						8/22/50	8	9/ 8/50	4♂♂	
						8/28/50	6		2♀♀	
						9/ 1/50	7D	9/11/50	1 ♀	
								9/12/50	1 O.p.	33.3
"	"	"	" "	3	231	8/ 8/50	0			
						8/11/50	0			
						8/22/50	0D			0.0
"	"	"	Apricot, var. Royal Mature	5	167	8/ 8/50	8	8/12/50	3♂♂	
						8/11/50	5D		1 ♀	
								8/14/50	1 ♂	
									3♀♀	
								8/15/50	3♂♂	
									2♀♀	100.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/20/50	7/25/50	Apricots, var. Blenheim, mature	5	118	8/ 8/50 8/11/50	69 OD	8/13/50 8/15/50 8/16/50	1 ♀ 1 ♀ Melon 28♂♂ 32♀♀ 1 ♂	89.9

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (*Mangifera indica*)	7/28/50	8/ 1/50	Nectarines, var. ? Osborn Tree #1, mature	3	169	8/14/50 8/17/50	16 99D	8/18/50 8/20/50	1 ♂ 4♂♂ 1 ♀ 2 O.l.	
								8/24/50	4♂♂ 3♀♀ 1 O.p. 3 O.l.	
								8/22/50	2♀♀ 3 O.p. 2 O.l.	
								8/23/50	7♂♂ 7♀♀ 4 O.p. 3 O.l.	
								8/24/50	3♂♂ 2♀♀ 2 O.l.	
								8/25/50	1 O.l. 2 O.p.	
								8/27/50	9♂♂ 15♀♀ 11 O. p. 1 O.l.	
								8/28/50	4♂♂ 2♀♀	55.7

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	7/28/50	8/ 1/50	Plum, var. Sharkey mature	3	227	8/14/50	2	8/23/50	1 ♀	
						8/17/50	4D	8/24/50	2♂♂	
									1 ♀	
								8/27/50	1 ♂	83.3
"	"	"	Peach, var. ?	3	232	8/14/50	6	8/23/50	1 ♂	
			Osborne, Tree #2			8/17/50	95	8/24/50	3♂♂	
			Immature			8/22/50	68		7♀♀	
									1 O.p.	
								8/25/50	1 ♂	
									1 ♀	
								8/27/50	3♀♀	
									18 O.p.	
								8/28/50	6♂♂	
									2♀♀	
									3 O.p.	
								8/29/50	2♂♂	
									2♀♀	
									3 O.p.	
								8/30/50	4 O.p.	
								8/31/50	4 O.p.	
									5 O.p.	16.6

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	7/28/50	8/ 1/50	Pear, var. Bartlett Mature	2	280	8/14/50	24	8/20/50	2♂♂	
						8/17/50	12		3♀♀	
						8/22/50	17		1 O.p.	
						8/28/50	2	8/23/50	2 O.p.	
						9/ 1/50	6D	8/25/50	1 O.p.	
								8/27/50	1 O.p.	
								8/30/50	1 ♀	
								8/31/50	2 O.p	
								9/ 2/50	2 O.p.	9.8
"	"	"	"	"	2	258	8/14/50	4	8/28/50	1 ♂
						8/17/50	2		3♀♀	
						8/22/50	44	8/29/50	2♂♂	
						9/ 1/50	6D		2♀♀	
						8/28/50	2	9/ 3/50	1 O.p.	
								9/11/50	1 ♀	15.5
"	"	"	Plum, var. Ace Mature	2	196	8/14/50	1	8/21/50	1 ♀	
						8/17/50	3	8/24/50	1 O.p.	
						8/22/50	17	8/25/50	1 ♂	
						8/28/50	8D	8/27/50	2 O.p.	
								8/30/50	1 O.p.	
								8/31/50	11 O.p.	
								9/ 2/50	2 O.p.	
								9/ 6/50	1 ♂	
									4 O.p.	
								9/11/50	1 O.p.	10.3

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	7/28/50	8/ 1/50	Plum, var. Diamond Mature	4	110	8/14/50 8/17/50	0 15D	8/27/50 8/28/50	2♂♂ 3♀♀ 2♂♂ 2♀♀	60.0
"	"	"	" "	4	107	8/14/50 8/17/50	1 12D	8/21/50 8/23/50 8/24/50 8/27/50	1 O.p. 1 ♂ 1 O.p. 4♂♂ 2♀♀ 2♂♂ 1 O.p.	69.2
"	"	"	Nectarines, var. Quetta	2	267	8/14/50 8/17/50	25 110	8/17/50 8/22/50 8/23/50 8/24/50 8/25/50 8/27/50 8/28/50 8/30/50	16♂♂ 22♀♀ 1 O.l. 9 O.p. 14♂♂ 8♀♀ 4 O.p. 5♂♂ 7♀♀ 12 O.p. 28 O.p. 2 O.l. 1 ♀ 4 O.p. 2 O.p.	54.1

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	7/28/50	8/ 1/50	Nectarines, var. Quetta, mature	2	215					0.0
"	"	"	Peach, var. Fortuna Mature	2	241	8/14/50 8/17/50	114 16D	8/23/50 8/24/50	1 O.p. 7♂♂ 5♀♀ 2 O.l.	
								8/27/50	1 O.l. 1 O.p.	
								9/ 3/50	1 O.p.	9.2
"	"	"	" "	2	271	8/14/50 8/17/50	14 1D	8/23/50	1 ♀ 9♂♂	
								8/24/50	1 ♀	
								8/27/50	1 O.p.	73.3
"	"	"	Peach, var. Elberta Mature	1	222	8/14/50 8/17/50	4 56D			0.0
"	"	"	" "	1	247	8/14/50 8/17/50	112 62D	8/21/50	9♂♂ 11♀♀	
								8/24/50	18♂♂ 6♀♀	
								8/25/50	1 ♂ 1 ♀ 2 O.p.	
								8/27/50	1 ♂ 3♀♀ 7 O.p.	
								8/28/50	5 O.p.	
								8/31/50	1 O.p.	28.7

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	7/28/50	8/ 1/50	Peach, var. Strawberry Mature	2	170	8/14/50	45	8/20/50	2♂♂	
						8/17/50	39D	8/21/50	1 ♂	
									1 ♀	
									1 O.l.	
								8/22/50	2♂♂	
									2♀♀	
									2 O.l.	
								8/23/50	3♂♂	
									8♀♀	
									1 O.l.	
								8/24/50	8♂♂	
									4♀♀	
									3 O.l.	
									4 O.p.	
								8/25/50	1 ♂	
									2♀♀	
									4 O.l.	
									1 O.p.	
								8/27/50	4♂♂	
									5♀♀	
									1 O.p.	
									3 O.l.	
								8/30/50	5 O.p.	
								8/31/50	1 O.l.	51.2

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	7/28/50	8/ 1/50	Apricots, var. Tilton Mature	3	158	8/14/50	16	8/20/50	2♂♂	
						8/17/50	OD	8/21/50	2♀♀	
									2 O.l.	
								8/23/50	1 O.l.	
								8/24/50	1 O.l.	
								8/25/50	1 O.l.	25.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/ 3/50	8/ 7/50	Peaches, var. Palora Mature	1	190	8/15/50 8/22/50	0 0D			0.0
"	"	"	" "	1	195	8/15/50 8/22/50	0 26D	8/28/50 8/29/50 8/28/50 8/30/50 8/31/50 9/ 3/50	1 ♂ 5♂♂ 3♀♀ 1 O.p. 1 O.p. 1 O.l. 1 O.p. 1 O.l. 3 O.p.	34.6
"	"	"	Prunes, var. Imperial	4	169		D			0.0
"	"	"	" "				D			0.0
"	"	"	Prunes, var. French	5	112	8/15/50 8/22/50	0 8D	8/27/50 8/28/50 9/ 2/50	2♂♂ 1 ♀ 1 O.l. 3♂♂ 1 O.p.	75.0
"	"	"	" "	5	113	8/15/50 8/22/50	0 4D	8/30/50 9/ 2/50	2 O.p. 1 O.p.	0.0
"	"	"	Pears, var. Hardy Immature	2	241	8/15/50 8/22/50	0 0D			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/10/50	8/14/50	Pears, var. Hardy Immature	2	260	8/15/50	0	8/30/50	2 O.p.	
						8/22/50	11	9/ 2/50	1 ♀	
						8/28/50	7		2 O.p.	
						9/ 1/50	18D	9/ 8/50	1 ♂	
								9/11/50	1 O.p.	
								9/14/50	1 ♂	
									1 O.p.	8.3
"	"	"	Pears, Winter Nelis Immature	2	145	8/15/50	0			
						8/22/50	0D			0.0
"	"	"	" "	2	156	8/15/50	0	9/ 3/50	1 O.p.	
						8/22/50	0	9/11/50	1 O.p.	
						8/27/50	7D			0.0
"	"	"	Pears, var. Comice Immature	2	270	8/15/50	0	9/ 3/50	2 O.p.	
						8/22/50	0	9/11/50	1 O.p.	
						8/28/50	4	9/13/50	1 ♂	
						9/ 1/50	22D		4 O.p.	
								9/15/50	1 O.p.	3.8
"	"	"	" "	2	264	8/15/50	0	8/30/50	1 O.p.	
						8/22/50	5	9/ 2/50	1 O.l.	
						8/28/50	26		1 O.p.	
						9/ 1/50	36D	9/ 6/50	1 ♂	
									4 O.p.	
								9/11/50	2♀♀	
									1 O.p.	4.5

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/ 3/50	8/ 7/50	Apples, var. Gravenstein, immature	1	136	8/15/50	0	9/ 4/50	1 O.p.	
						8/22/50	0	9/11/50	1 ♂	
						8/28/50	2		1 O.p.	
						9/ 1/50	7D	9/14/50	3 O.p.	11.1
"	"	"	"	"	1	120	8/15/50	0	9/ 3/50	12♂♂
						8/22/50	0		5♀♀	
						8/28/50	41D		1 O.p.	
								9/ 6/50	7♂♂	
									6♀♀	
								9/ 8/50	1 ♂	
									2♀♀	
								9/11/50	3 O.p.	80.5

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/4/50	8/8/50	Plum, var. Satsuma Mature	4	100	8/23/50 8/28/50	18 11D	8/29/50 8/30/50 9/ 3/50	6 O.p. 1 O.p. 8 O.p. 1 O.p.	0.0
"	"	"	" "	4	115	8/23/50 8/28/50	0 0D			0.0
"	"	"	Plum, var. Seedling	5	102	8/23/50 8/28/50	0 15D	9 /8/50	6♂♂ 9♀♀	100.0
"	"	"	" "	5	88	8/23/50 8/28/50	24 0D	8/29/50 8/30/50 8/31/50	4♂♂ 6♀♀ 2 O.p. 2♂♂ 2♀♀ 1 ♀	
									2 O.p.	62.5
"	"	"	Plum, Var. Duarte Mature	4	117	8/23/50 8/28/50	0 25D	9/ 8/50 9/11/50	17♂♂ 4♀♀ 2 O.p.	8.0
"	"	"	" "	4	124	8/23/50 8/28/50	11 19D	9/ 2/50 9/ 3/50 9/ 8/50 9/11/50	1 ♀ 2 O.p. 1 ♀ 1 O.p. 1 ♂ 3♀♀ 3 O.p. 6 O.p.	20.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (mangifera indica)	8/4/50	8/8/50	Plum, var. Satsuma Mature	4	149	8/23/50 8/28/50	1 0D	8/28/50	1 ♂	100.0
"	"	"	" "	4	165	8/23/50 8/28/50	2 9D	9/ 2/50	1 ♂ 3♀♀ 3 O.p.	36.4
"	"	"	Plum, var. Seedling Tree #2, mature	5	95	8/23/50 8/28/50	0 23D	9/3/50 9/ 8/50	5♂♂ 7♀♀ 2 O.p. 1 ♀	56.5
"	"	"	" "	5	96	8/23/50 8/28/50	7 10D	9/ 2/50 9/ 5/50	1 ♂ 2 O.p. 1 ♀ 2♂♂ 5♀♀ 2 O.p.	52.9
"	"	"	Plum, var. Duarte Tree #1, mature	4	122	8/23/50 8/28/50	15 0D	8/28/50 8/30/50 9/2/50	4♂♂ 3♀♀ 2 O.p. 1 ♀ 1 O.p. 1 O.l 1 O.p.	53.3
"	"	"	" "	4	135	8/23/50 8/28/50	6 10D	9/3/50 9/8/50	1 O.l. 1 O.p. 1 O.l	0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/ 7/50	8/11/50	Almonds, var. Peerless Immature	10	114	8/28/50	OD			0.0
"	"	"	" "	10	108	8/28/50	OD			0.0
"	"	"	Almonds, var. Drake immature	10	88	8/28/50	OD			0.0
"	"	"	" "	10	92	8/28/50	OD			0.0
"	"	"	Almonds, var. Nonpareil Immature.	10	97	8/28/50	OD			0.0
"	"	"	" "	10	83	8/28/50	OD			0.0
"	"	"	Almonds, var. IXL Immature	10	117	8/28/50	OD			0.0
"	"	"	" "	10	111	8/28/50	OD			0.0
"	"	"	Walnut, var. Franquette Immature	6	213	8/28/50	OD			0.0
"	"	"	" "	6	202	8/28/50	OD			0.0
"	"	"	Nectarine, var. ? Mature, Tree #1	1	102	8/28/50	26D	8/29/50	2♂♂	
								8/30/50	2♂♂	
									1 ♀	
									1 O.l.	
									2 O.p.	
								8/31/50	2 O.p.	
									3 O.l.	
								9/ 3/50	5 O.p.	
									3 O.l.	19.2

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/ 7/50	8/11/50	Nectarine, var. ? Tree #1, mature	1	189	8/28/50	0D			0.0
"	"	"	Peaches, var. Palora Mature	1	150	8/28/50	125D	8/29/50	6♂♂ 5♀♀ 2 O.p.	
								8/30/50	1 ♂ 7♀♀ 4 O.p. 2 O.l.	
								9/ 8/50	6♂♂ 1 ♀ 24 O.p.	20.8
"	"	"	"	"	1	143	8/28/50	26D	8/29/50	1 ♂ 1 ♀
								8/30/50	2♂♂ 1 ♀	
								8/31/50	2 O.p.	
								9/ 3/50	2 O.p. 2 O.l.	19.2
"	"	"	"	"	1	157	8/28/50	30D	8/30/50	1 ♀
								9/ 8/50	3♂♂ 4♀♀ 8 O.p.	26.7

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				
						Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/ 7/50	8/11/50	Peaches, var. Palora Mature	1	165	8/28/50	45D	8/29/50	8♂♂	
									7♀♀	
									2 O.l.	
								8/30/50	2 O.p.	
									3 O.l.	
								8/31/50	1 O.p.	
									3 O.l.	
								9/ 3/50	4 O.p.	
									1 O.l.	33.3

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
Mango Tree (Mangifera indica)	8/10/50	8/14/50	Grapes, var. Tokay Green.		162	8/29/50 9/ 1/50	0 0D			0.0
"	"	"	" "		136	8/29/50 9/ 1/50	6 1D	9/ 2/50	1 ♂	14.3
"	"	"	Grapes, var. Thompson Seedless, green		86					0.0
"	"	"	" "		80	8/29/50 9/ 1/50	0 0D			0.0
"	"	"	Grapes, var. Mission Green		98	8/29/50 9/ 1/50	0 0D			0.0
"	"	"	" "		87	8/29/50 9/ 1/50	0 0D			0.0
"	"	"	Grapes, var. Carignan Green		80	8/29/50 9/ 1/50	0 0D			0.0
"	"	"	" "		75	8/29/50 9/ 1/50	0 0D			0.0
"	"	"	Grapes, var. Alicante Bouschet, green		79	8/29/50 9/ 1/50	0 0D			0.0
"	"	"	" "		83	8/29/50 9/ 1/50	0 0D			0.0

FIELD HOST PREFERENCE OF CALIFORNIA FRUITS BY D. DORSALIS

Native Host Tree	Date Exposed	Date Isolated	Type of Fruit	Quantity	Total Weight	Pupation and Emergence				% Emergence over Pupation
						Date	No. Pupae	Date	No. Flies	
Mango Tree (Mangifera indica)	8/10/50	8/14/50	Grapes, var. Zinfandel Green		98	8/29/50 9/ 1/50	0 OD			0.0
"	"	"	" "		101	8/29/50 9/ 1/50	0 OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	6/ 5/50	6/ 9/50	Apricot, var. Royal Market stage.	8		300	6/21/50	17	6/22/50	1 ♂	
							6/24/50	86	6/26/50	2♂♂	
										1 ♀	
									6/28/50	1 ♂	
										1 ♀	
									6/29/50	1 ♂	
									7/ 2/50	5♂♂	
										15♀♀	
									7/ 3/50	1 ♀	
									7/ 4/50	3♂♂	
									7/ 5/50	3♂♂	
									7/ 6/50	1 ♂	
									7/ 7/50	1 ♂	34.95
2	"	"	"	"	7		300	6/21/50	33	6/26/50	2♂♂
							6/26/50	67D		2♀♀	
									6/27/50	1 ♂	
										1 ♀	
									6/28/50	1 ♂	
										1 ♀	
									6/29/50	3♂♂	
										2♀♀	
									6/30/50	1 ♂	
									7/ 2/50	12♂♂	
										6♀♀	
									7/ 3/50	3♂♂	
										4♀♀	
									7/ 6/50	3♂♂	
									7/ 7/50	3♂♂	
										5♀♀	50.00

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
3	6/ 5/50	6/ 9/50	Apricots, var. Royal Early market stage for long distance shipping.	9		200	6/21/50 6/26/50	11 109D	6/26/50	1 ♂ 2♀♀	
									6/30/50	1 ♂	
									7/ 1/50	2♂♂ 2♀♀	
									7/ 2/50	14♂♂ 11♀♀	
									7/ 3/50	6♂♂ 10♀♀	
									7/ 4/50	5♂♂ 4♀♀	
									7/ 5/50	1 ♂ 1 ♀	50.0
4	"	"	"	"	9		200	6/21/50 6/26/50	30 78D	6/27/50	1 ♂
									6/28/50	1 ♂	
									6/29/50	1 ♂ 3♀♀	
									6/30/50	1 ♂ 5♀♀	
									7/ 1/50	2♂♂ 2♀♀	
									7/ 2/50	3♂♂ 1 ♀	
									7/ 3/50	8♂♂ 4♀♀	
									7/ 4/50	2♂♂ 3♀♀	
									7/ 5/50	1 ♂ 1 ♀	36.1

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
5	6/ 5/50	6/ 9/50	Apricots, var. Royal Market stage.	8		300	6/19/50	24	6/27/50	1 ♂	
							6/26/50	186D	6/28/50	1 ♀	
									6/29/50	3♂♂	
										9♀♀	
									6/30/50	65♂♂	
										81♀♀	
									7/ 1/50	1 ♀	
									7/ 4/50	2♂♂	
									7/ 5/50	1 ♂	
										1 ♀	
									7/ 6/50	1 ♀	79.0
6	"	"	Apricots, var. Royal Early market stage for long distance shipping.	9		200	6/19/50	184	6/26/50	4♂♂	
							6/26/50	38D	6/27/50	1 ♂	
										1 ♀	
									6/28/50	1 ♂	
										3♀♀	
									6/29/50	52♂♂	
										47♀♀	
									6/30/50	14♂♂	
										7♀♀	58.6

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	6/ 7/50	6/11/50	Cherries, var. Lambert mature.			200	6/21/50 6/26/50	270 64D	6/27/50	10♀♀ 7♂♂	
									6/28/50	24♂♂ 16♀♀	
									6/29/50	32♂♂ 26♀♀	
									6/30/50	20♂♂ 13♀♀	
									7/ 1/50	7♂♂ 9♀♀	
									7/ 2/50	14♀♀ 11♂♂	
									7/ 3/50	2♂♂ 4♀♀	58.4
2	"	"	"	"		200	6/21/50 6/26/50	185 93D	6/26/50	5♂♂ 3♀♀	
									6/27/50	1 ♂ 6♀♀	
									6/28/50	3♂♂ 4♀♀	
									6/29/50	5♂♂ 7♀♀	
									6/30/50	16♂♂ 9♀♀	
									7/ 1/50	5♂♂ 5♀♀	
									7/ 2/50	14♂♂ 10♀♀	
									7/ 3/50	1 ♀	33.8

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
3	6/ 7/50	6/11/50	Cherries, var. Royal Ann, mature			200	6/21/50 6/26/50	187 251D	6/26/50	8♂♂ 6♀♀	
									6/27/50	1 ♂ 4♀♀	
									6/28/50	7♂♂ 7♀♀	
									6/29/50	24♂♂ 15♀♀	
									6/30/50	10♂♂ 9♀♀	
									7/ 1/50	10♂♂ 13♀♀	
									7/ 2/50	45♂♂ 34♀♀	
									7/ 3/50	12♂♂ 8♀♀	
									7/ 4/50	3♂♂ 6♀♀	
									7/ 5/50	2♀♀	51.1
4	"	"	"	"		200	6/21/50 6/26/50	127 223D	6/26/50	3♂♂ 1 ♀	
									6/27/50	1 ♂ 1 ♀	
									6/28/50	3♂♂	
									6/29/50	13♂♂ 8♀♀	
									6/30/50	16♂♂ 13♀♀	

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Emergence: Date	Emergence: No. Flies	% Emergence over Pupation
4	6/ 7/50	6/11/50	Cherries, var. Royal Ann, mature.						7/ 1/50	8♂♂ 8♀♀	
									7/ 2/50	43♂♂ 34♀♀	
									7/ 3/50	19♂♂ 15♀♀	
									7/ 4/50	1 ♂ 1 ♀	53.7
5	"	"	Cherries, var. Bing Mature.			200	6/21/50	150	6/26/50	2♂♂	
							6/26/50	200D	6/27/50	1 ♂	
									6/28/50	9♂♂ 4♀♀	
									6/29/50	12♂♂ 12♀♀	
									6/30/50	18♂♂ 14♀♀	
									7/ 1/50	4♂♂ 13♀♀	
									7/ 2/50	42♂♂ 35♀♀	
									7/ 3/50	7♂♂ 7♀♀	
									7/ 4/50	2♂♂ 1 ♀	52.3

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
6	6/ 7/50	6/11/50	Cherries, var. Tartarian Mature.			200	6/21/50	221	6/26/50	3♂♂	
							6/26/50	8D		2♀♀	
									6/27/50	5♂♂	
										3♀♀	
									6/28/50	25♂♂	
										19♀♀	
									6/29/50	27♂♂	
										28♀♀	
									6/30/50	16♂♂	
										16♀♀	
									7/ 1/50	1 ♀	63.3

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
1	6/ 9/50	6/13/50	Apples, var. Gravenstein Immature.	8		300	6/23/50 6/29/50 7/11/50	0 0 OD			0.0
2	"	"	" "	7		300	6/23/50 6/29/50 7/11/50	0 0 OD			0.0
3	"	"	" "	8		300	6/23/50 6/29/50 7/11/50	0 0 OD			0.0
4	"	"	" "	10		300	6/23/50 6/29/50 7/11/50	0 0 OD			0.0
5	"	"	" "	8		300	6/23/50 6/29/50 7/11/50	0 0 OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	6/13/50	6/17/50	Apricots, var. Blenheim	8		250	6/29/50	48D	7/ 3/50	1 ♂	
									7/ 4/50	1 ♂	
									7/ 6/50	1 ♂ 3♀♀	
									7/ 7/50	6♂♂ 5♀♀	
									7/ 8/50	1 ♂ 3♀♀	
									7/ 9/50	4♂♂ 7♀♀	
									7/10/50	5♂♂ 5♀♀	87.5
2	"	"	"	"	8		250	6/29/50	230D	7/ 3/50	1 ♂ 1 ♀
									7/ 4/50	10♂♂ 10♀♀	
									7/ 5/50	20♂♂ 25♀♀	
									7/ 6/50	17♂♂ 18♀♀	
									7/ 7/50	6♂♂ 11♀♀	
									7/ 8/50	20♂♂ 12♀♀	
									7/ 9/50	30♂♂ 31♀♀	
									7/11/50	4♂♂ 3♀♀	95.2

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
3	6/13/50	6/17/50	Apricots, var. Perfection	5		300	6/29/50	19D	7/ 3/50	1 ♀	
									7/ 4/50	2♂♂	
										4♀♀	
									7/ 5/50	1 ♂	
										1 ♀	
									7/ 6/50	4♂♂	
										1 ♀	
									7/ 9/50	2♂♂	
									7/11/50	1 ♀	89.5
4	"	"	"	"	5		300	6/29/50	19D	7/ 3/50	2♂♂
									7/ 4/50	1 ♂	
										3♀♀	
									7/ 5/50	2♀♀	
									7/ 6/50	1 ♂	
										2♀♀	
									7/ 7/50	4♂♂	
										2♀♀	89.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	6/20/50	6/24/50	Persian Walnut, var. Franquette	9		209	6/29/50 7/ 6/50	0 OD			
2	"	"	Almonds, var. Peerless	17		200	6/29/50 7/ 6/50	0 OD			
3	"	"	Almonds, var. Drake	25		200	6/29/50 7/ 6/50	0 OD			
4	"	"	Almonds, IXL	20		200	6/29/50 7/ 6/50	0 OD			
5	"	"	Almonds, var. Nonpareil	18		200	6/29/50 7/ 6/50	0 OD			
6	"	"	Pawlonia Fruit	20		150	6/29/50 7/ 6/50	0 OD			
7	"	"	Apricots, var. Royal	13		212	6/29/50 7/ 6/50 7/10/50	37 311 24D	7/ 9/50 7/10/50 7/11/50 7/12/50 7/13/50	46♂♂ 43♀♀ 27♂♂ 19♀♀ 12♂♂ 8♀♀ 3♂♂ 6♀♀ 2♂♂ 3♀♀	

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
7	6/20/50	6/24/50	Apricots, var. Royal						7/14/50	4♂♂ 3♀♀	
									7/15/50	1 ♀	
									7/17/50	7♂♂ 3♀♀	50.3
8	"	"	Apricots, var. Blenheim	12		200	6/29/50	0	7/10/50	23♂♂ 21♀♀	
							7/ 6/50	344			
							7/10/50	29D	7/11/50	23♂♂ 24♀♀	
									7/12/50	24♂♂ 20♀♀	
									7/13/50	46♂♂ 47♀♀	
									7/15/50	20♂♂ 14♀♀	
									7/17/50	9♂♂ 12♀♀	75.9
9	"	"	Plum, var. Satsuma	11		200	6/29/50	0	7/11/50	1 ♂	
							7/ 6/50	41	7/12/50	5♂♂ 4♀♀	
							7/10/50	109			
							7/14/50	171D	7/13/50	4♂♂ 2♀♀	
									7/14/50	10♂♂ 7♀♀	
									7/15/50	10♂♂ 3♀♀	
									7/16/50	1 ♂ 3♀♀	

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
9	6/20/50	6/24/50	Plum, var. Satsuma						7/18/50	2♂	
										3♀♀	
									7/19/50	8♂♂	
										1 ♀	
									7/20/50	17♂♂	
										29♀♀	
									7/21/50	41♂♂	
										60♀♀	65.7
10	"	"	Plum, var. Duarte	12		200	6/29/50	0	7/13/50	1 ♀	
							7/ 6/50	2	7/23/50	5♂♂	
							7/10/50	38		4♀♀	
							7/14/50	102D	7/24/50	2♂♂	
										3♀♀	
									7/17/50	7♂♂	
										8♀♀	
									7/18/50	2♂♂	
										3♀♀	
									7/19/50	3♂♂	
										3♀♀	
									7/20/50	8♂♂	
										16♀♀	
									7/21/50	21♂♂	
										24♀♀	
									7/25/50	5♂♂	
										2♀♀	82.4

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
11	6/20/50	6/24/50	Plum, var. Late Duarte	34		200	6/29/50	0			
							7/ 6/50	0			
							7/10/50	OD			0.0
12	"	"	Pear, var. Bartlett	5		386	6/29/50	0	7/23/50	1 ♂	
							7/ 6/50	0		1 ♀	
							7/10/50	0	7/21/50	1 ♀	
							7/14/50	22D	7/25/50	6♂♂	
										5♀♀	
									7/26/50	1 ♂	68.2

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
13	6/22/50	6/26/50	Apricots, var. Tilton Ripe.	5		201	7/ 7/50 7/11/50	107 91D	7/11/50 7/12/50 7/13/50 7/14/50 7/15/50 7/17/50 7/19/50	3♂♂ 2♀♀ 1 ♂ 1 ♀ 19♂♂ 6♀♀ 11♂♂ 14♀♀ 15♂♂ 23♀♀ 18♂♂ 21♀♀ 3♂♂	69.2
14	"	"	"	"	5	231	7/ 7/50 7/11/50	7 61D	7/12/50 7/15/50 7/17/50 7/18/50 7/19/50 7/20/50 7/21/50	1 ♀ 1 ♂ 1 ♂ 3♀♀ 5♂♂ 9♀♀ 3♂♂ 3♀♀ 4♂♂ 2♀♀ 1 ♂	48.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
15	6/22/50	6/26/50	Plums, var. Santa Rosa Immature.	6		205	7/ 7/50 7/11/50	0 21D	7/19/50 7/20/50 7/23/50	1 ♀ 1 ♂ 5♂♂ 10♀♀	80.95
16	"	"	" "	6		222	7/ 7/50 7/11/50	0 10D	7/17/50 7/21/50	2♂♂ 3♀♀ 1 ♀	60.0
17	"	"	Nectarines, var. John Rivers. Green, ripe.	4		303	7/ 7/50 7/10/50	156 163D	7/10/50 7/11/50 7/12/50 7/13/50 7/14/50 7/15/50 7/17/50 7/18/50 7/23/50	1 ♂ 1 ♀ 4♂♂ 7♀♀ 2♂♂ 3♀♀ 1 ♂ 1 ♂ 5♂♂ 14♀♀ 22♂♂ 25♀♀ 12♂♂ 6♀♀ 1 ♂ 5♀♀	34.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Emergence and Pupation Date	Emergence and Pupation No. Pupae	Date	No. Flies	% Emergence over Pupation
18	6/22/50	6/26/50	Nectarines, var. John Rivers. Green, ripe.	4		285	7/ 7/50	109	7/10/50	2♂♂	
							7/10/50	32D	7/11/50	13♂♂	
										12♀♀	
									7/12/50	5♂♂	
									7/13/50	6♂♂	
										1 ♀	
									7/14/50	1 ♂	
										2♀♀	
									7/15/50	5♂♂	
										2♀♀	
									7/17/50	7♂♂	
										5♀♀	
									7/18/50	2♂♂	
										1 ♀	45.4
19	"	"	Apples, var. Gravenstein Immature.	6		218	7/ 7/50	0			
							7/11/50	OD			0.0
20	"	"	" "	6		256	7/ 7/50	0			
							7/11/50	OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DOESALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	6/28/50	7/ 2/50	Apricot, var. Tipton Tree #2 - more than 1/2 size still green and hard. Osborn Orchard	5		203	7/11/50 7/14/50	499 48D	7/17/50 7/18/50 7/19/50 7/20/50 7/21/50 7/24/50	11♂♂ 9♀♀ 67♂♂ 46♀♀ 79♂♂ 96♀♀ 29♂♂ 26♀♀ 6♂♂ 9♀♀ 1 ♀	69.3
2	"	"	" "	5		184	7/11/50 7/17/50	92 377D	7/20/50 7/21/50 7/23/50 7/24/50	13♂♂ 20♀♀ 67♂♂ 82♀♀ 17♂♂ 17♀♀ 3♂♂ 2♀♀	47.1
3	"	"	Apricots, var. Tipton Tree #1. Nearly full size, slight color, hard.	4		213	7/11/50 7/17/50	361 101D	7/18/50 7/19/50 7/20/50	12♂♂ 21♀♀ 28♂♂ 32♀♀ 66♂♂ 89♀♀	

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
3	6/28/50	7/ 2/50	Apricots, var. Tipton Tree #1. Nearly full size, slight color, hard.						7/21/50	27♂♂ 38♀♀	
									7/23/50	14♀♀ 13♂♂	
									7/24/50	1♂ 1♀	74.0
4	"	"	" "	4		210	7/11/50 7/17/50	311 14D	7/18/50	24♂♂ 27♀♀	
									7/19/50	74♂♂ 87♀♀	
									7/20/50	6♂♂ 7♀♀	
									7/21/50	3♂♂	
									7/24/50	1 ♂ 1 ♀	70.8
5	"	"	Nectarine, var. Tree #1, Osborn Orchard	7		157	7/11/50 7/17/50	165 12D	7/17/50	4♂♂ 1 ♀	
									7/19/50	18♂♂ 15♀♀	
									7/20/50	16♂♂ 18♀♀	
									7/21/50	2♂♂ 5♀♀	
									7/23/50	1 ♂ 2♀♀	
									7/24/50	21♂♂ 29♀♀	46.9

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
6	6/28/50	7/ 2/50	Nectarine, var. Tree #1, Osborn Orchard	7		180	7/11/50 7/17/50	240 28D	7/17/50 7/18/50 7/20/50 7/21/50 7/23 /50 7/24/50	4♂♂ 7♀♀ 5♂♂ 3♀♀ 23♂♂ 22♀♀ 13♂♂ 11♀♀ 29♂♂ 36♀♀ 21♂♂ 28♀♀	75.4
7	"	"	Peach, var. Tree #2 Green and hard. Osborn Orchard.	4		152	7/11/50 7/17/50	0 0D			0.0
8	"	"	" "	4		165	7/11/50 7/17/50	0 0D			0.0
9	"	"	Quince, var. Tree #1 Osborn Orchard.	5		120	7/11/50 7/17/50	0 0D			0.0
10	"	"	" "	5		150	7/11/50 7/17/50	0 0D	7/17/50		0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
11	6/28/50	7/ 2/50	Peach, var. Tree #1 More than 1/2 size. Slight color but still hard. Osborn Orchard.	4		268	7/11/50	26	7/19/50	6♂♂	
							7/17/50	26		5♀♀	
							7/20/50	96D	7/20/50	1 ♂	
										4♀♀	
									7/21/50	1 ♂	
										1 ♀	
									7/23/50	2♂♂	
										1 ♀	
									7/26/50	1 ♂	
										1 ♀	
									7/27/50	10♂♂	
										3♀♀	
									7/28/50	16♂♂	
										10♀♀	
									7/30/50	9♂♂	
										7♀♀	
									7/31/50	20♂♂	
										14♀♀	77.7
12	"	"	"	"	4		277	7/11/50	17	7/20/50	2♂♂
							7/17/50	444		1 ♀	
							7/20/50	69D	7/21/50	1 ♀	
									7/23/50	37♂♂	
										34♀♀	
									7/24/50	54♂♂	
										60♀♀	
									7/25/50	7♂♂	
										6♀♀	
									7/26/50	5♀♀	
										2♂♂	39.4

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
13	6/30/50	7/ 4/50	Blackberries* Picked immature, red stage.			50	7/13/50	4D	7/21/50 7/23/50	2♂ 1♀ 1 ♂	100.0
14	"	"	" "			50	7/13/50	2D			0.0
15	"	"	Blackberries. Ripe.			50	7/13/50	OD			0.0
16	"	"	" "			50	7/13/50	OD			0.0

* Fruit breaks down and dries up very soon.

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	7/ 3/50	7/ 7/50	Plum, var. Santa Rosa Shipping stage.	4		221	7/13/50 7/20/50	0 47D	7/24/50	3♂♂ 7♀♀	
									7/26/50	11♀♀	
									7/27/50	1 ♂ 1 ♀	
									7/30/50	2♂♂ 4♀♀	
									7/31/50	1 ♀	63.8
2	"	"	" "	4		208	7/13/50 7/20/50	0 69D	7/26/50 7/27/50	1 ♀ 4♂♂	
										1 ♀	
									7/28/50	12♂♂ 13♀♀	
									7/30/50	4♂♂ 5♀♀	57.97
3	"	"	Plum, var. Duarte Tree picked immature	6		176	7/13/50 7/20/50	0 184	7/27/50	4♂♂ 7♀♀	
									7/28/50	13♂♂ 28♀♀	
									7/30/50	39♂♂ 31♀♀	
									7/31/50	3♂♂ 1 ♀	68.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
4	7/ 3/50	7/ 7/50	Plum, var. Duarte Tree picked, immature	6		236	7/13/50 7/20/50 7/27/50	0 25 108D	7/28/50 7/30/50 7/31/50 8/ 1/50 8/ 2/50 8/ 3/50 8/ 4/50 8/ 6/50	2♂♂ 3♀♀ 9♂♂ 8♀♀ 24♂♂ 18♀♀ 2♂♂ 4♀♀ 11♂♂ 7♀♀ 6♂♂ 4♀♀ 1 ♀ 1 ♀	75.2
5	"	"	Plum, var. Climax Shipping stage	4		229	7/13/50 7/21/50 7/27/50	0 9 32D	8/ 1/50 7/30/50 8/ 4/50 8/ 6/50 8/ 9/50	6♂♂ 8♀♀ 1 ♂ 2♀♀ 3♂♂ 1 ♂ 1 ♀ 1 ♂ 4♀♀	65.9
6	"	"	"	"	4	195	7/13/50 7/21/50 7/27/50	0 0 17D	8/ 1/50 8/ 3/50 8/ 4/50	3♂♂ 2♀♀ 1 ♂ 1 ♀ 1 ♀	58.8

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
7	7/ 3/50	7/ 7/50	Plum, var. Mammoth Shipping stage.	3		276	7/13/50	0	7/30/50	1 ♂	
							7/21/50	7	8/ 6/50	1 ♂	
							7/27/50	9D		1 ♀	
									8/ 8/50	1 ♂	
										1 ♀	31.3
8	"	"	Plum, var. Burbank Shipping stage.	5		178	7/13/50	0	7/28/50	4♂♂	
							7/21/50	12D		6♀♀	83.3
9	"	"	" "	5		171	7/13/50	0	7/28/50	3♂♂	
							7/21/50	30		6♀♀	
							7/27/50	26D	7/30/50	5♂♂	
									7/31/50	5♂♂	
										4♀♀	
									8/ 1/50	1 ♂	
										8♀♀	
									8/ 2/50	2♀♀	
									8/ 3/50	3♀♀	
									8/ 4/50	3♂♂	
										1 ♀	
									8/13/50	1 ♀	75.0
10	"	"	Pear, var. Bartlett Picked green and hard.	5		434	7/13/50	0	7/30/50	1 ♂	
							7/21/50	4	8/ 2/50	1 ♂	
							7/27/50	48D		2♀♀	
									8/ 3/50	1 ♂	
										2♀♀	
									8/ 4/50	1 ♂	
										1 ♀	
									8/ 8/50	5♂♂	
										7♀♀	
									8/13/50	1 ♂	42.3

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence Date	Pupation and Emergence No. Pupae	Pupation and Emergence Date	Pupation and Emergence No. Flies	% Emergence over Pupation
11	7/ 3/50	7/ 7/50	Pear, var. Winter Nelis Picked green, small and hard.	5		172	7/13/50 7/21/50	0 OD			
12	"	"	" "	5		155	7/13/50 7/21/50	0 OD			

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
14	7/ 5/50	7/ 9/50	Plum, Tree #2 Green and hard.	23		204	7/24/50	20	7/30/50	1 ♂	
							7/27/50	39	7/31/50	2♂♂	
							7/31/50	43		3♀♀	
							8/ 8/50	1D	8/ 1/50	2♂♂	
										2♀♀	
									8/ 2/50	1 ♂	
										1 ♀	
									8/ 3/50	7♂♂	
										9♀♀	
									8/ 6/50	1 ♂	
										5♀♀	
									8/ 8/50	21♂♂	
										11♀♀	
									8/ 9/50	2♂♂	66.0
15	"	"	Plum, var. Duarte Green - some color.	10		228	7/24/50	0	8/ 4/50	1 ♂	
							7/27/50	5	8/12/50	2♀♀	
							7/31/50	13	8/ 8/50	5♂♂	
							8/ 8/50	4D		3♀♀	
									8/13/50	1 ♂	
										1 ♀	59.1
16	"	"	Plum, var. Satsuma Pre-harvest stage.	8		260	7/24/50	0			
							7/27/50	0			
							8/ 8/50	0D			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
17	7/ 5/50	7/ 9/50	Apricots, var. Blenheim Pre-ripe.	9		220	7/24/50 7/27/50	32 1D	7/30/50 7/31/50 8/ 1/50 8/ 2/50	2♀♀ 1 ♂ 2♂♂ 7♀♀ 1 ♂ 2♀♀	45.5
18	"	"	Apricots, var. Royal Pre-ripe.	9		285	7/24/50 7/27/50	81 6D	7/31/50 8/ 1/50 8/ 2/50 8/ 3/50	3♂♂ 7♀♀ 4♂♂ 6♀♀ 1 ♂ 2♀♀ 1 ♂	27.6
19	"	"	Almonds, var. Peerless Green.	17		202	7/24/50 7/27/50	0 0D			0.0
20	"	"	Almonds, var. Drake Green.	18		169	7/24/50 7/27/50	0 0D			0.0
21	"	"	Almonds, var. Nonpariel Green.	17		164	7/24/50 7/27/50	0 0D			0.0
22	"	"	Almonds, var. IXL Green.	17		190	7/24/50 7/27/50	0 0D			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
1	7/5 /50	7/ 9/50	Apples, var. Gravenstein Green and hard.	3		321.	7/24/50	0			
							7/27/50	0			
							8/ 8/50	0D			0.0
2	"	"	" "	3		228	7/24/50	0	8/20/50	1 ♂	
							7/27/50	0		1 ♀	
							7/31/50	4	8/24/50	1 ♂	
							8/ 8/50	0			
							8/11/50	7			
							8/17/50	2			
							8/22/50	8D			14.3

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	7/12/50	7/16/50	Apricot, var. Tipton Tree #1. Mature.	4		216	7/25/50	19	7/30/50	3♂♂	
							8/ 8/50	1D		4♀♀	
									8/ 3/50	3♂♂	
										1 ♀	
									8/ 4/50	4♀♀	
									8/ 8/50	1 ♂	
										1 ♀	
									8/ 9/50	2♀♀	
									8/11/50	1 ♀	100.0
2	"	"	" "	4		228	7/25/50	10	8/ 3/50	1 ♂	
							7/31/50	89	8/ 4/50	19♂♂	
							8/ 8/50	2D		12♀♀	
									8/ 6/50	2♂♂	33.7
3	"	"	Pear, var. Bartlett Green.	2		225	7/25/50	0	8/ 9/50	1 ♀	
							7/31/50	0	8/11/50	4♂♂	
							8/ 8/50	155D		4♀♀	
									8/12/50	12♂♂	
										7♀♀	
									8/13/50	3♂♂	
										7♀♀	
									8/16/50	7♂♂	
										2♀♀	
									8/18/50	3♀♀	32.3

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
4	7/12/50	7/16/50	Pear, var. Bartlett Green	2		192	7/25/50	0	8/13/50	2♂	
							7/31/50	0		1 ♀	
							8/ 8/50	77D	8/16/50	3♀♀	
									8/18/50	1 ♂	
										3♀♀	12.9%
5	"	"	Nectarine, Tree #3. Green and hard.	6		177	7/25/50	0	8/ 9/50	7♂♂	
							8/ 8/50	130D		5♀♀	
									8/11/50	11♂♂	
										22♀♀	
									8/12/50	13♂♂	
										10♀♀	
									8/13/50	9♂♂	
										7♀♀	
									8/15/50	7♂♂	
										10♀♀	
									8/16/50	1 ♀	77.7
6	"	"	" "	6		178	7/25/50	0	8/ 9/50	7♂♂	
							8/ 8/50	91D		14♀♀	
									8/11/50	15♂♂	
										12♀♀	
									8/12/50	5♂♂	
										9♀♀	
									8/13/50	4♂♂	
										2♀♀	
									8/14/50	1 ♂	75.8

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DONSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
7	7/12/50	7/16/50	Peach. Tree #1 Mature.	2		190	7/25/50	142	7/30/50	5♂♂	
							8/ 8/50	35D		2♀♀	
									7/31/50	9♂♂	
										12♀♀	
									8/ 1/50	7♂♂	
										5♀♀	
									8/ 2/50	1 ♂	
										1 ♀	
									8/ 3/50	6♂♂	
										14♀♀	
									8/ 4/50	4♂♂	
										1 ♀	
									8/13/50	1 ♀	37.9
8	"	"	" "	2		237	7/25/50	101	7/30/50	4♂♂	
							8/ 8/50	13D		4♀♀	
									7/31/50	7♂♂	
										5♀♀	
									8/ 1/50	5♂♂	
										3♀♀	
									8/ 2/50	7♂♂	
										5♀♀	
									8/ 3/50	11♂♂	
										8♀♀	
									8/ 4/50	1 ♂	
									8/22/50	1 ♂	53.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
1	7/19/50	7/23/50	Oranges, mature Sunkist, Riverside Co.	2		390	8/ 8/50	0	8/27/50	1 ♀	
							8/11/50	0	8/28/50	1 ♂	
							8/17/50	4		1 ♀	
							8/22/50	17D	8/29/50	1 ♂	
										1 ♀	23.8
2	"	"	Oranges, unmarked	2		242	8/ 8/50	0	8/22/50	1 ♂	
							8/11/50	0			
							8/17/50	1			
							8/22/50	0D			100.0
3	"	"	Oranges, mature Sunkist, Riverside Co.	2		416	8/ 8/50	0	8/20/50	1 ♀	
							8/11/50	1	8/27/50	1 ♀	
							8/17/50	3	8/28/50	1 ♂	
							8/22/50	6D	8/29/50	1 ♂	40.0
4	"	"	Oranges, mature Unmarked var.	2		314	8/ 8/50	0	8/20/50	1 ♂	
							8/11/50	1	8/27/50	1 ♀	
							8/17/50	3			
							8/22/50	0D			50.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
1	7/21/50	7/25/50	Almonds, var. IXL Mature.	10		121	8/ 8/50 8/11/50	0 OD			0.0
2	"	"	Almonds, var. Nonpareil. mature	10		111	8/ 8/50 8/11/50	0 OD			0.0
3	"	"	Almonds, var. Peerless Mature.	10		140	8/ 8/50 8/11/50	0 OD			0.0
4	"	"	Almonds, var. Drake Mature.	10		68	8/ 8/50 8/11/50	0 OD			0.0
5	"	"	Plum, Tree #2 Green, ripe.	8		129	8/ 8/50 8/11/50	9 14D	8/13/50 8/14/50 8/16/50 8/17/50 8/20/50 8/23/50	1 ♂ 1 ♀ 2♂♂ 2♀♀ 2♂♂ 2♀♀ 1 ♀	47.8
6	"	"	" "	8		126	8/ 8/50 8/11/50	3 OD	8/12/50	2♀♀	66.7
7	"	"	Plum, var. Duarte Tree #1. Green ripe.	6		197	8/ 8/50 8/11/50	0 OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
8	7/21/50	7/25/50	Plum, var. Duarte Tree #1. Green ripe.	6		165	8/ 8/50	2	8/16/50	1 ♂	
							8/11/50	2D	8/18/50	1 ♀	
									8/20/50	1 ♂	75.3
9	"	"	Plum, var. Satsuma Mature.	5		176	8/ 8/50	0			
							8/11/50	0D			0.0
10	"	"	Apples, var Gravenstein Immature	3		227	8/ 8/50	4	8/25/50	3♂♂	
							8/11/50	8		1 ♀	
							8/17/50	6	8/20/50	1 ♂	
							8/22/50	45D	8/23/50	1 ♀	
									8/24/50	1 ♂	
										2♀♀	
									8/27/50	1 ♀	
									8/28/50	3♂♂	
										5♀♀	
									8/29/50	8♂♂	
										5♀♀	
									9/ 2/50	1 ♂	
										1 ♀	52.4
11	"	"	" "	3		214	8/ 8/50	1	8/27/50	4♀♀	
							8/11/50	0		1 ♂	
							8/17/50	2	8/28/50	1 ♂	
							8/22/50	37D		2♀♀	
									8/29/50	1 ♂	
										4♀♀	32.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	Pupation and Emergence: No. Pupae	Pupation and Emergence: Date	No. Flies	% Emergence over Pupation
12	7/21/50	7/25/50	Apricots, var. Royal Mature.	5		177	8/ 8/50 8/11/50	4 0	8/13/50	1 ♀	25.0
13	"	"	Apricots, var. Blenheim Mature.	5		148	8/ 8/50 8/11/50	0 0			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
1	7/28/50	8/ 1/50	Nectarines, Tree #1 Osborne Orchard.	3		156	8/14/50	113	8/16/50	2♂♂	
							8/17/50	2D		7♀♀	
									8/17/50	6♂♂	
										10♀♀	
									8/18/50	18♂♂	
										8♀♀	
									8/20/50	6♂♂	
										8♀♀	
									8/21/50	1 ♂	57.4
2	"	"	Plum, var. Sharkey	3		219	8/14/50	2	8/20/50	1 ♀	
							8/17/50	21	8/23/50	1 ♂	
							8/22/50	25D	8/24/50	9♂♂	
										4♀♀	
									8/28/50	1 ♂	
										8♀♀	50.0
3	"	"	Peach, var. Tree #2 Osborn Orchard.	3		221	8/14/50	431	8/16/50	6♂♂	
							8/17/50	85D		2♀♀	
									8/17/50	8♂♂	
										19♀♀	
									8/18/50	22♂♂	
										17♀♀	
									8/21/50	22♂♂	
										18♀♀	
									8/23/50	9♂♂	
										3♀♀	
									8/24/50	16♂♂	
										8♀♀	
									8/27/50	2♂♂	
										4♀♀	50.8

CAGE INFESTATION OF CALIFRONIA FRITTS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
4	7/28/50	8/ 1/50	Pear, var. Bartlett	2		275	8/14/50	16	8/20/50	3♂♂	
							8/17/50	37		2♀♀	
							8/22/50	400D	8/22/50	3♂♂	
										6♀♀	
									8/23/50	2♂♂	
										1 ♀	
									8/24/50	3♂♂	
										2♀♀	
									8/27/50	12♂♂	
										14♀♀	
									8/29/50	4♂♂	
										1 ♀	11.7
5	"	"	"	"	2		280	8/14/50	5	8/20/50	1 ♂
								8/17/50	114	8/23/50	1 ♂
								8/22/50	345D	8/24/50	1 ♀
										8/25/50	3♂♂
											4♀♀
										8/27/50	37♂♂
											27♀♀
										8/28/50	35♂♂
											41♀♀
										8/29/50	11♂♂
											10♀♀
										8/30/50	2 ♀
											37.3

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
6	7/28/50	8/ 1/50	Plum, var. Ace	2		199	8/14/50	2	8/20/50	1 ♀	
							8/17/50	20D	8/23/50	1 ♀	
									8/27/50	2♂♂	
										3♀♀	31.8
7	"	"	Plum, var. Diamond	4		116	8/14/50	2	8/18/50	2♂♂	
							8/17/50	29D		2♀♀	
									8/23/50	1 ♂	
										3♀♀	
									8/24/50	1 ♂	
										3♀♀	
									8/27/50	2♂♂	45.1
8	"	"	" "	4		133	8/14/50	2	8/20/50	1 ♂	
							8/17/50	4D	8/21/50	1 ♀	
									8/24/50	1 ♀	50.0
9	"	"	Nectarines, var. Quetta	2		233	8/14/50	235D	8/14/50	3♂♂	
										2♀♀	
									8/15/50	3♂♂	
										6♀♀	
									8/16/50	44♂♂	
										30♀♀	
									8/20/50	1 ♂	
									8/25/50	1 ♂	38.3

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
10	7/28/50	8/ 1/50	Nectarines, var. Quetta	2		309	8/14/50 8/17/50	585 4D	8/15/50	8♂♂ 6♀♀	
									8/17/50	28♂♂ 23♀♀	
									8/18/50	40♂♂ 54♀♀	
									8/20/50	40♀♀ 36♂♂	
									8/21/50	3♂♂ 9♀♀	
									8/22/50	1 ♂ 3♀♀	
									8/23/50	1 ♂ 1 ♀	
									8/27/50	1 ♂	43.1
11	"	"	Peach, var. Fortuna	2		254	8/14/50 8/17/50	12 OD	8/14/50	6♂♂ 4♀♀	83.3
12	"	"	" "	2		231	8/14/50 8/17/50	78 4D	8/16/50 8/17/50	2♀♀ 2♀♀	
									8/20/50	1 ♂ 2♀♀	
									8/27/50	1 ♂ 1 ♀	10.97
13	"	"	Peach, var. Elberta	1		246	8/14/50 8/17/50	31 OD	8/15/50	2♂♂ 1 ♀	
									8/22/50	9♂♂ 5♀♀	54.8

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
14	7/28/50	8/ 1/50	Peach, var. Elberta	1		225	8/14/50	47	8/16/50	1 ♂	
							8/17/50	1D		2♀♀	
									8/18/50	3♂♂	
										2♀♀	
									8/20/50	7♂♂	
									8/24/50	3♂♂	
										9♀♀	
									8/28/50	2♀♀	60.4
15	"	"	Peach, var. Strawberry	2		193	8/14/50	67	8/15/50	28♂♂	
							8/17/50	OD		19♀♀	70.1
16	"	"	Apricots, var. Tilton	3		123	8/14/50	59	8/14/50	12♂♂	
							8/17/50	OD		16♀♀	
									8/24/50	2♂♂	
										3♀♀	55.9

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
1	8/ 3/50	8/ 7/50	Peaches, var. Palora Mature	1		220	8/15/50	4	8/22/50	1 ♂	
							8/22/50	92D	8/24/50	1 ♂	
									8/25/50	2♀♀	
									8/27/50	1 ♀	
									8/29/50	8♂♂	
										2♀♀	
									9/ 2/50	1 ♂	
										1 ♀	17.7
2	"	"	"	"		1	214	8/15/50	7	8/23/50	1 ♂
							8/22/50	142D	8/24/50	1 ♀	
									8/25/50	3♂♂	
										5♀♀	
									8/27/50	10♂♂	
										6♀♀	
									8/28/50	6♂♂	
										2♀♀	
									8/29/50	13♂♂	
										12♀♀	
									8/30/50	3♂♂	42.95
3	"	"	Prunes, var. Imperial	4		211	8/15/50	0	8/29/50	2♂♂	
							8/22/50	19D		5♀♀	
									8/30/50	1 ♂	
										2♀♀	
									9/ 2/50	4♂♂	
										2♀♀	84.2

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
4	8/ 3/50	8/ 7/50	Prunes, var. Imperial mature	4		209	8/15/50	0	8/29/50	1 ♂	
							8/22/50	4		1 ♀	
							8/28/50	85	8/31/50	1 ♀	
							9/ 1/50	49D	9/ 2/50	1 ♂	
									9/ 4/50	43♂♂	
										21♀♀	
									9/ 5/50	1 ♀	
									9/ 8/50	7♂♂	
										5♀♀	58.7
5	"	"	Prunes, var. French mature	5		124	8/15/50	0			
							8/22/50	0			
							8/28/50	8D			0.0
6	"	"	" "	5		150	8/15/50	0	8/28/50	1 ♀	
							8/22/50	6	8/29/50	2♀♀	
							8/28/50	45	8/31/50	1 ♂	
							9/ 1/50	27D		1 ♀	
									9/ 2/50	1 ♂	
									9/ 4/50	13♂♂	
										18♀♀	
									9/ 8/50	4♂♂	
										1 ♀	
									9/ 9/50	1 ♂	55.1

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
7	8/3/50	8/7/50	Pears, var. Hardy Immature	2		222	8/15/50	0	9/3/50	2♀♀	
							8/22/50	0	9/8/50	3♂♂	
							8/28/50	12		3♀♀	
							9/ 1/50	36D			16.7
8	"	"	"	"	2	250	8/15/50	0			
							8/22/50	0D			0.0
9	"	"	Pears, var. Winter Nelis		2	145	8/15/50	0			
							8/22/50	1D			0.0
10	"	"	"	"	2	154	8/15/50	0	9/8/50	1 ♂	
							8/22/50	0		4♀♀	
							8/28/50	0	9/12/50	10♂♂	
							9/ 1/50	67D		9♀♀	35.8
*11	"	"	Pears, var. Comice		2	295	8/15/50	0	9/ 8/50	2♂♂	
							8/22/50	0	9/11/50	16♂♂	
							8/28/50	20D			81.8
*12	"	"	"	"	2	260	8/15/50	0	9/ 4/50	3♂♂	
							8/22/50	0		2♀♀	
							8/28/50	11	9/ 6/50	1 ♂	
							9/ 1/50	118D	9/ 8/50	33♂♂	
										25♀♀	
									9/11/50	14♂♂	
										6♀♀	65.1

* Heavily infested but found some larvae dead in different stages.

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
13	8/ 3/50	8/ 7/50	Applies var. Gravenstein Immature	1		125	8/15/50	0	8/30/50	1 ♂	
							8/22/50	3		1 ♀	
							8/28/50	38	9/ 3/50	9 ♂♂	
							9/ 1/50	69D		7 ♀♀	
									9/ 8/50	8 ♂♂	
										12 ♀♀	
									9/11/50	3 ♂♂	
										1 ♀	38.2
14	"	"	"	"	1		110	8/15/50	0	9/ 3/50	4 ♂♂
							8/22/50	0		2 ♀♀	
							8/28/50	7	9/ 8/50	13 ♂♂	
							9/ 1/50	105D		27 ♀♀	
									9/11/50	2 ♂♂	
										4 ♀♀	46.4

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/ 4/50	8/ 8/50	Plum, var. Satsuma Mature.	4		145	8/23/50 8/28/50	91 OD	8/24/50	6♂♂ 5♀♀	
									8/25/50	2♂♂ 5♀♀	
									8/27/50	6♂♂ 4♀♀	
									8/28/50	6♂♂ 4♀♀	
									8/29/50	2♂♂	
									8/31/50	1 ♀	45.1
2	"	"	"	"	4	155	8/23/50 8/28/50	112 OD	8/24/50	1 ♂ 1 ♀	
									8/28/50	6♂♂ 1 ♀	
									8/29/50	11♂♂ 11♀♀	
									9/ 3/50	5♀♀	32.1
3	"	"	Plum, var. Seedling Tree #2, mature	5		95	8/23/50 8/28/50	5 11D	8/28/50	1 ♂ 3♀♀	
									8/30/50	1 ♂	
									9/ 2/50	3♀♀	
									9/ 3/50	3♂♂	68.8
4	"	"	"	"	4	96	8/23/50 8/28/50	28 35D	8/27/50	2♂♂ 1 ♀	
									8/29/50	3♂♂	
									8/30/50	1 ♀	
									8/31/50	2♂♂ 2♀♀	
									9/ 2/50	5♂♂ 2♀♀	
									9/ 5/50	29♀♀	74.6

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence				% Emergence over Pupation
							Date	No. Pupae	Date	No. Flies	
5	8/ 4/50	8/ 8/50	Plum, var. Duarte Tree #1, mature	4		115	8/23/50	6	8/28/50	1 ♂	
							8/28/50	9D	8/29/50	1 ♂ 2♀♀	
									8/30/50	1 ♀	
									9/ 2/50	4♂♂ 4♀♀	
									9/ 3/50	1 ♂	
										1 ♀	100.0
6	"	"	" "	4		146	8/23/50	67	8/28/50	1 ♀	
							8/28/50	8D	8/29/50	9♂♂ 12♀♀	
									8/30/50	2♀♀	
									8/31/50	1 ♂ 1 ♀	
									9/ 3/50	1 ♂	
										1 ♀	37.3
7	"	"	Plum, var. Satsuma Mature	4		140	8/23/50	111	8/24/50	2♀♀	
							8/28/50	0D	8/25/50	8♂♂ 5♀♀	
									8/27/50	17♂♂ 11♀♀	
									8/28/50	11♂♂ 11♀♀	
									8/30/50	1 ♀	59.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
8	8/ 4/50	8/ 8/50	Plum, var. Satsuma Mature	4		142	8/23/50 8/28/50	67 0D	8/24/50	4♂♂ 4♀♀	
									8/27/50	6♂♂ 11♀♀	
									8/28/50	7♂♂ 5♀♀	
									8/29/50	3♂♂ 2♀♀	
									9/ 2/50	1 ♂ 1 ♀	65.7
9	"	"	Plum, var. Seedling Tree #2, mature	5		90	8/23/50 8/28/50	38 23D	8/27/50 8/28/50	1 ♀ 2♂♂	
									8/29/50	1 ♀ 4♂♂	
									8/30/50	5♀♀ 2♂♂	
									8/31/50	2♀♀ 1 ♂	
									9/ 3/50	10♂♂ 4♀♀	52.5
10	"	"	" "	5		95	8/24/50 8/28/50	15 33D	9/ 2/50	3♂♂ 6♀♀	
									9/ 5/50	4♂♂ 5♀♀	37.5

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
11	8/ 4/50	8/ 8/50	Plum, var. Duarte Tree #1, mature	4		110	8/24/50	5	8/27/50	1 ♂	
							8/28/50	OD	8/30/50	1 ♂	
									9/ 2/50	1 ♂	60.0
12	"	"	" "	4		113	8/24/50	15	8/29/50	1 ♀	
							8/28/50	30D	8/30/50	2♂♂	
									9/ 2/50	3♂♂	
										4♀♀	
									9/ 5/50	7♂♂	
										4♀♀	46.7

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/ 7/50	8/11/50	Almonds, var. Peerless Green.	10		116	8/24/50 8/28/50	0 OD			0.0
2	"	"	" "	10		127	8/24/50 8/28/50	0 OD			0.0
3	"	"	Almonds, var. Drake Immature	10		92	8/24/50 8/28/50	0 OD			0.0
4	"	"	" "	10		89	8/24/50 8/28/50	0 OD			0.0
5	"	"	Almonds var. Nonpareil Immature	10		96	8/24/50 8/28/50	0 OD			0.0
6	"	"	" "	10		100	8/24/50 8/28/50	0 OD			0.0
7	"	"	Almonds var. IXL Immature	10		121	8/24/50 8/28/50	0 OD			0.0
8	"	"	" "	10		119	8/24/50 8/28/50	0 OD			0.0
9	"	"	Walnut, var. Franquette Immature	6		185	8/24/50 8/28/50	0 OD			0.0
10	"	"	" "	6		182	8/24/50 8/28/50	0 OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
11	8/ 7/50	8/11/50	Nectarine, var. ? Tree #1, ripe	1		89	8/24/50 8/28/50	4 OD			0.0
12	"	"	" "	1		85	8/24/50 8/28/50	63 4D	8/27/50 8/28/50 8/29/50 8/30/50 9/ 2/50	2♂♂ 2♀♀ 8♂♂ 10♀♀ 10♂♂ 7♀♀ 2♂♂ 2♀♀ 3♂♂ 1 ♀	70.1
13	"	"	Peaches, var. Palora Mature	1		195	8/24/50 8/28/50	196 34D	8/28/50 8/29/50 8/30/50 8/31/50 9/ 2/50 9/ 3/50	1 ♂ 23♂♂ 33♀♀ 6♂♂ 12♀♀ 7♂♂ 3♀♀ 6♂♂ 7♀♀ 4♂♂ 4♀♀	46.1
14	"	"	" "	1		198	8/24/50 8/28/50	115 OD	8/27/50 8/28/50 8/29/50 8/30/50 8/31/50	1 ♂ 2♂♂ 6♀♀ 18♂♂ 12♀♀ 2♂♂ 1 ♀ 1 ♂	37.4

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
15	8/ 7/50	8/11/50	Peaches, var. Palora Mature	1		160	8/24/50 8/28/50	109 0D	8/27/50	1 ♂ 1 ♀	
									8/28/50	5♂♂ 8♀♀	
									8/30/50	18♂♂ 23♀♀	
									9/ 3/50	5♂♂ 2♀♀	57.8
16	"	"	"	"	1		145	8/24/50 8/28/50	119 12D	8/28/50	2♂♂ 4♀♀
									8/30/50	66♂♂ 42♀♀	
									8/31/50	1 ♀	
									9/ 3/50	8♂♂ 4♀♀	
									9/ 6/50	1 ♂	97.7

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

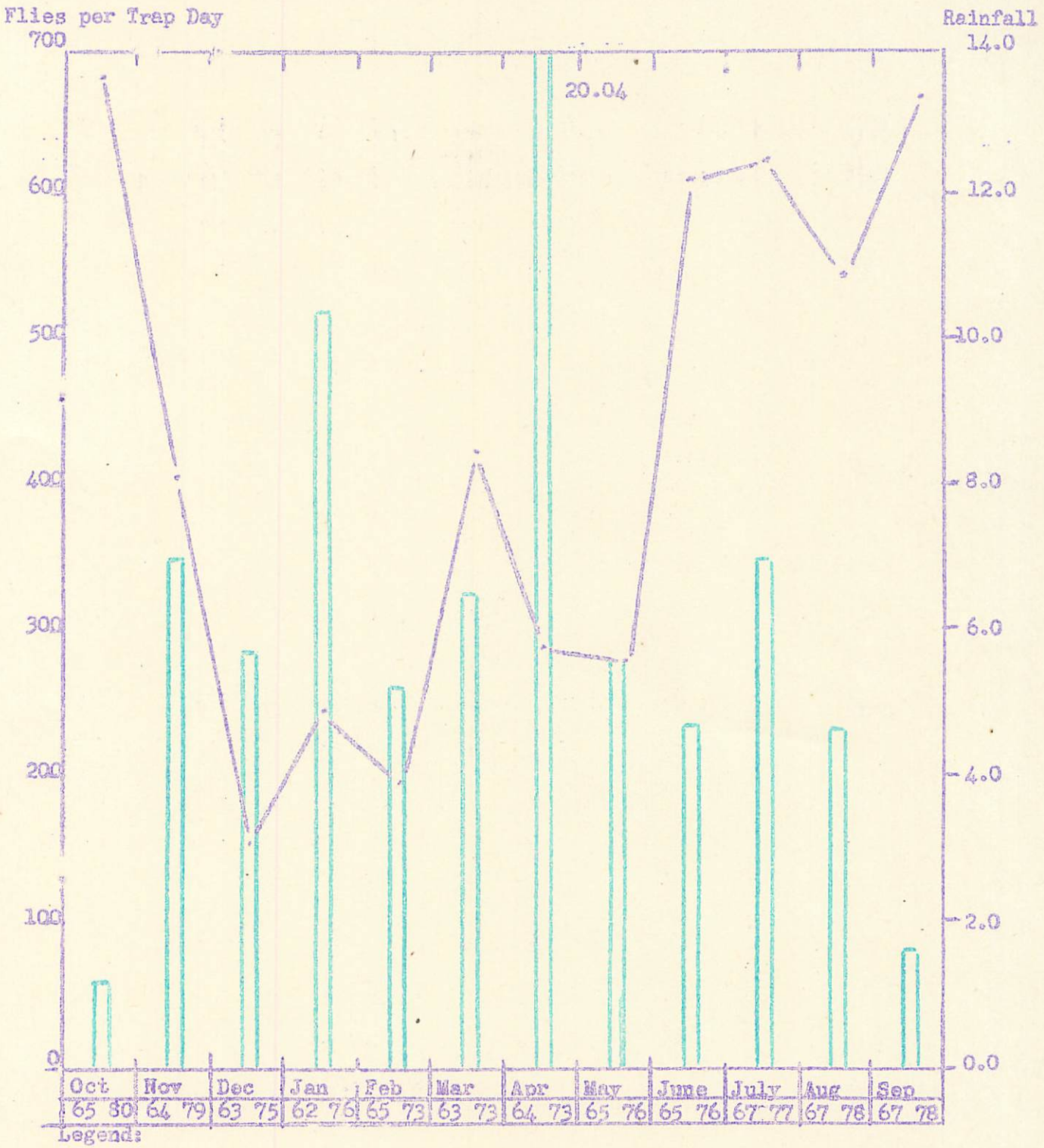
Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence: Date	No. Pupae	Date	No. Flies	% Emergence over Pupation
1	8/10/50	8/14/50	Grapes, var. Tokay Green			136	8/29/50	9	9/ 3/50	1♂ 1♀	
									9/ 8/50	1♀	
									9/11/50	1♀	26.7
2	"	"	" "			146	8/29/50	21	8/30/50	1♀	
							9/ 1/50	OD	9/ 5/50	3♂	19.0
3	"	"	Grapes, var. Thompson seedless, green			78	8/29/50	1			
							9/ 1/50	OD			0.0
4	"	"	" "			100	8/29/50	1	9/ 4/50	1♂	
							9/ 1/50	OD			100.0
5	"	"	Grapes, var. Mission Green			104	8/29/50	0			
							9/ 1/50	OD			0.0
6	"	"	" "			112	8/29/50	0			
							9/ 1/50	OD			0.0
7	"	"	Grapes, var. Carignan Green			103	8/29/50	0			
							9/ 1/50	OD			0.0
8	"	"	" "			115	8/29/50	4	9/ 2/50	3♂♂	75.0
							9/ 1/50	OD			
9	"	"	Grapes, var. Alicante Bouschet, green			92	8/29/50	0			
							9/ 1/50	OD			0.0
10	"	"	" "			109	8/29/50	0			
							9/ 1/50	OD			0.0

CAGE INFESTATION OF CALIFORNIA FRUITS BY D. DORSALIS

Cage No.	In Date	Out Date	Type of Fruit	Quantity	Grams Each	Total Weight	Pupation and Emergence Date	Pupation and Emergence No. Pupae	Pupation and Emergence Date	Pupation and Emergence No. Flies	% Emergence over Pupation
11	8/10/50	8/14/50	Grapes, var. Zinfandel Green.			100	8/29/50 9/ 1/50	0 OD			0.0
12	"	"	"	"		92	8/29/50 9/ 1/50	0 OD			0.0

Line Project I-o-1-5 - Population Trends - On Maui (Maehler)

FIG. 9. POPULATION TRENDS AT HAIKU TERRITORIAL NURSERY (500')



Population Trend. Monthly Average Catch Per Trap Day
Monthly Rainfall
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.
Graphic information based on 743,309 flies.
Glass Invaginated Traps and citronella lure.

POPULATION TRENDS AT HAIKU TERRITORIAL NURSERY (500')

TABLE NO. 27

Month	Max.Mean	Min.Mean	Ppt.	Days	Traps	TD	Fly Count	Index
October	80	65	1.3	21	5	105	71,960	685
Nov	79	64	7.2	31	5	155	63,458	409
Dec	75	63	5.8	29	5	145	23,080	159
Jan	76	62	10.6	35	5	175	42,919	245
Feb	73	65	5.4	28	5	140	27,879	199
Mar	73	62	6.6	28	5	140	59,317	423
Apr	72	63	20.0	28	5	140	40,661	290
May	76	65	5.6	35	5	175	49,793	284
June	76	65	4.8	28	5	140	85,966	614
July	77	67	7.1	35	5	175	109,115	623
Aug	78	67	4.7	28	5	140	75,820	548
Sep	78	67		28	5	140	93,341	666
Total				354		1,770 Trap Days	743,309	419 Average

POPULATION TRENDS AT HAIKU TERRITORIAL NURSERY

TABLE NO. 28

Trap No.	Date of Checking and Dacus dorsalis Trapped					Total
July	7/3	7/10	7/17	7/24	7/31	
67	7228	9384	9768	5038	8186	39,604
70	3071	4616	4939	4212	4217	21,055
78	5652	1715	6064	4826	4443	22,700
56	2500	3100	4456	2719	1191	13,966
89	1575	2795	2636	2061	2723	11,790
INDEX: 623						109,115

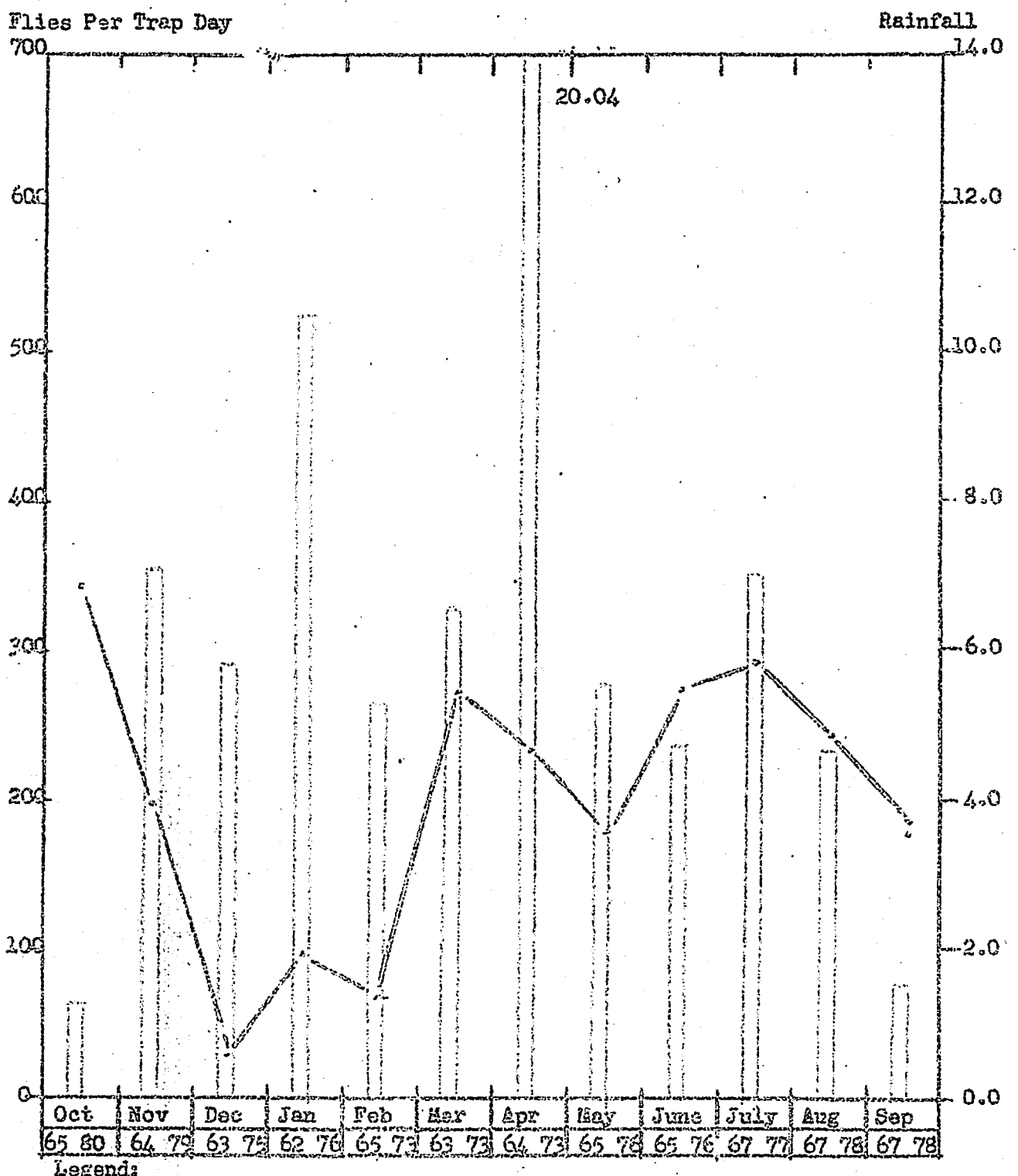
August	8/7	8/14	8/21	8/28	
67	4852	4026	6138	5820	20,836
70	3510	3211	6100	3724	16,545
78	4350	2352	4255	4588	15,545
56	2485	3357	5556	4950	16,348
89	1509	1220	2287	1530	6,546
INDEX: 548					75,820

September	9/4	9/11	9/18	9/25	
67	8740	10287	8515	4434	31,976
70	4436	3100	2707	1697	11,940
78	5906	6653	4710	3853	21,122
56	5923	9044	2500	3926	21,393
89	1400	2005	2289	1216	6,910
INDEX: 666					93,341

Grand Total 276,276

(INDEX: Flies Per Trap Day Monthly Average)

FIG. 10. POPULATION TRENDS AT BALDWIN'S MANGO ORCHARD, PAUWELA (400')

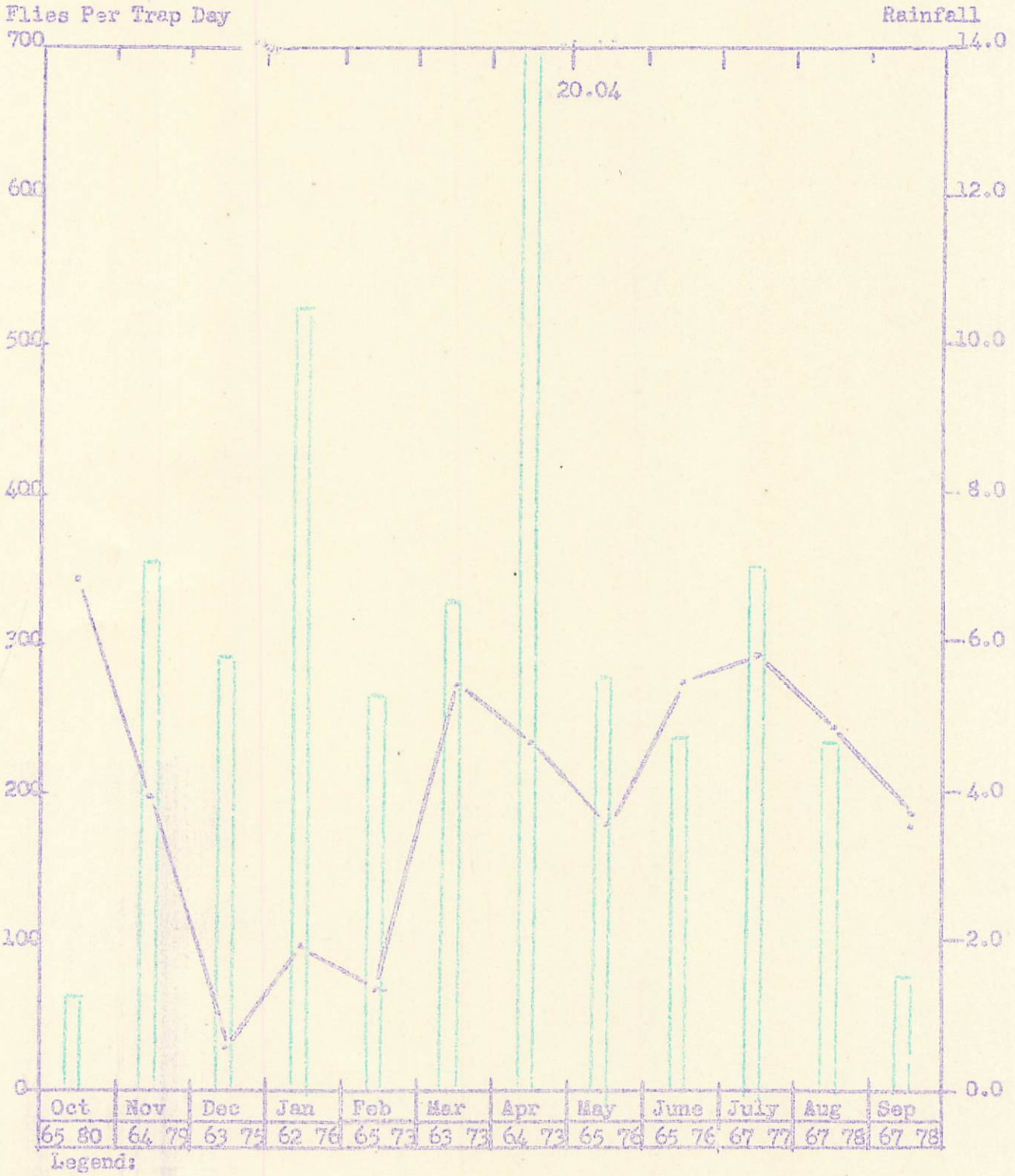


Legend:

Population Trend. Monthly Average Catch Per Trap Day.
Monthly Rainfall
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.
Graphic Information Based on 332,533 flies.
Glass Invaginated Traps and Citronella Lure

Note: There was a very poor fruit set in the orchard this year.
There was some fruit in the orchard in March.

FIG. 10. POPULATION TRENDS AT BALDWIN'S MANGO ORCHARD, PAUWELA (400')



Legend:

Population Trend. Monthly Average Catch Per Trap Day.
Monthly Rainfall
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.
Graphic Information Based on 332,533 flies.
Glass Invaginated Traps and Citronella Lure

Note: There was a very poor fruit set in the orchard this year.
There was some fruit in the orchard in March.

POPULATION TRENDS AT BALDWIN'S MANGO ORCHARD, PAUWELA (400')

TABLE NO. 29

MONTH	Max.Mean	Min.Mean	Ppt.	Days	Traps	T.D.	Fly Count	Index
Oct	80	65	1.3	21	5	105	32,320	340
Nov	79	64	7.2	31	5	155	22,768	196
Dec	75	63	5.8	29	5	145	4,261	29
Jan	76	62	10.6	35	5	175	16,452	94
Feb	73	65	5.4	28	5	140	9,542	68
Mar	73	62	6.6	28	5	140	38,050	271
Apr	72	63	20.0	28	5	140	32,505	232
May	76	65	5.6	35	5	161*	28,918	179
June	76	65	4.85	28	5	133*	36,521	274
July	77	67	7.11	35	5	175	51,043	291
Aug	78	67	4.78	28	5	140	33,848	241
Sept	78	67		28	5	140	26,305	187
Total				354		1749 Trap Days	332,533	190 Average

POPULATION TRENDS AT BALDWIN'S MANGO ORCHARD, PAUWELA (400')

TABLE NO. 30

Trap No.	Date of Checking and Dacus dorsalis Trapped					Total
July	7/3	7/10	7/17	7/24	7/31	
20	400	450	440	905	898	3,093
36	942	160	2452	1723	3079	8,356
65	212	276	643	877	705	2,713
107	1750	2971	4531	5904	6730	21,886
109	2238	2200	2695	2700	5162	14,995
INDEX: 291						51,043

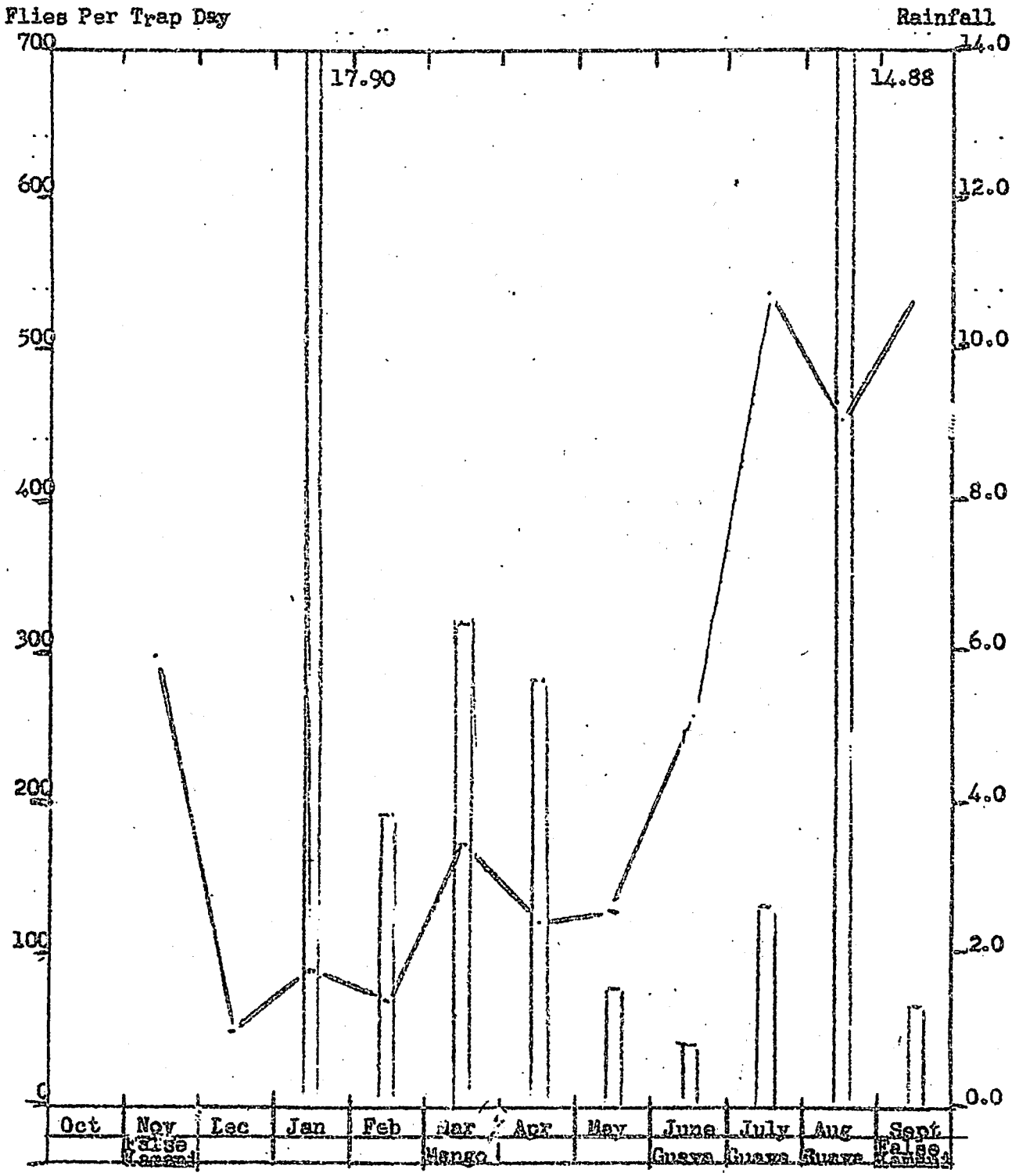
August	8/7	8/14	8/21	8/28	
20	376	101	186	155	818
36	3154	1752	1882	1952	8,740
65	609	357	407	285	1,658
107	3773	2636	2918	2464	11,791
109	2668	2355	3743	2077	10,841
INDEX: 241					33,848

September	9/4	9/11	9/18	9/25	
20	285	356	110	6	757
36	1747	1664	1227	1039	5,677
65	565	456	160	41	1,222
107	2620	2470	1910	1373	8,373
109	2813	4037	2205	1221	10,276
INDEX: 187					26,305

Grand Total 111,196

INDEX (Flies Per Trap Day Monthly Average)

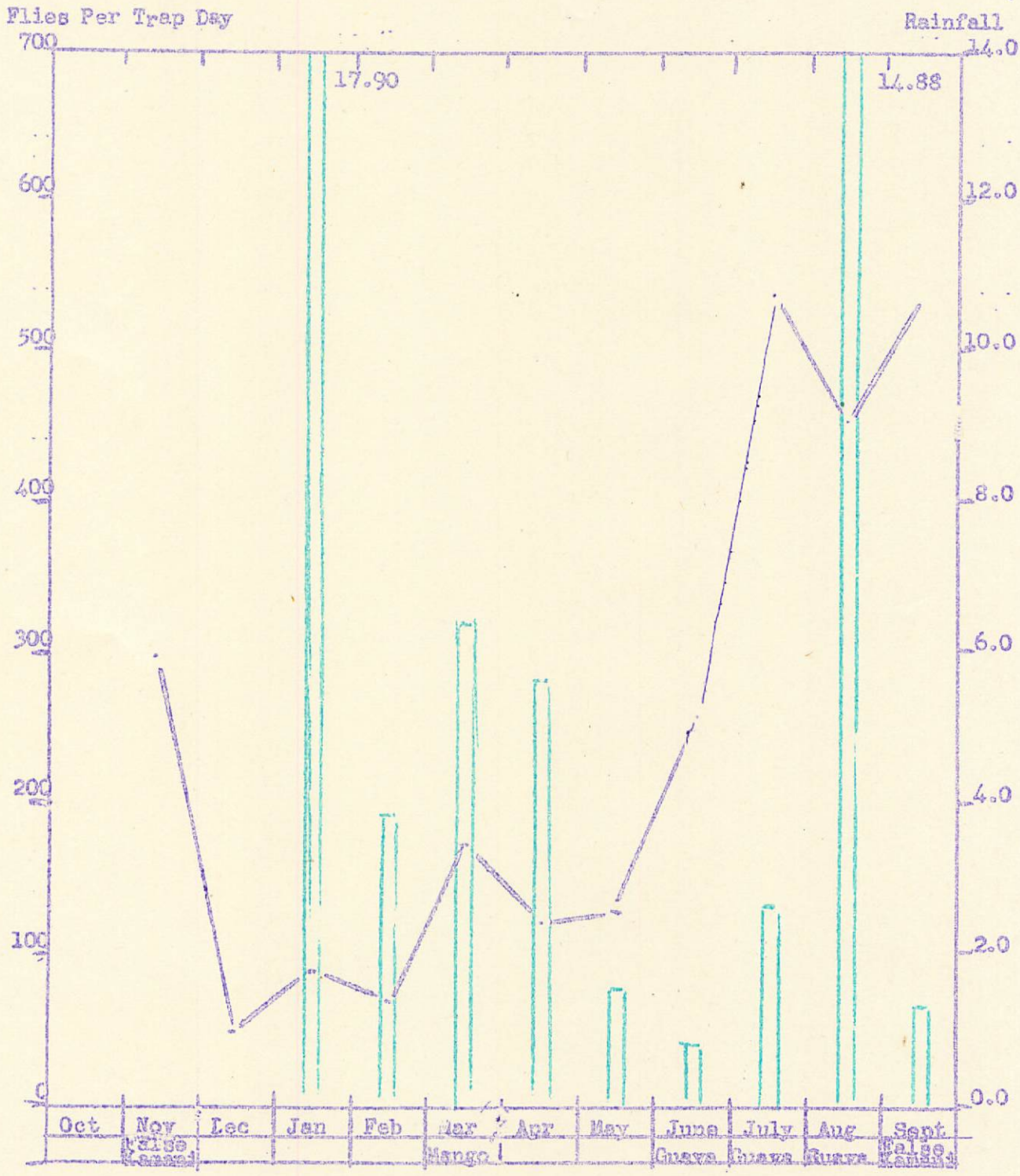
FIG. 11. POPULATION TRENDS IN IAO VALLEY (300'-1000')



Legend:

——— Population Trend. Monthly Average Catch Per Trap Day
——— Monthly Rainfall.
Guava in Fruit indicated below month.
Graphic Information Based on 397,974 flies
Glass Invaginated Treps and Citronella Lure

FIG. 11. POPULATION TRENDS IN IAO VALLEY (300'-1000')



Legend:

——— Population Trend. Monthly Average Catch Per Trap Day
——— Monthly Rainfall.
Guava in Fruit indicated below month.
Graphic Information Based on 397,974 flies
Glass Invaginated Traps and Citronella Lure

POPULATION TRENDS IN IAO VALLEY (300-1000')

TABLE NO. 31

Month	Days	Traps	T.D.	Fly Count	Index
Nov	24	5	120	35,681	296
Dec	30	5	150	7,987	53
Jan	35	5	175	15,038	85
Feb	28	5	140	9,149	65
Mar	28	5	140	23,840	170
Apr	28	5	140	16,779	119
May	35	5	175	21,971	125
June	28	5	140	36,206	258
July	35	5	175	93,263	532
Aug	28	5	140	63,278	451
Sept	28	5	140	74,753	533
Total	327		1635 Trap Days	397,974	243 Average

POPULATION TRENDS AT IAO VALLEY (300-1000')

TABLE NO. 32

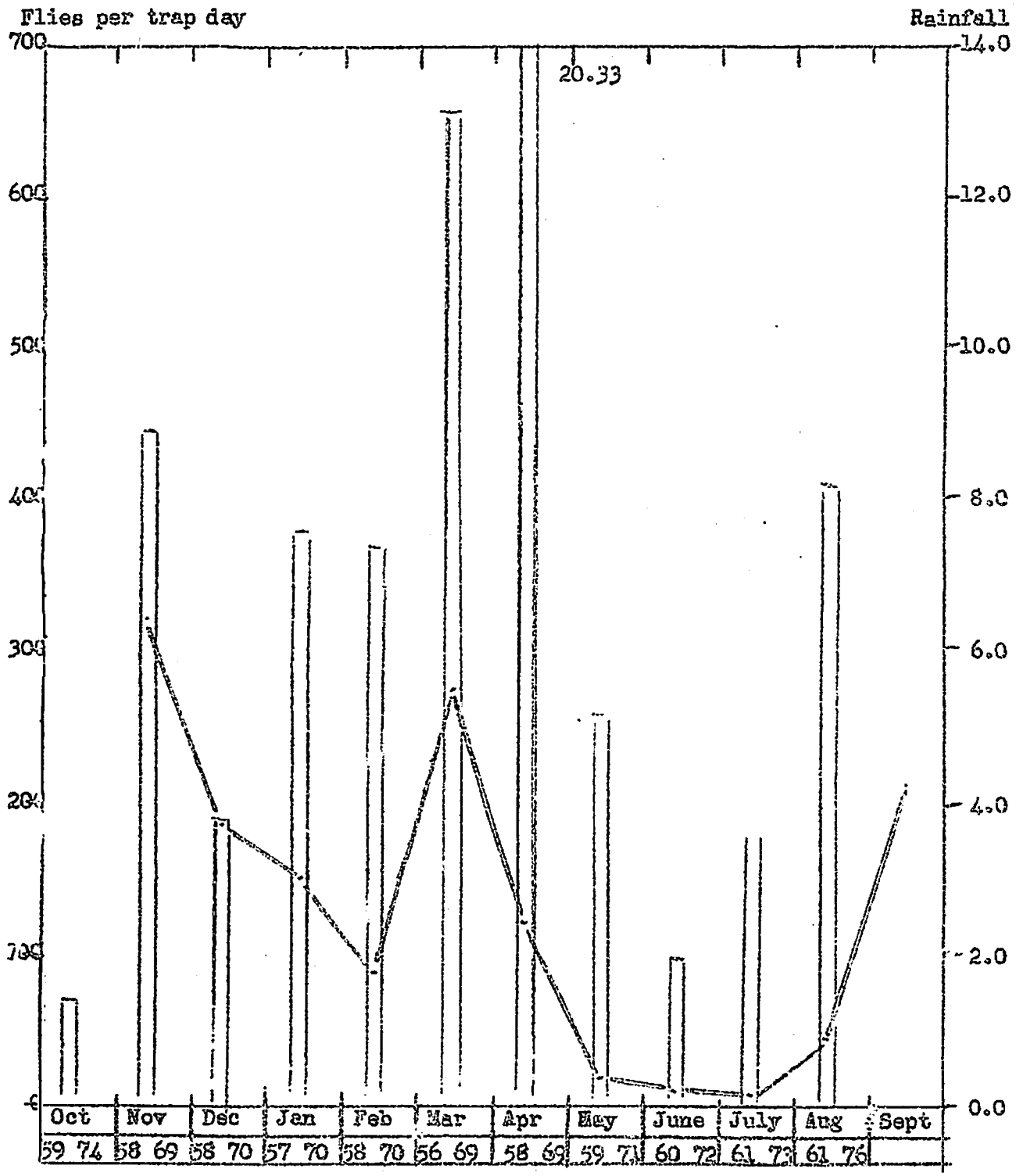
Trap No.	Date of Checking and Dacus dorsalis Trapped					Total
July	7/3	7/10	7/17	7/24	7/31	
125	2736	3118	4473	3655	6865	20,847
130	1560	2566	783	226	3160	8,295
142	3782	4716	6400	8050	11703	34,651
176	2384	4440	4910	5426	8330	25,490
178	67	72	926	1115	1800	3,980
INDEX: 532						93,263

August	8/7	8/14	8/21	8/28	
125	2474	2831	2426	2693	10,424
130	2139	1984	726	764	5,613
142	5981	5279	4393	7431	23,084
176	4445	8407	3031	3257	19,140
178	1540	1284	1018	1175	5,017
INDEX: 451					63,278

September	9/4	9/11	9/18	9/25	
125	3558	5256	6170	2928	17,912
130	670	623	572	513	2,378
142	11216	8311	9789	5100	34,416
176	3326	3887	4078	3083	14,376
178	1845	1576	1211	1039	5,671
INDEX: 533					74,753
				Grand Total	231,294

INDEX (Flies Per Trap day Monthly Average)

FIG. 12. POPULATION TREND IN A GUAVA GULCH, OLINDA (2160')



Legend:

Population Trend. Monthly Average Catch Per Trap Day.

Monthly Rainfall.

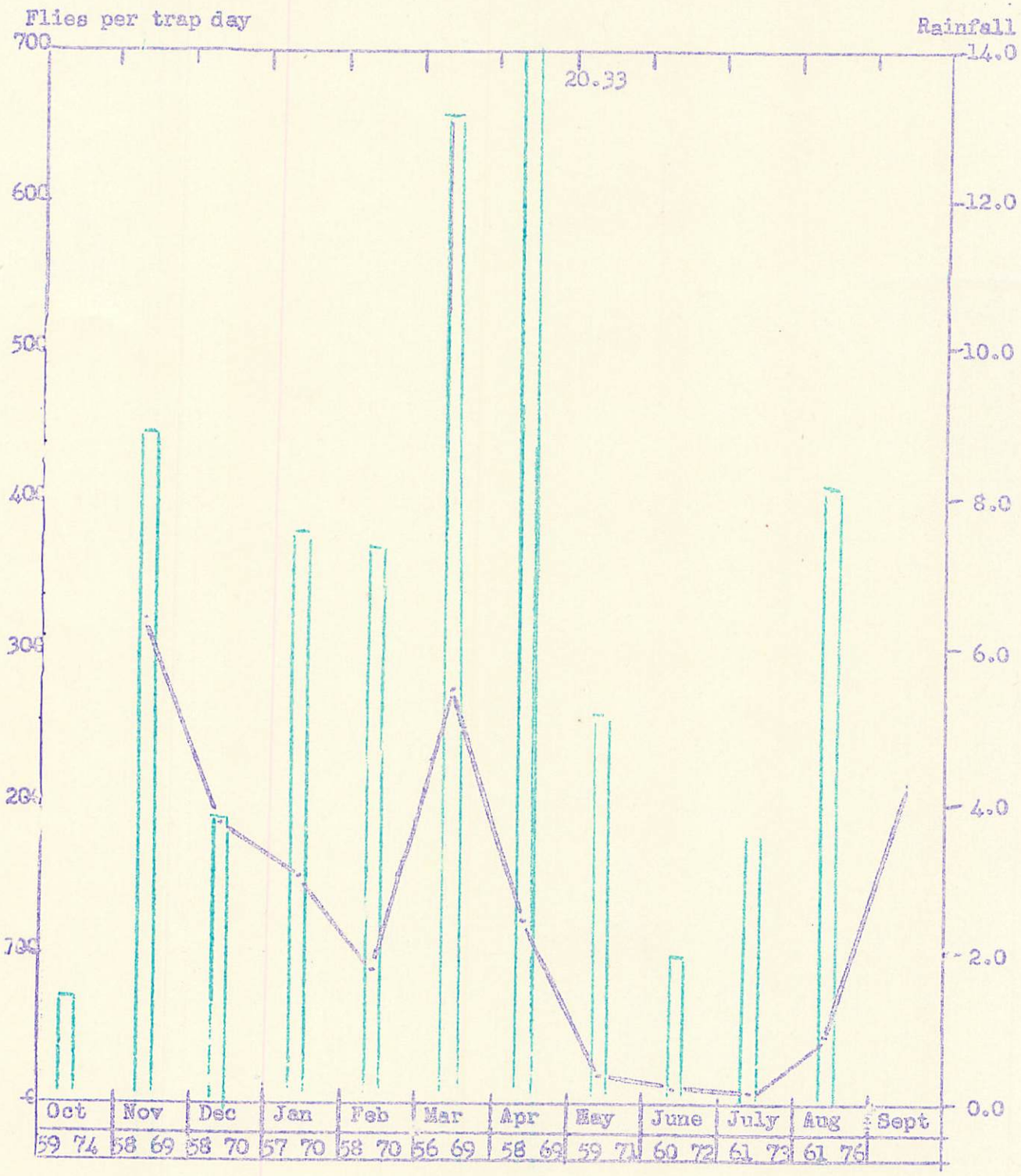
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.

Graphic Information Based on 175,329 flies.

Glass Invaginated Traps and Citronella Lure

Vertical column represents accumulated monthly rainfall.

FIG. 12. POPULATION TREND IN A GUAVA GULCH, OLINDA (2160')



Legend:

Population Trend. Monthly Average Catch Per Trap Day.

Monthly Rainfall.

Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.

Graphic Information Based on 175,329 flies.

Glass Invaginated Traps and Citronella Lure

Vertical column represents accumulated monthly rainfall.

POPULATION TRENDS IN A GUAVA GULCH, OLINDA (2160')

TABLE NO. 33

Month	Max.Mean	Min.Mean	Ppt.	Days	Traps	TD	Fly Count	Index
Nov	69	58	8.78	11	5	55	17,502	318
Dec	70	58	3.79	29	5	145	26,085	179
Jan	70	57	7.43	35	5	175	25,706	146
Feb	70	58	7.31	28	5	140	11,753	83
Mar	69	56	13.07	28	5	140	37,860	270
Apr	69	58	20.33	28	5	140	16,468	117
May	71	59	5.21	35	5	175	2,046	11
June	72	60	1.97	28	5	140	625	4
July	73	61	3.58	35	5	175	238	1
Aug	76	61	8.04	28	5	140	5,662	40
Sept				28	5	140	29,384	209
Total				313		1565 Trap Days	175,329	112 Average

POPULATION TRENDS IN A GUAVA GULCH, OLINDA (2160')

TABLE NO. 34

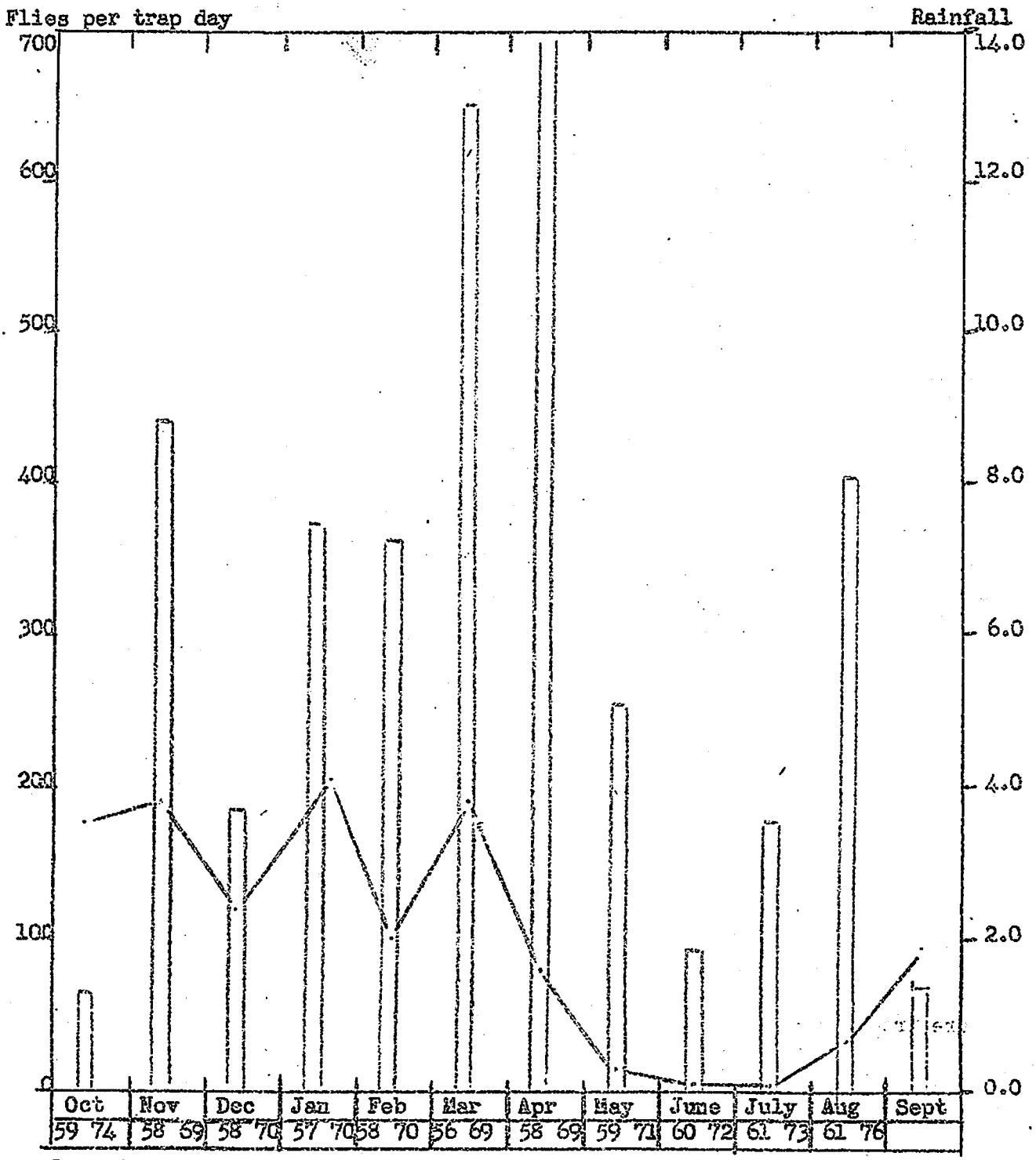
Trap No.	Date of Checking and Dacus dorsalis Trapped					Total
July	7/3	7/10	7/17	7/24	7/31	
73	6	0	3	1	4	14
117	3	15	0	4	3	25
163	34	7	21	19	15	96
164	22	20	12	7	9	70
171	11	9	5	5	3	33
INDEX: 1						238

August	8/7	8/14	8/21	8/28	
73	17	32	234	290	573
117	12	0	143	324	479
163	16	189	674	1551	2,430
164	0	223	88	1459	1,770
171	5	14	81	310	410
INDEX: 40					5,662

September	9/4	9/11	9/18	9/25	
73	468	1128	913	1093	3,602
117	588	1361	911	766	3,626
163	2521	2778	2330	2171	9,800
164	2291	2978	2189	2354	9,812
171	460	646	784	654	2,544
INDEX: 209					29,384

INDEX (Flies Per Trap Day Monthly Average) 35,284

FIG. 13. POPULATION TREND AT UNIVERSITY OF HAWAII EXPERIMENT STATION, OLINDA (2160').



Legend:

——— Population Trend. Monthly Average Catch Per Trap Day

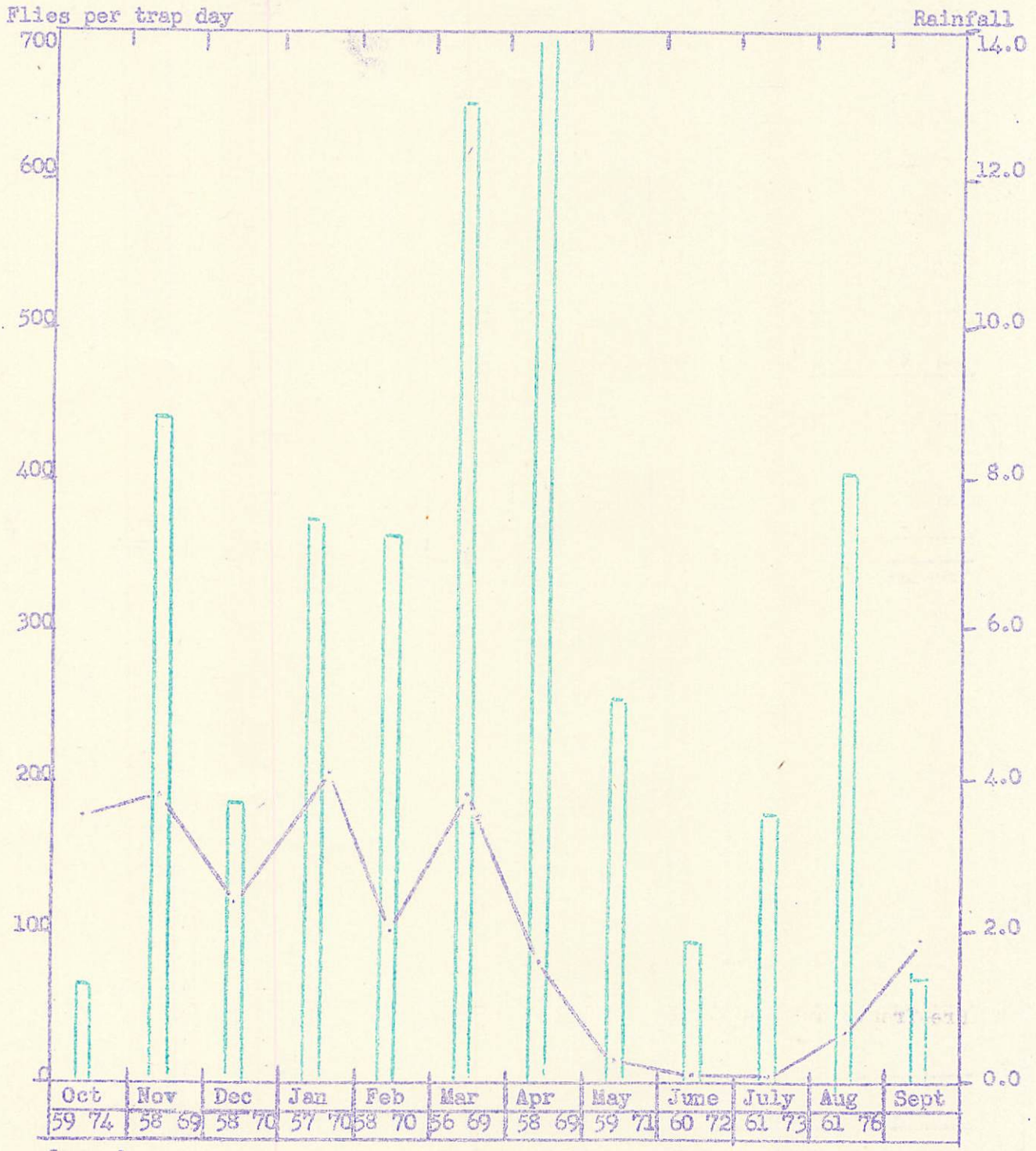
—— Monthly Rainfall

Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.

Graphic Information Based on 167,704 flies.

Glass Invaginated Trap and Citronella Lure.

FIG. 13. POPULATION TREND AT UNIVERSITY OF HAWAII EXPERIMENT STATION, OLINDA (2160').



Legend:

——— Population Trend. Monthly Average Catch Per Trap Day

——— Monthly Rainfall.

Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.

Graphic Information Based on 167,704 flies.

Glass Invaginated Trap and Citronella Lure.

POPULATION TRENDS AT UNIVERSITY OF HAWAII EXPERIMENT STATION, OLINDA (2160')

TABLE NO. 35

Month	Max.Mean	Min.Mean	Ppt.	Days	Traps	TD	Fly Count	Index
Oct.	74	69	1.33	11	5	55	9,852	179
Nov	69	58	8.78	31	5	145	27,655	190
Dec	70	58	3.79	29	5	145	17,651	121
Jan	70	57	7.43	35	5	175	36,318	207
Feb	70	58	7.31	28	5	140	14,120	100
Mar	69	56	13.07	28	5	140	27,227	194
Apr	69	58	20.33	28	5	140	11,695	83
May	71	59	5.21	35	5	175	3,011	17
June	72	60	1.97	28	5	140	671	5
July	73	61	3.58	35	5	175	419	2
Aug	76	61	8.04	28	5	140	5,352	38
Sept				28	5	140	13,733	98
Total				344		1,710 Trap Days	167,704	98 Average

POPULATION TRENDS AT UNIVERSITY OF HAWAII EXPERIMENT STATION, OLINDA (2160')

TABLE NO. 36

Trap No.	Date of Checking and Dacus Dorsalis Trapped					Total
July	7/3	7/10	7/17	7/24	7/31	
14	33	36	23	22	21	135
16	32	26	0	4	9	71
27	8	4	8	5	8	33
40	34	38	37	22	28	149
43	12	7	5	4	3	31
INDEX: 2						419

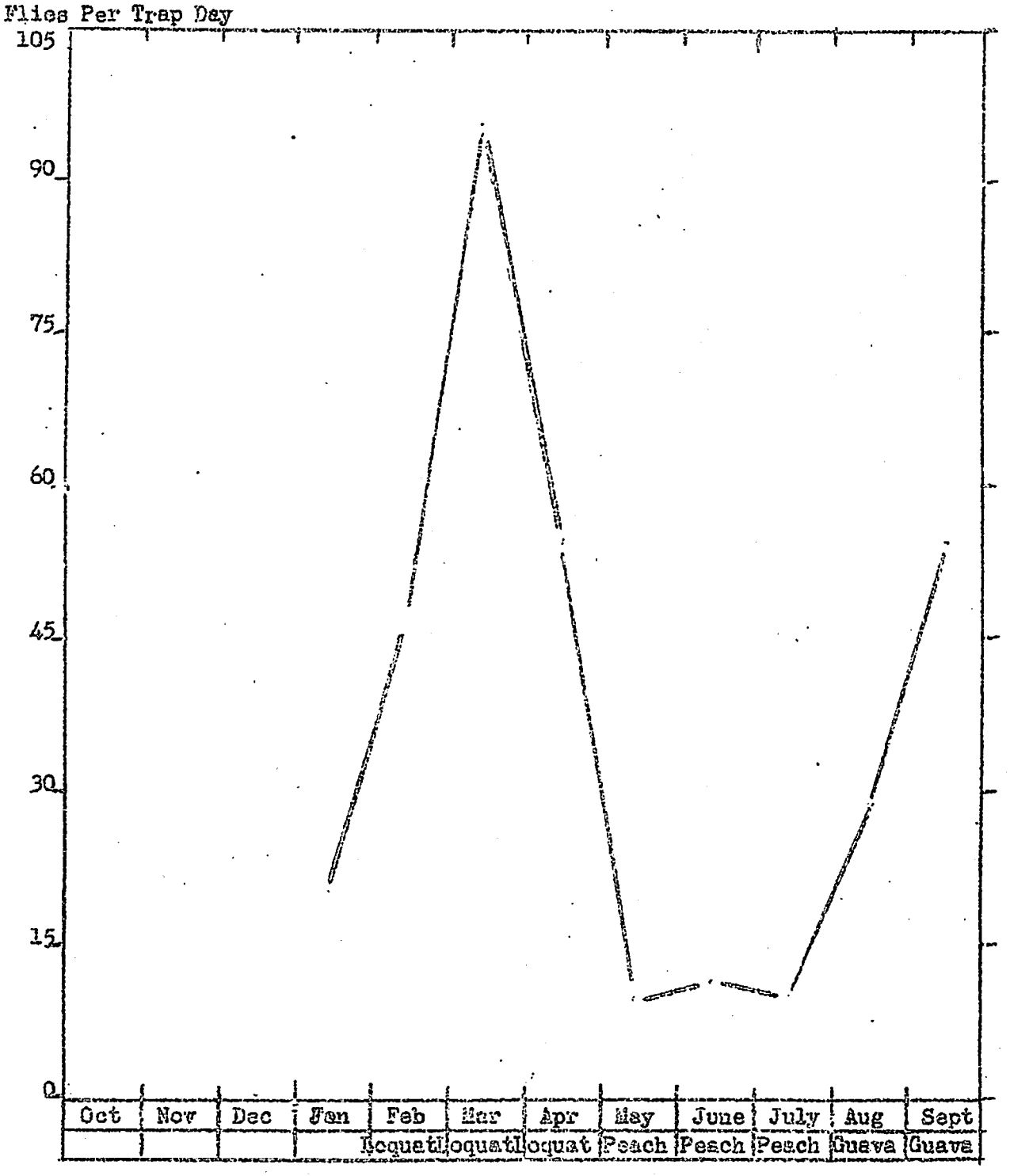
August	8/7	8/14	8/21	8/28	
14	35	112	797	1347	2,291
16	10	17	231	316	574
27	24	48	443	502	1,017
40	23	14	521	716	1,274
43	6	7	39	144	196
INDEX: 38					5,352

September	9/4	9/11	9/18	9/25	
14	2048	1927	1221	788	5,984
16	245	414	385	342	1,386
27	502	596	480	375	1,953
40	933	1435	784	682	3,834
43	126	175	152	123	576
INDEX: 98					13,733

Grand Total 19,504

INDEX: (Flies Per Trap Day Monthly Average)

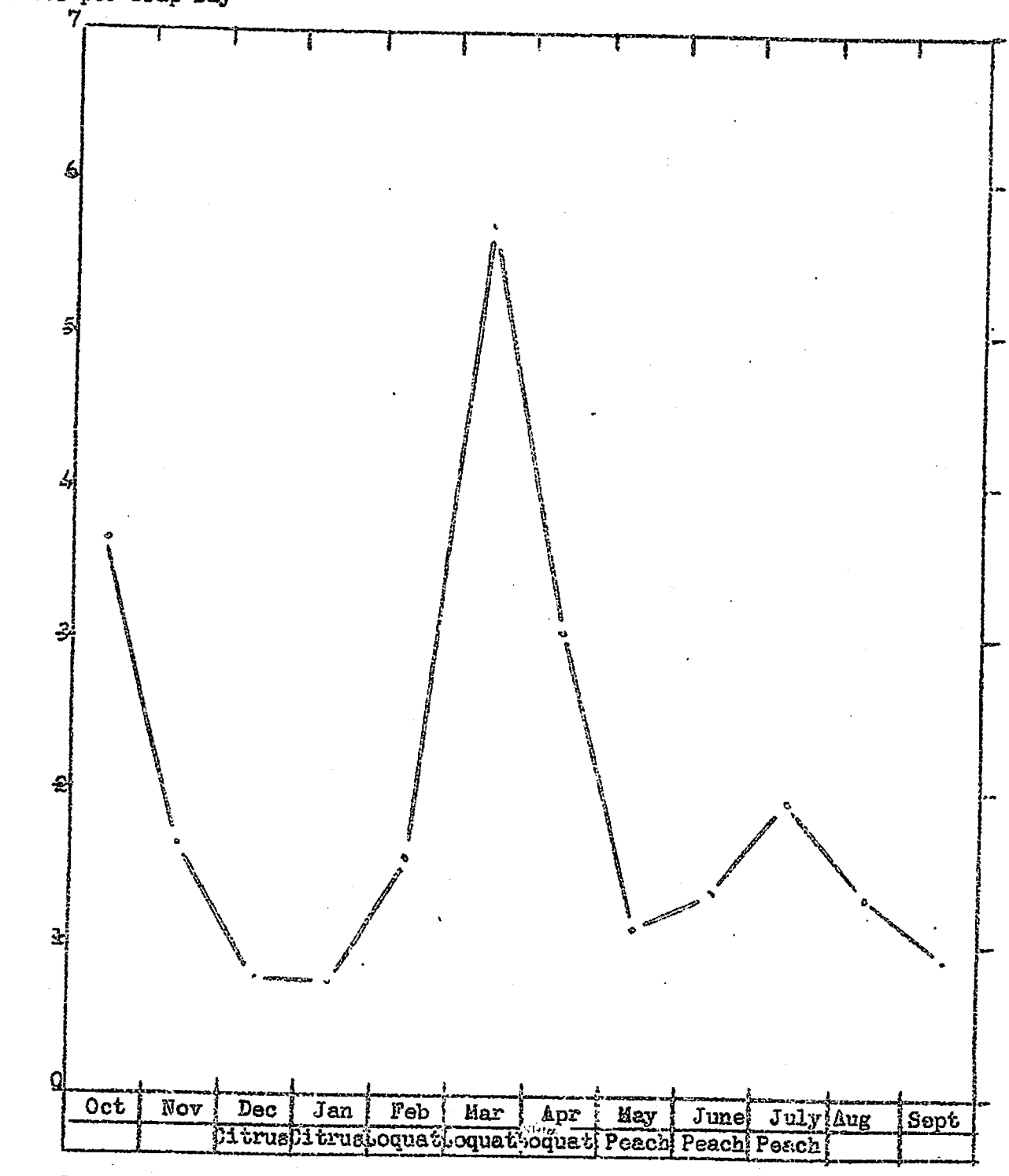
FIG. 14. POPULATION TRENDS ON THE OLINDA PRISON ROAD.



Legend:

- —— - Population Trend. Monthly Average Catch Per Trap Day on the lower part of the Prison Road (1900-2360')

FIG. NO. 15. POPULATION TRENDS ON THE KULA ROAD (3700-2925')



Legend:

·——· Population Trend. Monthly Average Catch Per Trap Day.
Graphic information based on 7,596 flies.
Glass invaginated traps and citronella lure.

POPULATION TRENDS AT OLINDA PRISON ROAD

TABLE NO. 37

Month	Days	Traps	TD	Fly Count	Elevation	Index
Jan	14	6	84	1,732	1900 - 2360	20
	14	6	84	551	2500- 3270	6
	14	7	98	13	3360 - 4200	.1
Feb	28	6	168	7,895	1900 - 2360	47
	28	6	168	1,494	2500 - 3270	9
	28	7	196	65	3360 - 4200	.3
Mar	28	6	168	15,903	1900 - 2360	95
	28	6	168	1,293	2500 - 3270	8
	28	7	196	189	3360 - 4200	1
Apr	28	6	168	9,152	1900 - 2360	54
	28	6	168	384	2500 - 3270	2
	28	7	196	25	3360 - 4200	.1
May	35	6	210	2,236	1900 - 2360	11
	35	6	210	22	2500 - 3270	.1
	35	7	245	0	3360 - 4200	.00
June	28	6	168	2,029	1900 - 2360	12
	28	6	168	12	2500 - 3270	.07
	28	7	196	0	3360 - 4200	.00
July	35	6	210	2,067	1900 - 2360	10
	35	6	210	23	2500 - 3270	.1
	35	7	245	0	3360 - 4200	.00
Aug	28	6	168	4,869	1900 - 2360	29
	28	6	168	37	2500 - 3270	.2
	28	7	196	0	3360 - 4200	.00
Sept	28	6	168	9,352	1900 - 2360	56
	28	6	168	64	2500 - 3270	.4
	28	7	196	8	3360 - 4200	.04
TOTAL	252		4,788	55,260		

POPULATION TRENDS AT OLINDA PRISON ROAD

TABLE NO. 38

Trap No.		Date of checking and Dacus dorsalis Trapped					Total
JULY	Elev.	7/3	7/10	7/17	7/24	7/31	
115	1900	261	163	193	153	251	1,021
162	1960	44	31	26	11	18	130
173	2000	27	28	58	56	53	222
191	2100	157	126	127	94	71	575
168	2260	9	12	13	12	17	63
113	2360	24	5	18	7	22	76
211	2500	0	0	0	0	0	0
217	2660	6	2	5	4	4	21
230	2940	0	0	2	0	0	2
57	3110	0	0	0	0	0	0
95	3190	0	0	0	0	0	0
172	3270	0	0	0	0	0	0
155	3360	0	0	0	0	0	0
83	3500	0	0	0	0	0	0
51	3620	0	0	0	0	0	0
82	3760	0	0	0	0	0	0
122	3880	0	0	0	0	0	0
92	4080	0	0	0	0	0	0
29	4160	0	0	0	0	0	0
17	4200	0	0	0	0	0	0
INDEX:							2,115

Elevation	Index:
3360-4200	.00
2500-3270	.1
1900-2360	10

POPULATION TRENDS AT OLINDA PRISON ROAD

TABLE No. 39

Trap No.		Date of Checking and Dacus dorsalis Trapped				Total
AUGUST	Elev.	8/7	8/14	8/21	8/28	
115	1900	430	267	682	823	2,202
162	1960	13	27	54	25	119
173	2000	123	146	151	574	994
191	2100	103	3	203	811	1,120
168	2260	11	13	117	242	383
113	2360	14	17	12	8	51
211	2500	0	0	7	2	9
217	2660	3	0	6	14	23
230	2940	0	0	4	1	5
57	3110	0	0	0	0	0
95	3190	0	0	0	0	0
172	3270	0	0	0	0	0
155	3360	0	0	0	0	0
83	3500	0	0	0	0	0
51	3620	0	0	0	0	0
82	3760	0	0	0	0	0
122	3880	0	0	0	0	0
92	4080	0	0	0	0	0
29	4160	0	0	0	0	0
17	4200	0	0	0	0	0
INDEX:						4,906

POPULATION TRENDS AT OLINDA PRISON ROAD

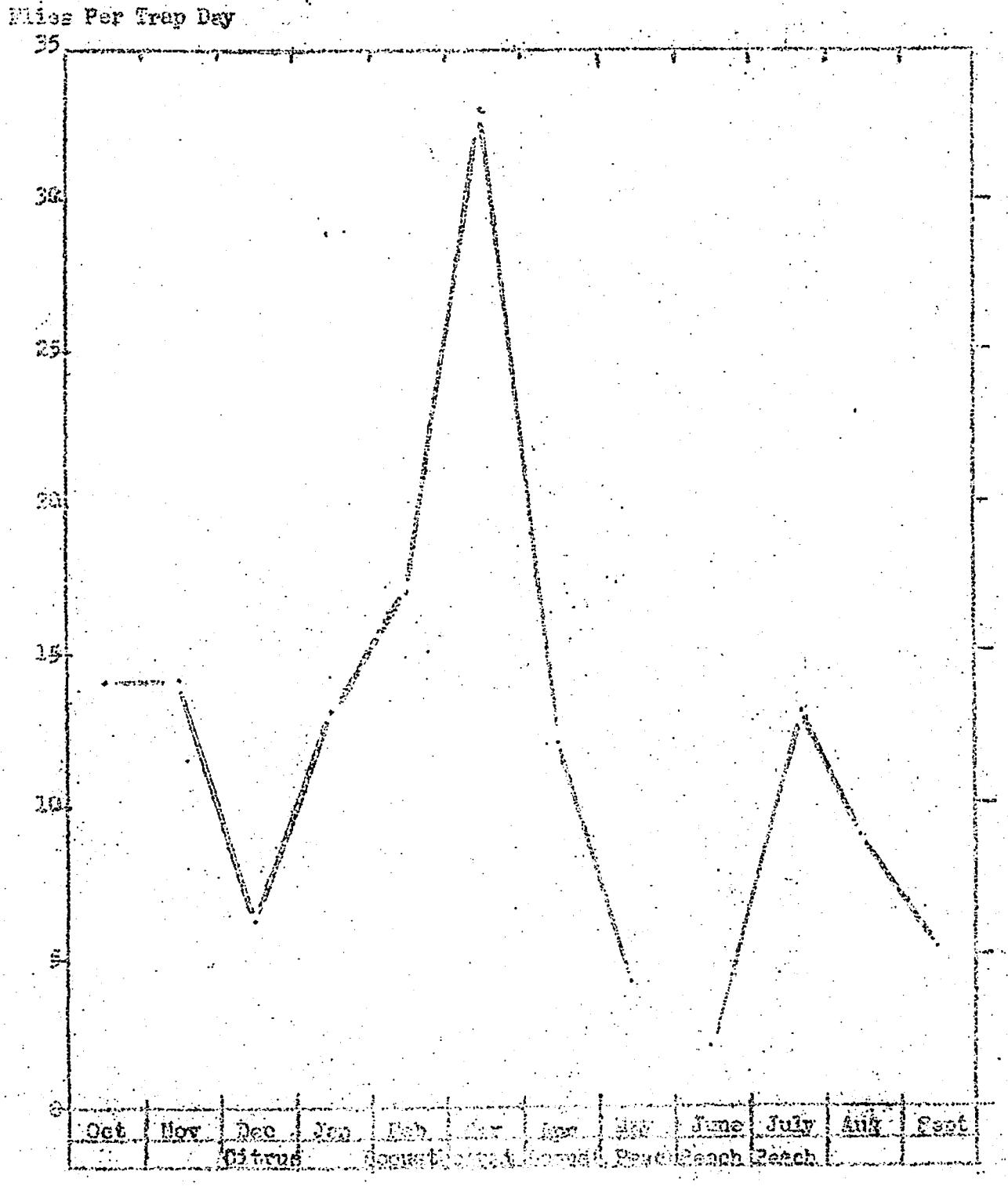
TABLE NO. 40

Trap No.	SEPTEMBER Elev.	Date of checking and Dacus dorsalis Trapped 9/4	9/11	9/18	9/25	Total
115	1900	960	644	888	618	3,110
162	1960	131	97	31	59	318
174	2000	446	628	621	370	2,065
191	2100	942	925	540	303	2,710
168	2260	264	362	264	190	1,080
113	2360	3	3	3	60	69
211	2500	0	23	0	2	25
217	2660	3	3	3	15	24
230	2940	4	2	4	2	12
57	3110	1	1	1	0	3
95	3190	0	0	0	0	0
172	3270	0	0	0	0	0
155	3360	0	0	0	0	0
83	3500	0	0	0	0	0
51	3620	0	4	2	2	8
82	3760	0	0	0	0	0
122	3880	0	0	0	0	0
92	4080	0	0	0	0	0
29	4160	0	0	0	0	0
17	4200	0	0	0	0	0
INDEX:						9,424

Grand Total 16,440

INDEX: (Flies Per Trap Day Monthly Average)

FIG. NO. 16 POPULATION TRENDS AT THE KULA SANITARIUM FARM (2600')



Legend:
——— Population Trend. Monthly Average Catch Per Trap Day.

POPULATION TRENDS ON THE KULA ROAD (3750' - 2800')

TABLE NO. 41

Month	Days	Traps	TD	Fly Count	Index
Oct	2	13	26	48	3.6
Nov	33	13	429	706	1.6
Dec	28	13	364	259	.7
Jan	35	13	455	363	.7
Feb	28	13	365	554	1.5
Mar	27	12	324	1865	5.7
Apr	28	13	364	1105	3.0
May	35	13	455	505	1.1
June	28	13	364	496	1.3
July	35	13	455	878	1.9
Aug	28	13	364	475	1.3
Sept	28	13	364	342	.9
TOTAL	368		4329	7596	1.7

POPULATION TRENDS AT INSECTARY TO KULA SANITARIUM

TABLE NO. 42

Trap No.		Date of Checking and Dacus dorsalis Trapped					Total
July	Elev.	7/3	7/10	7/17	7/24	7/31	
157	3700	0	0	0	1	2	3
131	3600	0	0	0	0	2	2
38	3550	3	0	2	1	1	7
26	3400	11	8	4	2	7	32
2	3350	1	1	5	4	8	19
50	3150	2	1	0	0	4	7
66	3100	2	2	1	0	2	7
34	3075	8	4	4	4	1	21
167	3050	51	66	68	52	36	273
24	3025	43	58	37	26	21	185
8	3000	11	10	11	11	2	45
22	2975	35	34	38	30	24	161
35	2925	19	35	17	15	30	116
INDEX: 1.9							878

POPULATION TRENDS AT INSECTARY TO KULA SANITARIUM

TABLE NO. 43

Trap No.		Date of Checking and Dacus dorsalis Trapped				Total
August	Elev.	8/7	8/15	8/21	8/28	
157	3700	0	2	2	2	6
131	3600	1	0	1	0	2
38	3550	1	2	1	0	4
26	3400	9	1	7	4	21
2	3350	6	0	1	0	7
50	3150	6	2	2	2	12
66	3100	1	4	3	1	9
34	3075	0	2	1	0	3
167	3050	57	26	32	23	138
24	3025	31	21	37	24	113
8	3000	1	5	9	9	24
22	2975	24	9	25	13	71
35	2925	17	20	17	11	65
INDEX: 1.3						475

POPULATION TRENDS AT INSECTARY TO KULA SANITARIUM

TABLE NO. 44

Trap No.		Date of Checking and Dacus dorsalis Trapped				Total
September	Elev.	9/4	9/11	9/18	9/25	
157	3700	0	0	0	1	1
131	3600	0	1	4	0	5
38	3550	1	1	0	1	3
26	3400	7	10	7	12	36
2	3350	0	0	1	0	1
50	3150	3	8	3	1	15
66	3100	5	0	1	2	8
34	3075	0	0	0	0	0
167	3050	32	25	18	12	87
24	3025	15	4	8	7	34
8	3000	16	5	10	3	34
22	2975	20	26	20	14	82
35	2925	14	8	13	7	42
INDEX: .9						348

Grand Total 1,701

INDEX (Flies Per Trap Day Monthly Average)

POPULATION TENDS AT KULA FARM

TABLE NO. 45

Trap No.	Date of Checking and Decus dorsalis Trapped					Total
JULY	7/3	7/10	7/17	7/24	7/31	
1	75	151	106	153	154	639
3	66	101	61	81	59	368
4	131	134	129	82	61	537
5	187	132	196	141	87	743
6	3	8	7	10	6	34
INDEX: 13.2						2.321

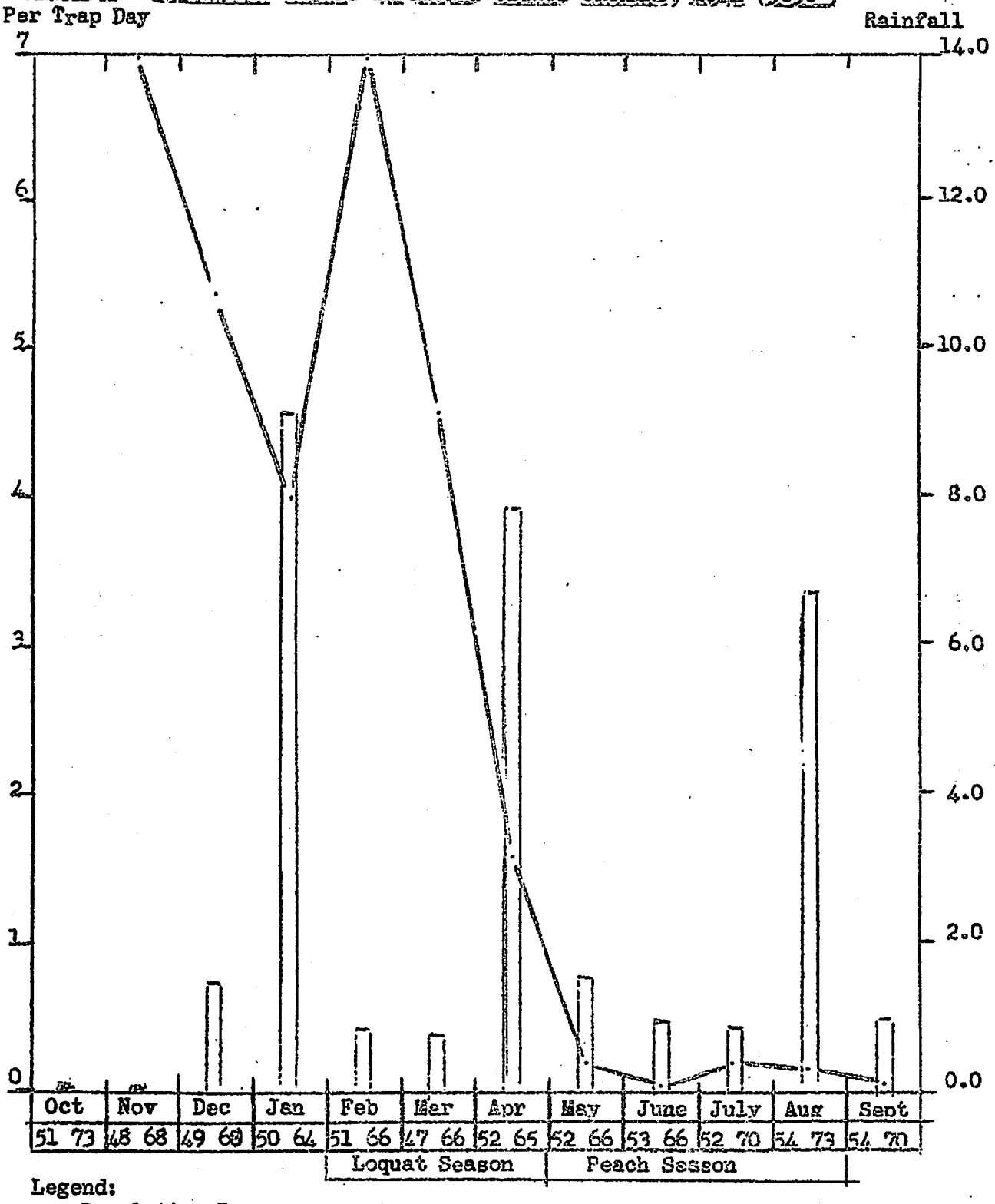
AUGUST	8/7	8/15	8/21	8/28	
1	105	96	89	64	354
3	50	49	27	43	169
4	60	55	227	33	375
5	70	65	161	48	344
6	5	3	1	6	15
INDEX: 8.9					1.257

SEPTEMBER	9/4	9/11	9/18	9/25	
1	86	65	81	93	325
3	37	25	48	48	158
4	43	17	28	16	104
5	22	42	61	44	169
6	7	6	3	6	22
INDEX: 5.5					778

Grand Total 4,356

INDEX (Flies Per Trap Day Monthly Average)

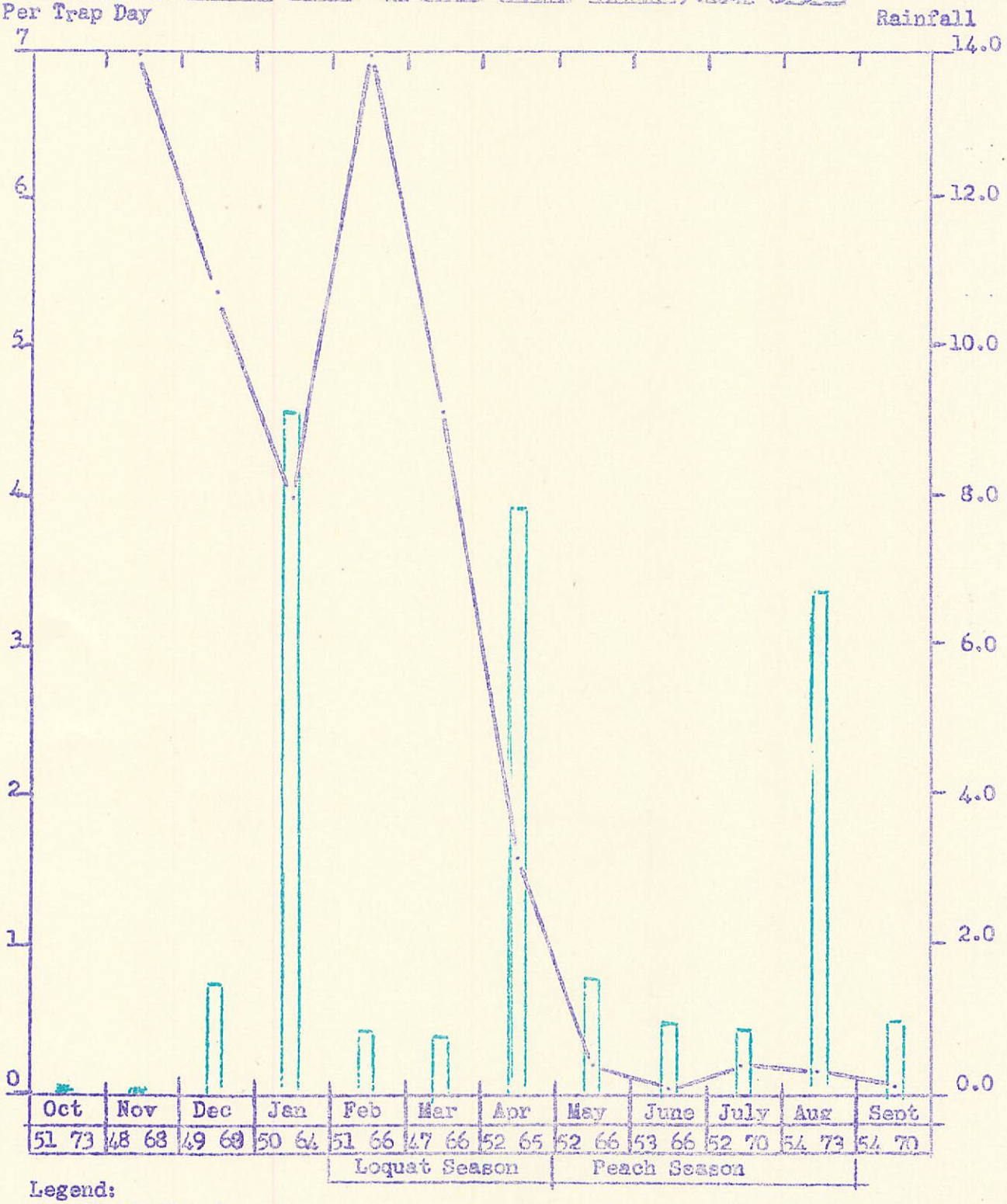
FIG. 17. POPULATION TRENDS IN LYON'S CITRUS ORCHARD, KULA (3650')



Legend:

—·— Population Trend. Monthly Average Catch Per Trap Day.
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.
Graphic information based on 4,167 flies.
Glass invaginated traps and citronella lure.
═ Vertical column represents accumulated monthly rainfall.

FIG. 17. POPULATION TRENDS IN LYON'S CITRUS ORCHARD, KULA (3650')



Legend:

·—· Population Trend. Monthly Average Catch Per Trap Day.
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.
Graphic information based on 4,167 flies.
Glass invaginated traps and citronella lure.
— Vertical column represents accumulated monthly rainfall.

POPULATION TRENDS IN LYON'S CITRUS ORCHARD, KULA (3650')

TABLE NO. 46

Month	Max.Mean	Min.Mean	Ppt.	Days	Traps	TD	Fly Count	Index
Nov	68	48	.00	19	5	95	700	7.3
Dec	68	49	1.5	28	5	140	766	5.4
Jan	64	50	9.26	30	5	150	605	4.0
Feb	66	51	.89	30	5	150	1094	7.3
Mar	66	47	.81	28	5	140	653	4.6
Apr	65	51	7.92	28	5	140	231	1.6
May	66	52	.83	35	5	175	41	0.2
June	66.5	53.2	.54	28	5	140	5	0.03
July	70	54	.46	35	5	175	35	.20
Aug	70	54	6.40	28	5	140	26	.18
Sept	70	54	.62	28	5	140	11	.07
TOTAL				317		1585	4167	2.6

POPULATION TRENDS AT LIGHTNER'S, KULA

TABLE NO. 47

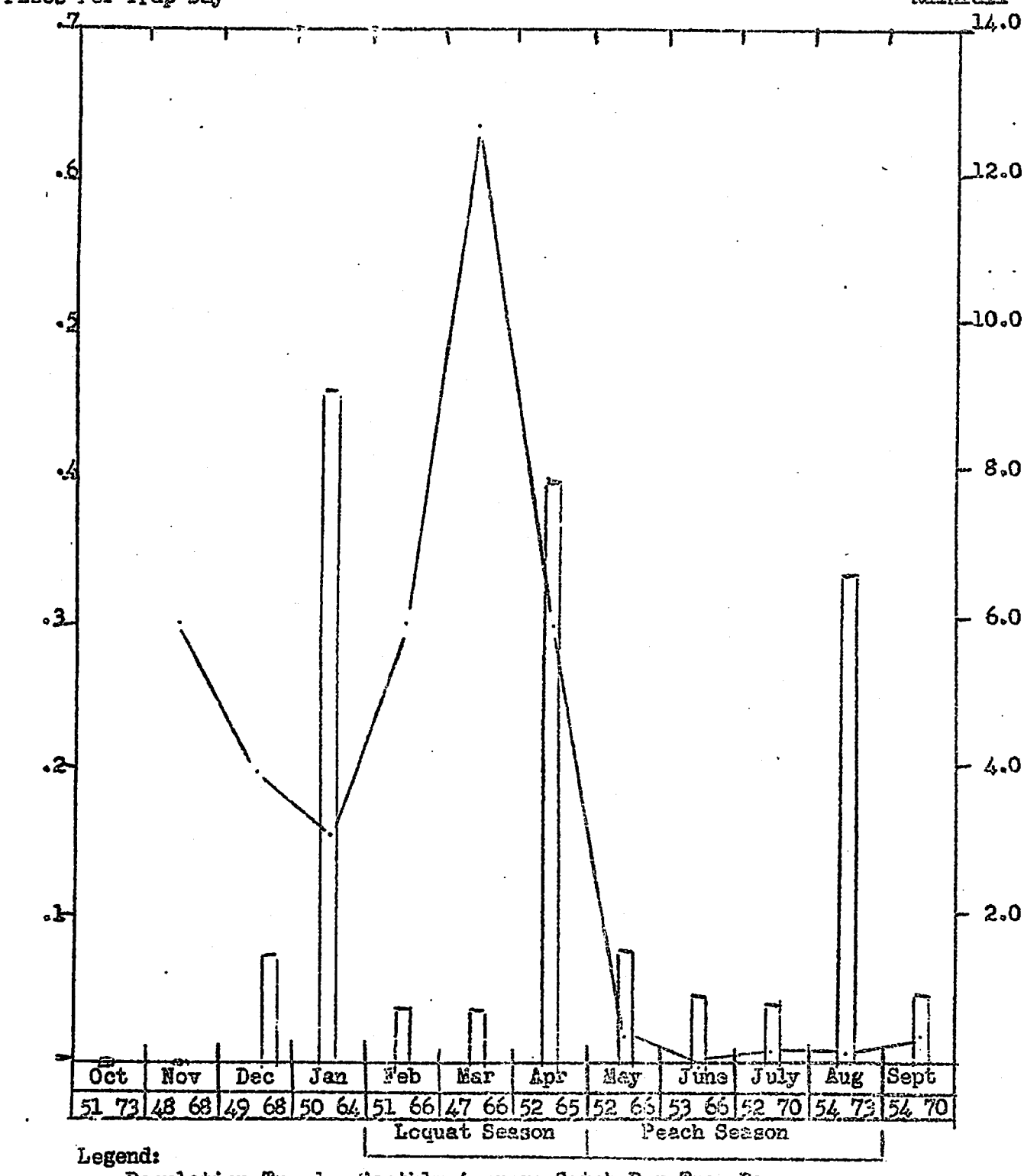
Trap No.	Date of Checking and Dacus dorsalis Trapped					Total
July	7/3	7/10	7/17	7/24	7/31	
101	2	1	2	1	1	7
134	0	0	3	0	3	6
147	0	0	0	0	1	1
148	1	1	1	4	7	14
149	1	1	0	1	4	7
INDEX: .20						35

August	8/7	8/15	8/21	8/28	
101	1	1	0	0	2
134	2	0	3	4	9
147	0	0	2	2	4
148	2	3	1	1	7
149	1	0	2	1	4
INDEX: .18					26

September	9/4	9/11	9/18	9/25	
101	1	2	0	1	4
134	1	1	0	0	2
147	0	1	1	0	2
148	0	2	0	0	2
149	0	1	0	0	1
INDEX: .08					11
				Grand Total	72

INDEX (Flies Per Trap Day Monthly Average)

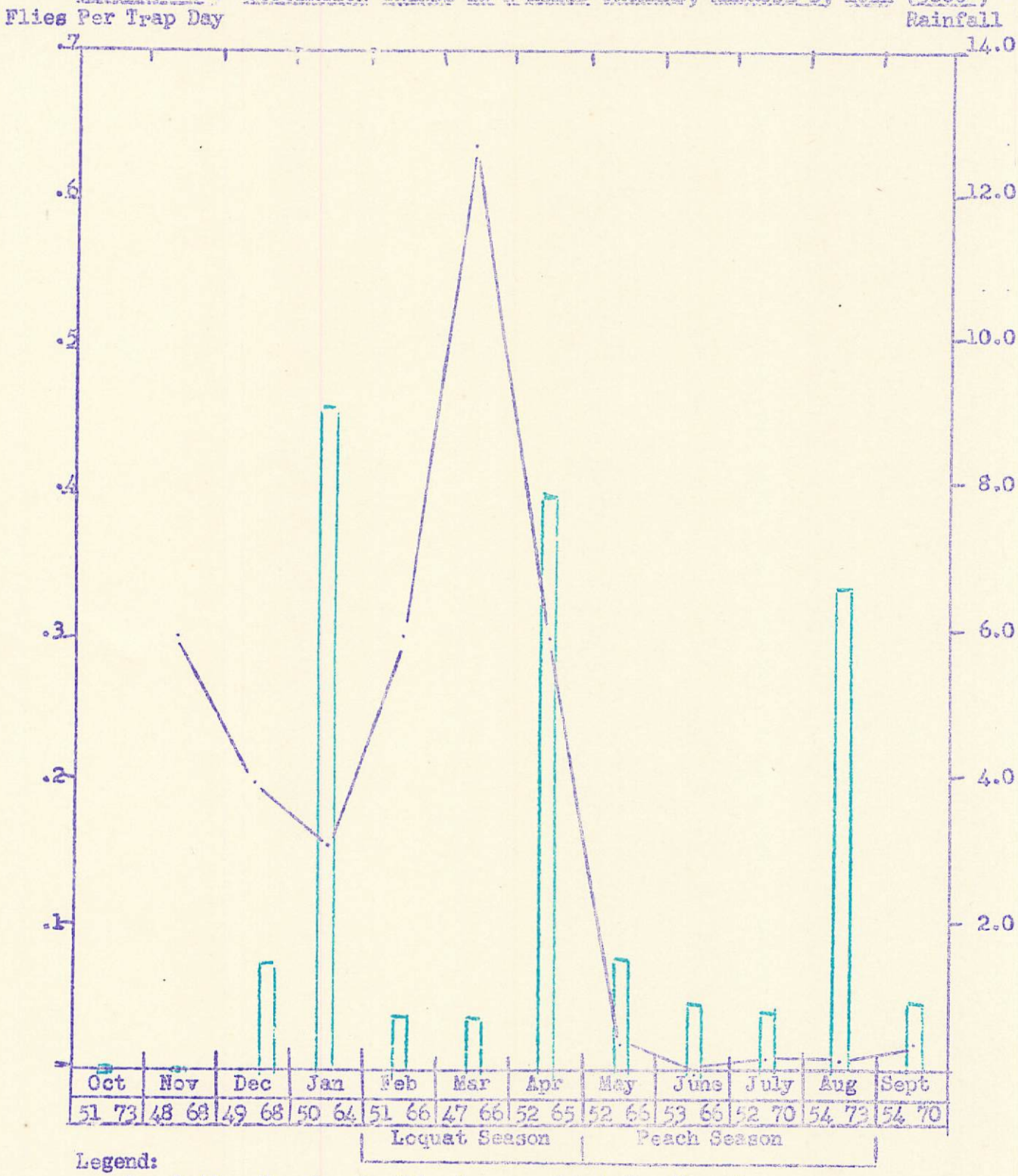
FIG. NO. 18. POPULATION TRENDS IN A MIXED ORCHARD, AMBROSE'S, KULA (3800')



Legend:

·——· Population Trend. Monthly Average Catch Per Trap Day.
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.
Graphic information based on 255 flies.
Glass invaginated traps and citronella lure.
—— Vertical column represents accumulated monthly rainfall.

FIG. NO. 18. POPULATION TRENDS IN A MIXED ORCHARD, AMBROSE'S, KULA (3800')



Legend:

·—·—· Population Trend. Monthly Average Catch Per Trap Day.
Figures at bottom of graph represent monthly Min.Mean and Max.Mean Temp.
Graphic information based on 255 flies.
Glass invaginated traps and citronella lure.
—— Vertical column represents accumulated monthly rainfall.

POPULATION TRENDS IN A MIXED ORCHARD, AMBROSE'S, KULA (3800')

TABLE NO. 48

Month	Max.Mean	Min.Mean	Ppt.	Days	Traps	TD	Fly count	Index
Nov	68	48	0	19	5	95	26	.3
Dec	68	49	1.5	28	5	140	32	.2
Jan	64	50	9.26	30	5	150	24	.16
Feb	66	47	.89	30	5	150	44	.3
Mar	66	47	.61	28	5	140	90	.64
Apr	65	51	7.92	28	5	140	26	.3
May	66	52	.83	35	5	175	4	.02
June	66.5	53.2	.54	28	5	140	0	.00
July	70	54	.46	35	5	175	3	.01
Aug	70	54	6.40	28	5	140	2	.01
Sept	70	54	.62	28	5	140	4	.02
TOTAL				317		1585	255	.16

POPULATION TRENDS AT AMBROSE'S, KULA (3800')

TABLE NO. 49

Trap No.	Date of Checking and Dacus dorsalis trapped					Total
July	7/3	7/10	7/17	7/24	7/31	
150	0	0	1	1	0	2
126	0	0	0	0	0	0
152	0	0	0	1	0	1
111	0	0	0	0	0	0
102	0	0	0	0	0	0
INDEX: .01						3

August	8/7	8/15	8/21	8/28	
150	0	0	0	0	0
126	1	0	0	0	1
152	0	0	0	0	0
111	0	0	1	0	1
102	0	0	0	0	0
INDEX: .01					2

September	9/4	9/11	9/18	9/25	
150	0	0	0	0	0
126	0	0	0	0	0
152	1	0	0	2	3
111	0	0	0	0	0
102	0	1	0	0	1
INDEX: .02					4

Grand Total 9

INDEX (Flies Per Trap Day Monthly Average)

POPULATION TRENDS ON HAWAII (Davis)

During the past three months there has been an upward trend in fly populations at four of the five regular trapping stations. The Mauna Loa Truck Trail populations jumped from 4,615 flies in June to 28,083 flies in July but unlike other localities, the populations dropped during the months of August and September.

The weather was very favorable during this period and there was an abundance of fruit in all localities, except at the Hilo citrus orchard.

Notes on the regular stations follow:

Hilo: (Costa's Orchard)

Fruit has been scarce in this vicinity. Lately, however, Washington navel oranges have begun to ripen in the orchard, and together with false kamani nuts, scattered guavas close by are apparently attracting the Oriental fruit fly to this locality.

Mt. View

Hosts such as the red and yellow waiawi and common guava have been very abundant. Rainfall, which totalled 7.15 inches for September, was the lowest recorded in eleven months.

Keanakolu-Ookala Trail

Fruit availability, particularly guavas, is responsible for the upsurge shown during August and September. Weather conditions were very good.

Waikii

There was an increase in flies trapped over the previous quarter and a rather close correlation with dorsalis emergences from fruit such as plums, apricots and jerusalem cherries. It appears that the flies breed at Waikii during the summer months, but move out during the winter months.

Mauna Loa Truck Trail

A survey of the country southwest of the M. L. T. T. was undertaken to determine whether suitable hosts were present and if present, to what extent they were contributing to the upsurge of fly populations on the trail. Because of the area involved (48 square miles) the Ainapo-Kaoiki Pali areas were surveyed on August 4th and the Ohaikea area on August 10th.

Ainapo, Kaoiki Pali Area

The Mamalahoa highway was left at 2700 feet elevation and the highest point reached was 4,020 feet, about 1/2 mile north of Ainapo ranch house. Enroute, guava bushes and fruit were found abundant at 2960 feet. Fruit

fly eggs and larvae were found in collections made. At 3040 feet one O. longicaudatus female was observed on guava fruit. From here on guava bushes were infrequent and bore no fruit. Ohelo berries (Vaccinium reticulatum and V. species) were very abundant at 3260 feet but did not appear to be infested. The main ground cover over most of the country covered was pukeawe, (Styphelia tameiameiae) and Aalii (Dodonaea viscosa var. spathulata) and Ohelo (Vaccinium reticulatum).

After descending to the highway, the Halfway House area was explored and many guava trees with fruit were found. Fruit collected showed ample evidence of being infested. Five O. longicaudatus parasites were observed on one guava. The distance from this point to the M. L. T. T. is about eight miles, compared to about ten miles from the Ainapo guava fields. From Halfway House the survey continued in an easterly direction along the Kaoiki Pali and was halted by darkness at the Peter Lee Corral, about 4 miles S.W. of the M. L. T. T. Two large peach trees were observed shortly before getting to the corral. These were not in fruit. With the exception of the peach trees, no favorable hosts occurred between Halfway House and the Corral.

Ohaikea Area

Prior to departure from the Peter Lee Corral on August 10th no flies were attracted to citronella which had been placed on the side of the Jeep. The elevation at this point was 3500 feet. Ascent over the Kaoiki pali was made in a northerly direction over an old ranch road. The country was semi-open, with scattered Sophora chrysophylla (Mamani), Metrosideros collina subsp. polymorpha (Ohia), Myoporum sandwicense (Naio) and Sapindus saponaria (Manele). At 4000 feet scattered stands of Acacia Koa were encountered and the ground cover under these stands was thick with Jerusalem cherries. The plants were fruiting prolifically and most of the crop was mature. Within two minutes dozens of male dorsalis were attracted to citronella and while collecting fruit, female dorsalis were observed ovipositing in Jerusalem cherries. The distance between this point and the M. L. T. T. at 4250 feet elevation is approximately 2 miles. The 4000 feet contour was followed a short distance and numerous Jerusalem cherry plants in fruit were seen. All were growing in protected areas such as under trees, on the sides of gullies or near fallen koa logs. The lower Kipuka Ki area was surveyed and dorsalis activity was very obvious. No other hosts were observed.

From this survey it was found that the range of Jerusalem cherries at elevations between 3700 and 4000 feet was far greater than had been known. It appears that this is the main host of dorsalis on the M. L. T. T. However, it was also found that the closest guava fields were within 4 miles of the Jerusalem cherry range. It is speculated that when guavas are out of season at Halfway House, they may drift to Jerusalem cherry areas and breed there.

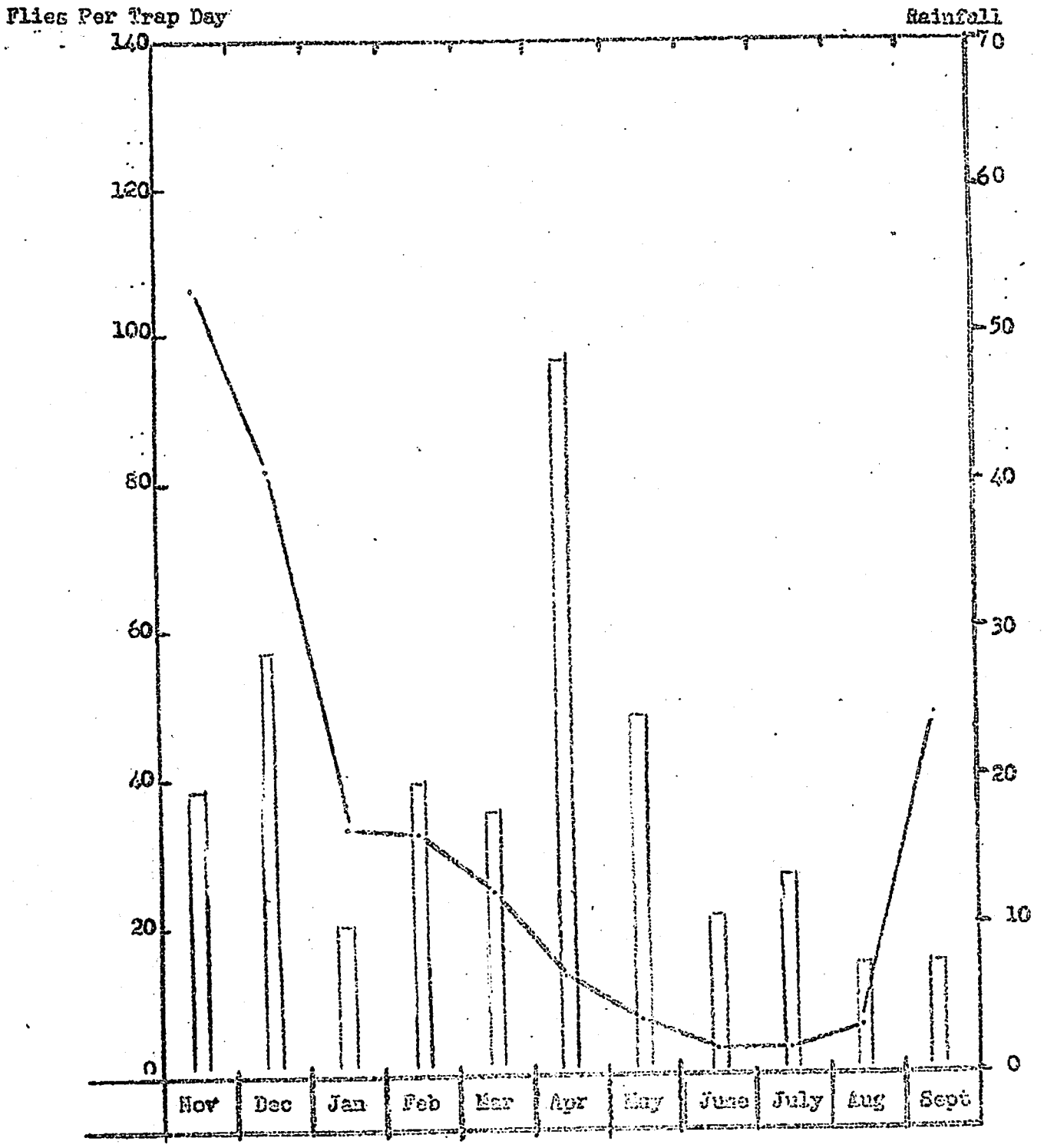
Results from fermented lure traps in which the standard formula of yeast, raw sugar, and vinegar was used, indicate that females are present in greater numbers at elevations 3700 - 4250 feet than at the higher elevations on the M. L. T. T.

Flies attracted to the fermented lure traps are shown as follows:

	Aug. 14		Aug. 21		Aug. 28		Sept. 4		Sept.11		Sept.18		Sept.25		Total	
Elev.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
5100'	1	2	1	2	3	0	2	1	1	4					8	9
4600'	19	0	3	7	8	1	5	7	6	4	1	3	18	7	60	29
4250'	9	5	8	12	2	6	9	13	6	13	2	7	12	10	48	66
4000'	11	14	24	67	1	9	2	4	1	5	1	4	1	3	41	106
3700'											15	66	52	101	67	167
TOTAL	40	21	36	88	14	16	18	25	14	26	19	80	83	121	224	377

To find out what fly populations are doing on other parts of the island, McPhail traps were set out at the Hawaii Experiment Station, Kona, Halfway House, Kau, and Kupaahu, near Kalapana. Traps were also set out in the Waiakea Homestead area, to obtain further information on populations at Hilo. The records to date indicate that Kupaahu, about three miles west of Kalapana, harbors the largest fly population on the island. This locality has about 50 inches of rainfall annually and the main hosts are guavas and mangoes. Kalapana also has a high fly population and trap catches may exceed that of Kupaahu. These records will be reported next quarter.

FIG. 19. POPULATION TRENDS, Mt. VIEW, (1200')



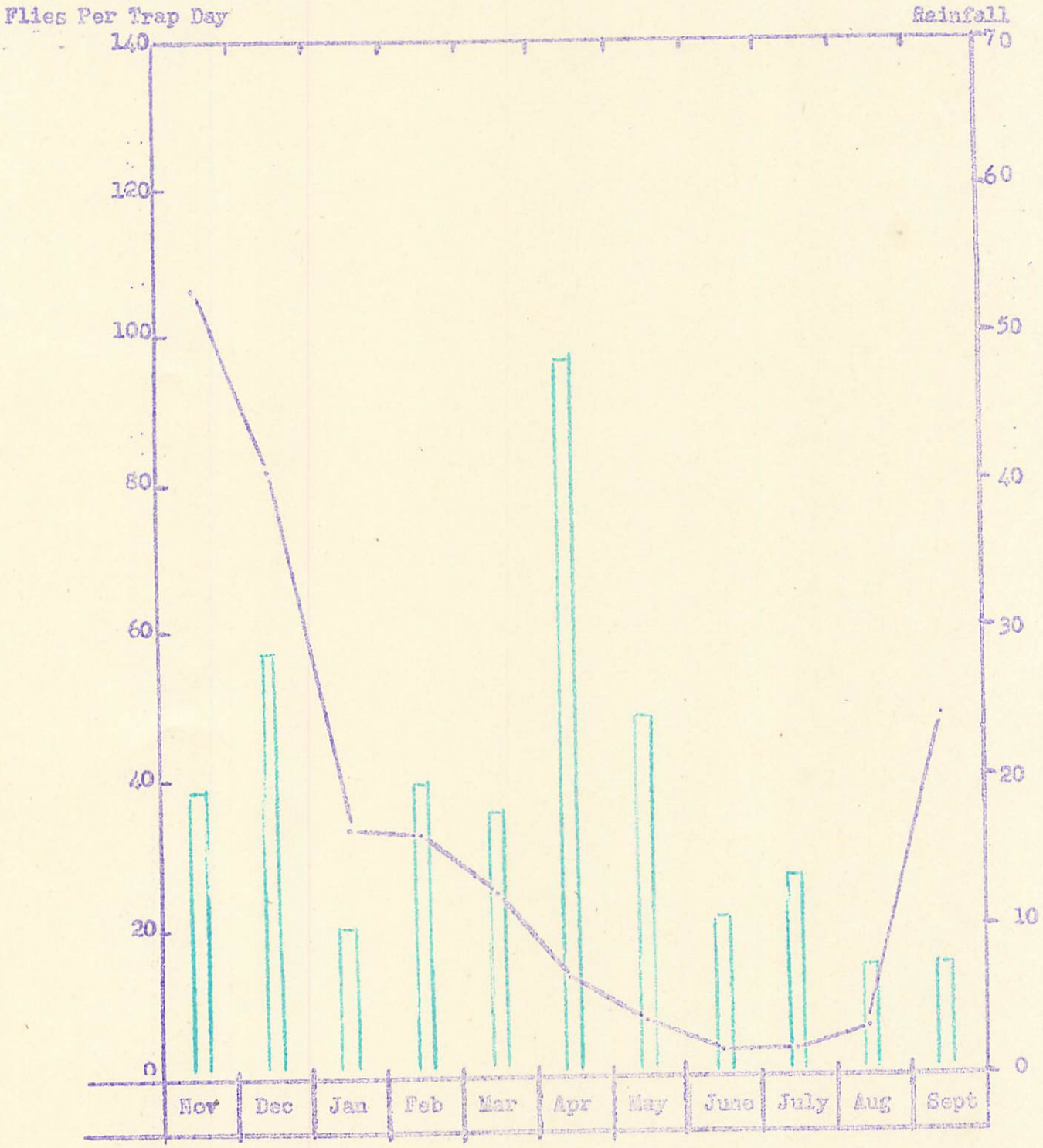
Legend:

· —— · Population trend, monthly average catch per trap day.

⊓ Monthly rainfall.

Graphic information based on 31,374 flies.

FIG. 19. POPULATION TRENDS, Mt. VIEW, (1200')



Legend:

Population trend, monthly average catch per trap day.

Monthly rainfall.

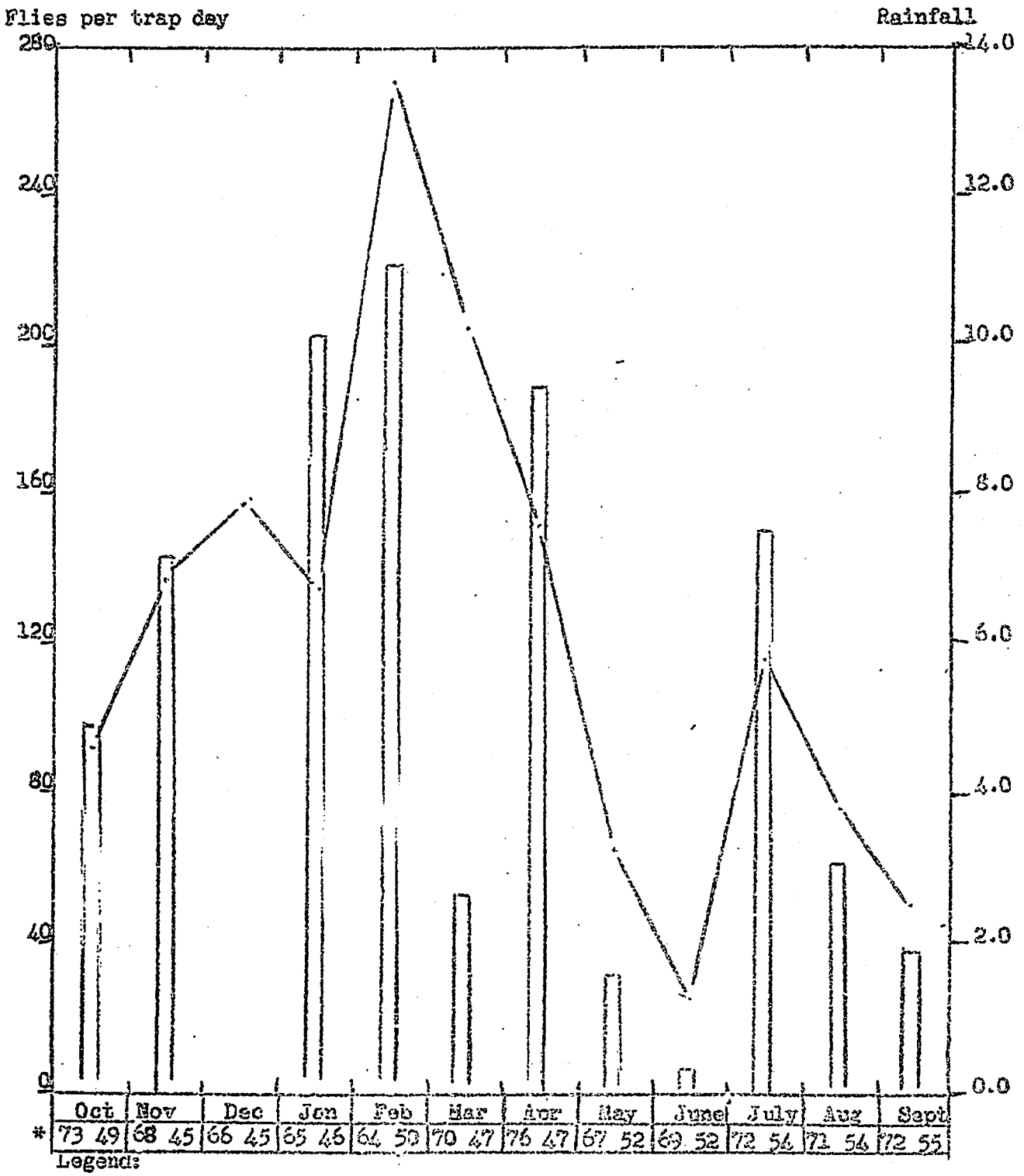
Graphic information based on 31,374 flies.

POPULATION TRENDS, MT. VIEW, MARTIN'S, (1200')

TABLE NO. 50

Month	Ppt.	Days	Traps	TD	Fly Count	Index
Nov	19.00	28	4	77	8125	106
Dec.	28.53	28	2	56	4556	81
Jan.	9.80	28	2	70	2344	33
Feb.	19.42	33	4	132	4207	32
Mar.	17.63	28	4	112	2735	24
Apr.	48.13	28	4	112	1471	13
May	24.01	35	4	140	991	7
June	10.47	28	4	112	355	3
July	13.09	35	4	140	467	3
Aug.	7.18	28	4	112	700	6
Sept.	7.15	28	4	112	5423	48
TOTAL	204.41 In.	327	4	1175	31,374	Av.32

FIG. 20. POPULATION TRENDS ON MAUNA LOA TRUCK TRAIL, (4000-4600')



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
*	73 49	68 45	66 45	65 46	64 50	70 47	76 47	67 52	69 52	72 54	71 54	72 55

Legend:

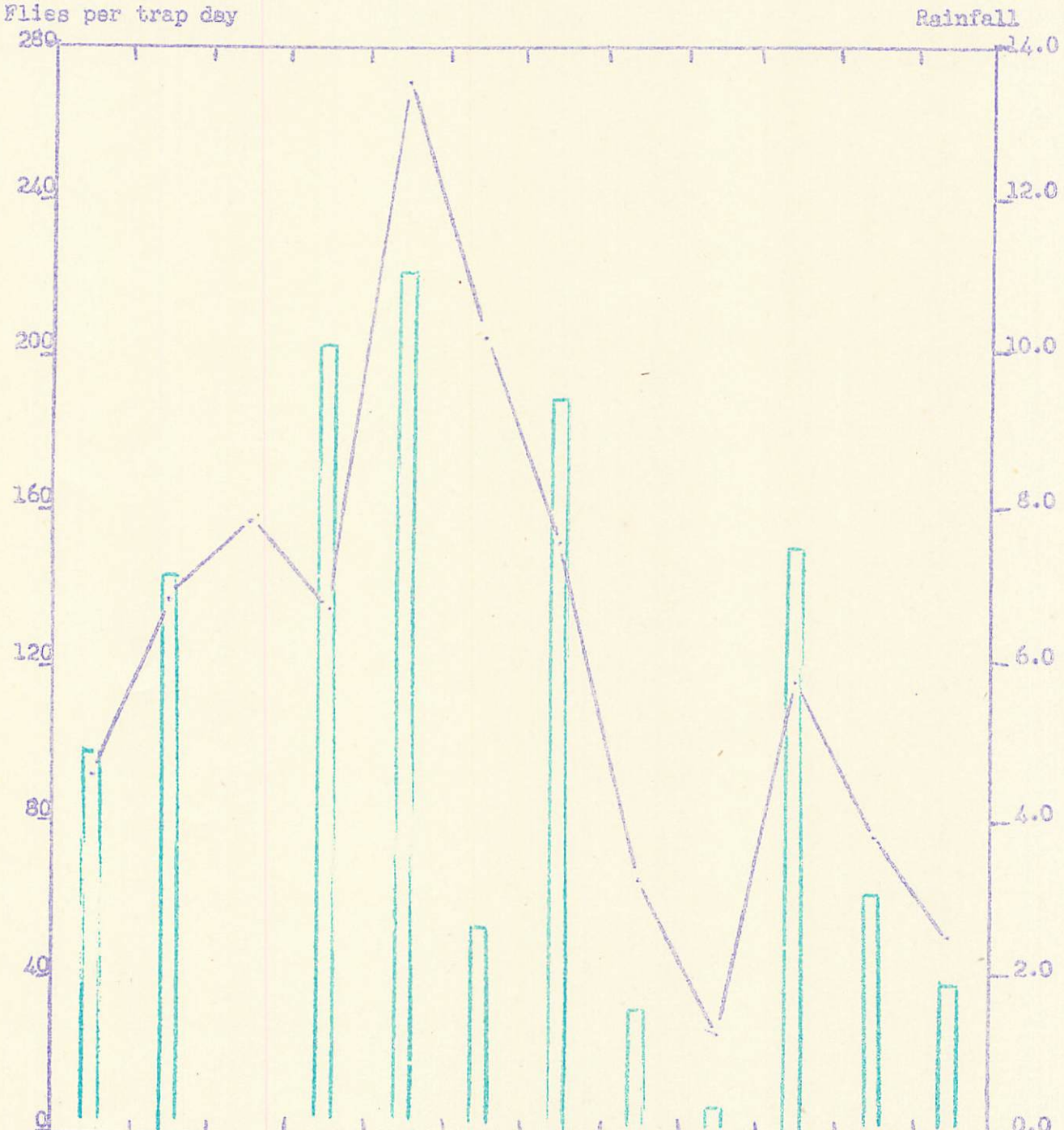
·——· Population trend, monthly average catch per trap day.

⊓ Monthly rainfall.

Graphic information based on 257,168 flies.

* Mean max. and Mean min. temperatures.

FIG. 20. POPULATION TRENDS ON MAUNA LOA TRUCK TRAIL, (4000-4600')



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
*	73 49	68 45	66 45	65 46	64 50	70 47	76 47	67 52	69 52	72 54	71 54	72 55

Legend:

·——· Population trend, monthly average catch per trap day.

Monthly rainfall.

Graphic information based on 257,168 flies.

* Mean max. and Mean min. temperatures.

1-0-1-5 POPULATION TRENDS, MAUNA LOA TRUCK TRAIL, 4000-4600'

TABLE 51

Month	Max. Mean	Min. Mean	Ppt.	Days	Traps	TD	Fly Count	Index
Oct.	73	49	4.79	27	7	189	17,035	90
Nov.	68	45	7.00	34	7	238	32,100	135
Dec.	66	45	-	28	7	196	30,392	155
Jan.	65	46	10.00	28	7	196	26,127	133
Feb.	64	50	10.96	33	7	231	62,069	269
Mar.	70	47	2.56	28	7	196	39,850	203
Apr.	76	47	9.34	28	7	196	29,344	150
May	67	52	1.56	35	7	245	15,736	64
June	69	52	.27	28	7	196	4,615	24
July	72	54	7.50	35	7	245	28,083	115
Aug.	71	54	3.04	28	7	196	14,537	74
Sept.	72	55	1.85	28	7	196	9,564	49
Total			59.05	360	7	2520	309,352	Av. 122

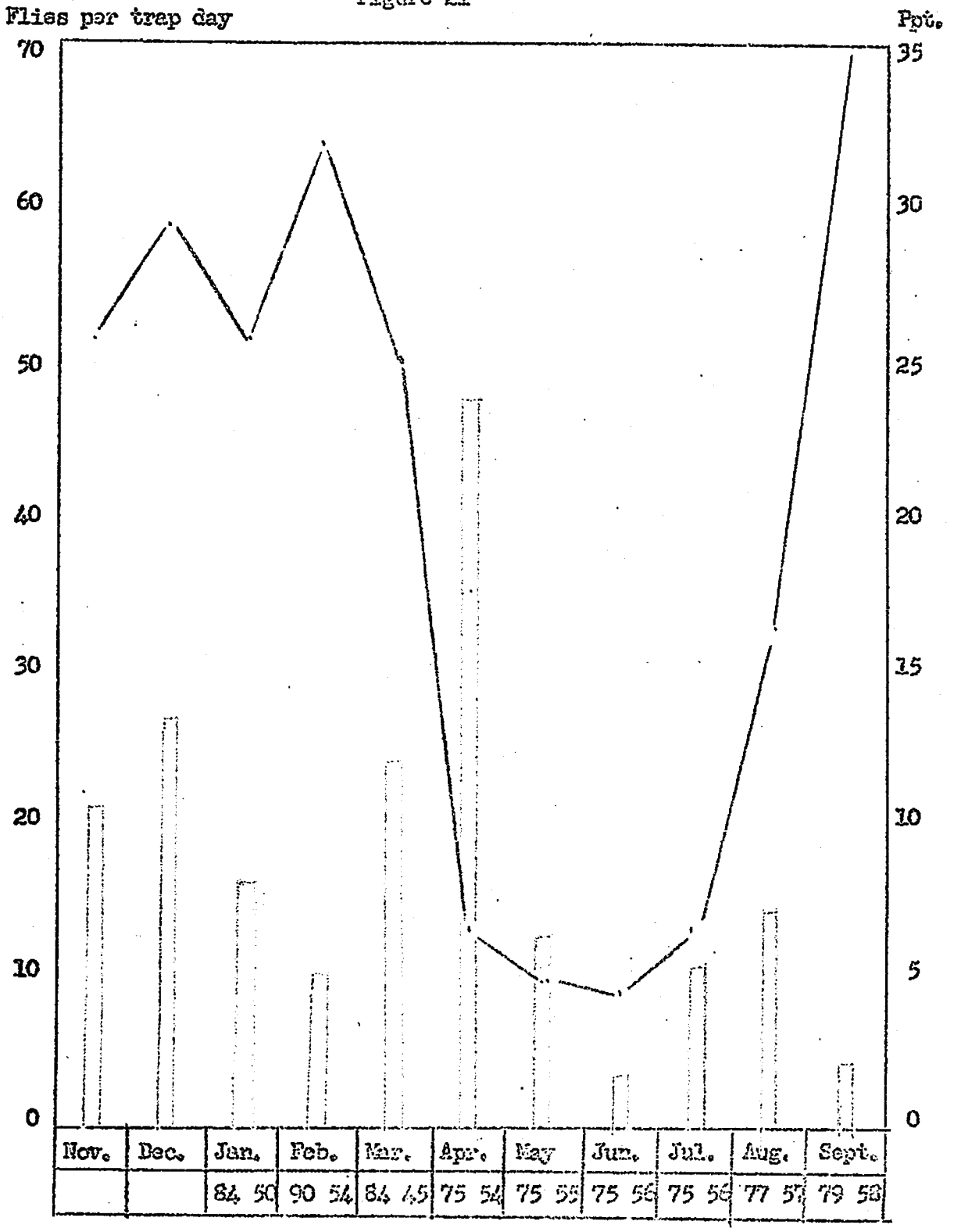
TABLE 52

TABLE No. - Dates for Checking and Dacus dorsalis Trapped - Mauna Loa Truck Trail.

Trap No.	Elev.	Miles	7/10 Trap	7/17 Trap	7/24 Trap	7/31 Trap	8/7 Trap	8/14 Trap	8/21 Trap	8/28 Trap	9/4 Trap	9/11 Trap	9/18 Trap	9/25 Trap	Total
23	6700'	11.0	3	6	8	8	-	-	-	-	-	-	1	-	26
22	6500'	10.5	4	1	2	-	-	-	-	-	-	-	-	-	7
21	6200'	10.0	10	5	2	-	-	-	-	-	-	-	-	-	17
20	6000'	9.5	4	10	8	3	-	-	-	1	-	-	-	4	30
19	5900'	9.0	4	28	54	14	1	-	-	-	1	-	-	-	102
18	5800'	8.5	1	4	3	2	-	-	-	-	-	-	1	1	12
17	5700'	8.0	36	49	84	41	3	1	6	1	-	-	1	-	222
16	5550'	7.5	30	41	64	74	5	-	4	1	-	-	1	2	222
15	5260'	7.0	2	3	1	-	2	-	-	-	1	-	-	1	10
14	5220'	6.5	3	11	10	5	2	-	3	0	1	1	2	-	38
13	5120'	6.0	4	2	6	-	1	1	2	-	1	-	4	3	24
12	5020'	5.5	4	9	8	4	1	-	1	1	1	0	3	-	32
11	4980'	5.0	6	7	13	12	3	-	4	1	4	2	3	5	60
10	4860'	4.5	10	11	32	12	2	2	4	-	3	-	17	2	95
9	4760'	4.0	2	-	3	-	1	-	-	-	-	-	-	-	6
8	4620'	3.5	3	3	8	5	2	6	3	5	15	-	1	0	51
7	4520'	3.0	47	53	194	82	24	28	32	47	89	23	17	26	662
6	4420'	2.5	7	7	11	1	4	4	2	1	9	3	3	-	52
5	4360'	2.0	17	3	16	14	2	3	4	42	54	5	5	8	173
4	4240'	1.5	885	378	612	2175	397	647	405	437	1143	560	311	514	8464
3	4150'	1.0	632	321	1372	1121	464	873	1755	869	1357	214	267	233	9478
2	4090'	.5	299	263	285	372	155	148	207	196	338	127	111	190	2691
1	4000'	.0	4376	1835	3535	3765	1620	2221	2212	738	1786	750	511	910	25259
	Total		6389	3050	6331	7710	2689	4934	4644	2340	4803	1685	1259	1899	47733

POPULATION TRENDS, LOWER OOKALA TRAIL, (700-2040')

Figure 21



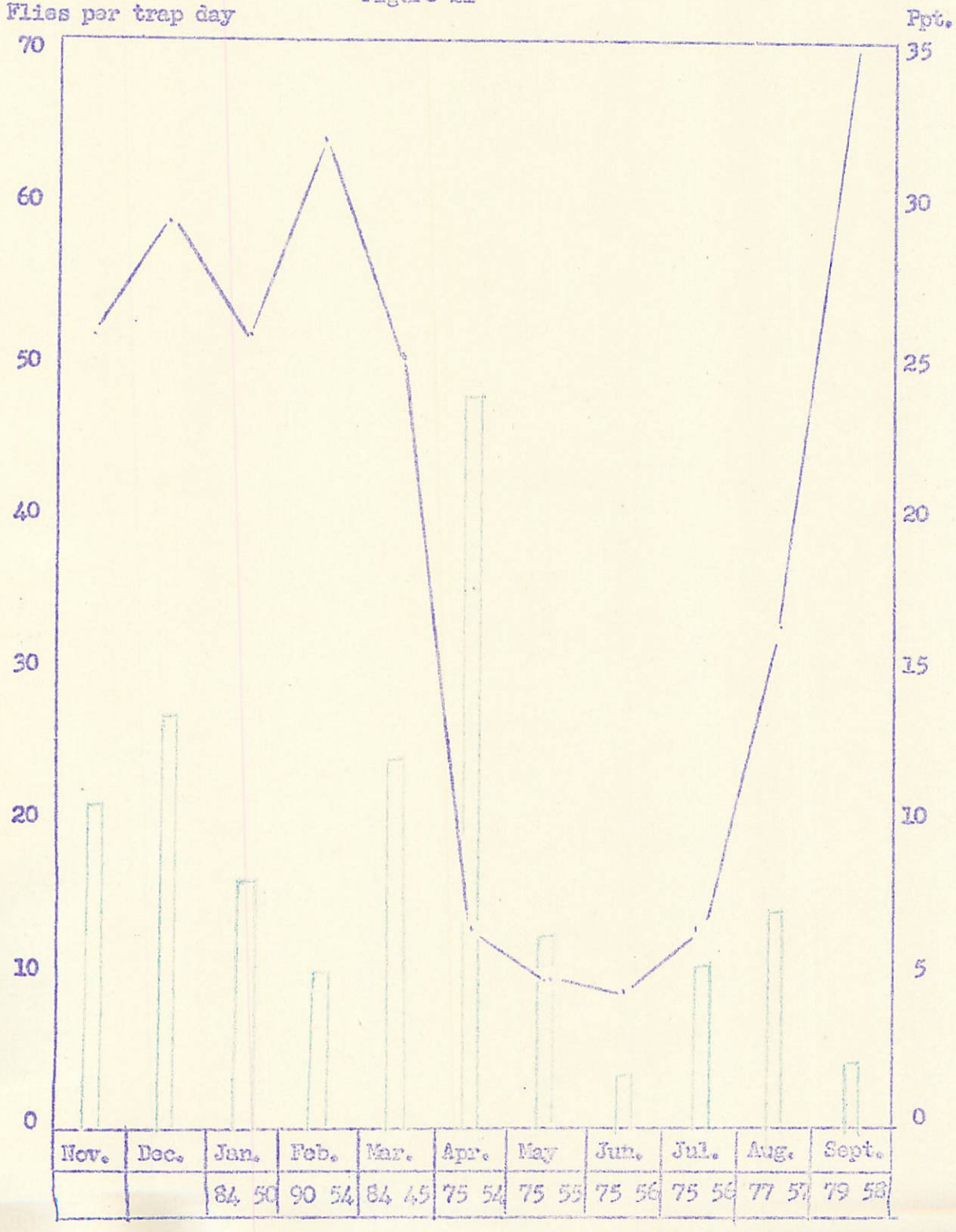
Population trend, monthly average catch per trap day

Monthly rainfall

Graphic information based on 31,050 flies

POPULATION TRENDS, LOWER OOKALA TRAIL, (700-2040')

Figure 21



Population trend, monthly average catch per trap day

Monthly rainfall

Graphic information based on 31,050 flies

POPULATION TRENDS, KEANAKOLU-OOKALA TRAIL, (700-2040')

TABLE 53

Month	Max. Mean	Min. Mean	Pct.	Days	Traps	TD	Fly count	Index
Nov.			10.58	28	2	56	2917	52
Dec.			13.43	28	4	73	4374	60
Jan.	84	50	8.00	42	4	168	8766	52
Feb.	90	54	5.02	28	4	98	6407	65
Mar.	84	45	12.24	28	4	98	4954	51
Apr.	75	54	24.34	28	4	112	1503	13
May	75	55	6.07	28	4	112	1156	10
June	75	56	1.83	28	4	112	913	9
July	75	56	5.45	28	4	112	1471	13
Aug.	77	57	7.28	42	4	168	5564	33
Sept.	79	58	2.17	28	4	112	8025	72
Total			96.41	336	4	1221	46,110	Av. 39

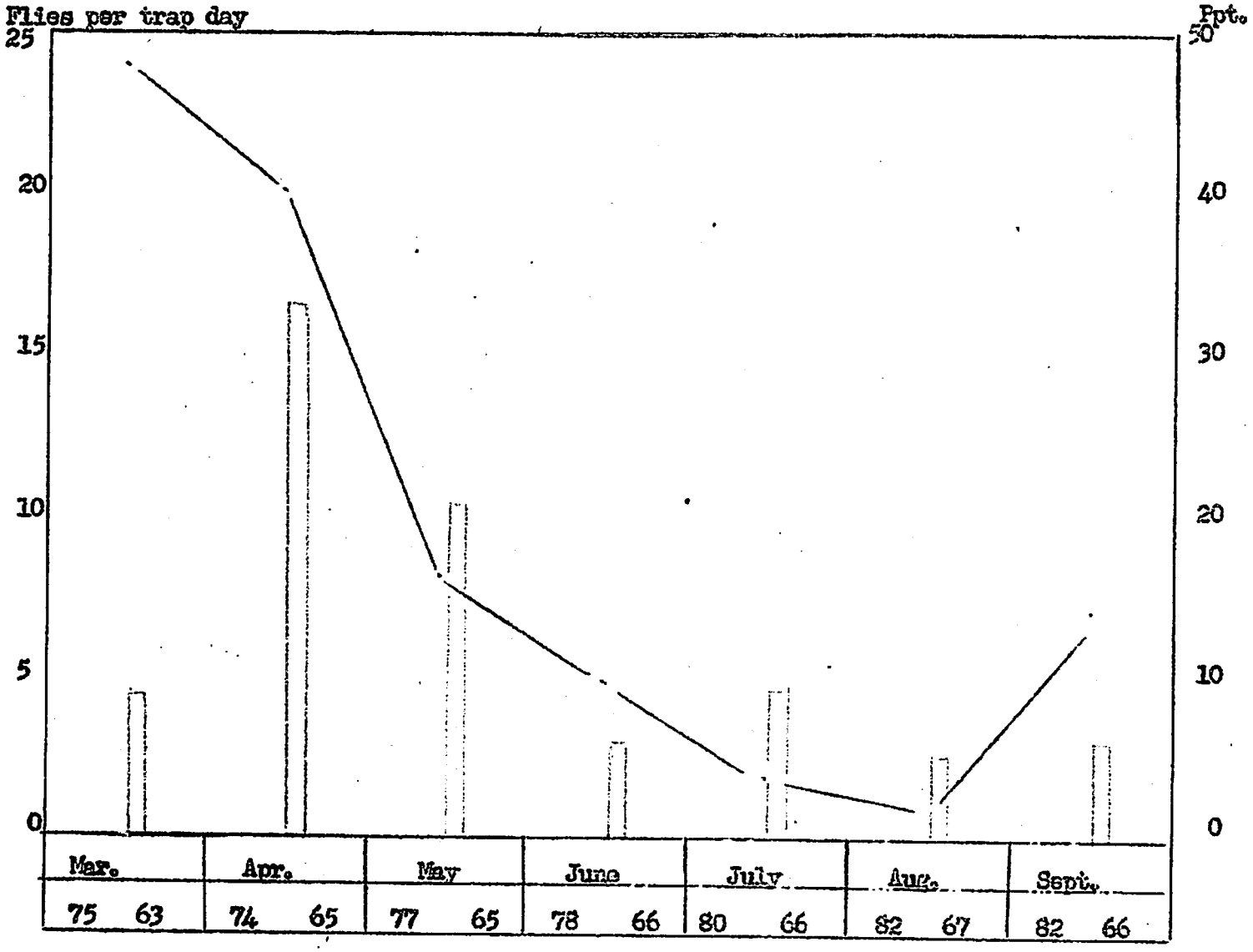
- Dates of Checking and Dacus dorsalis Trapped - Keanakolu-Ookala Trail

TABLE 54.

Trap No.	Elev.	Miles	7/4 Trap	7/18 Trap	8/1 Trap	8/15 Trap	8/29 Trap	9/12 Trap	9/26 Trap	Total
15	5200'	0	-	-	-	-	-	-	-	0
16	4900'	.5	-	-	-	-	-	-	-	0
17	4650'	1.0	-	-	-	-	-	-	-	9
18	4450'	1.5	-	-	-	-	-	-	-	0
19	4200'	2.0	-	-	-	-	-	-	-	0
20	3900'	2.5	-	-	-	-	-	-	-	0
21	3600'	3.0	-	-	-	-	-	-	-	0
22	3380	3.5	-	-	-	-	1	-	-	1
23	3100'	4.0	-	-	-	-	-	-	-	0
24	2800'	4.5	-	-	-	3	1	3	2	9
25	2600'	5.0	-	-	-	-	2	-	1	3
26	2300'	5.5	-	-	-	-	-	2	3	5
27	2040'	6.0	37	6	3	4	29	32	32	143
28	1700'	6.5	54	11	13	39	118	239	181	649
29	1400'	7.5	115	48	32	32	355	661	1790	3033
30	700'	8.5	875	325	537	375	4027	3472	1624	11235
	Totals		1081	390	585	453	4533	4403	3533	15078

POPULATION TRENDS, COSTA'S CITRUS ORCHARD, HILO (75')

Figure 22



Population trend, monthly average catch per trap day.

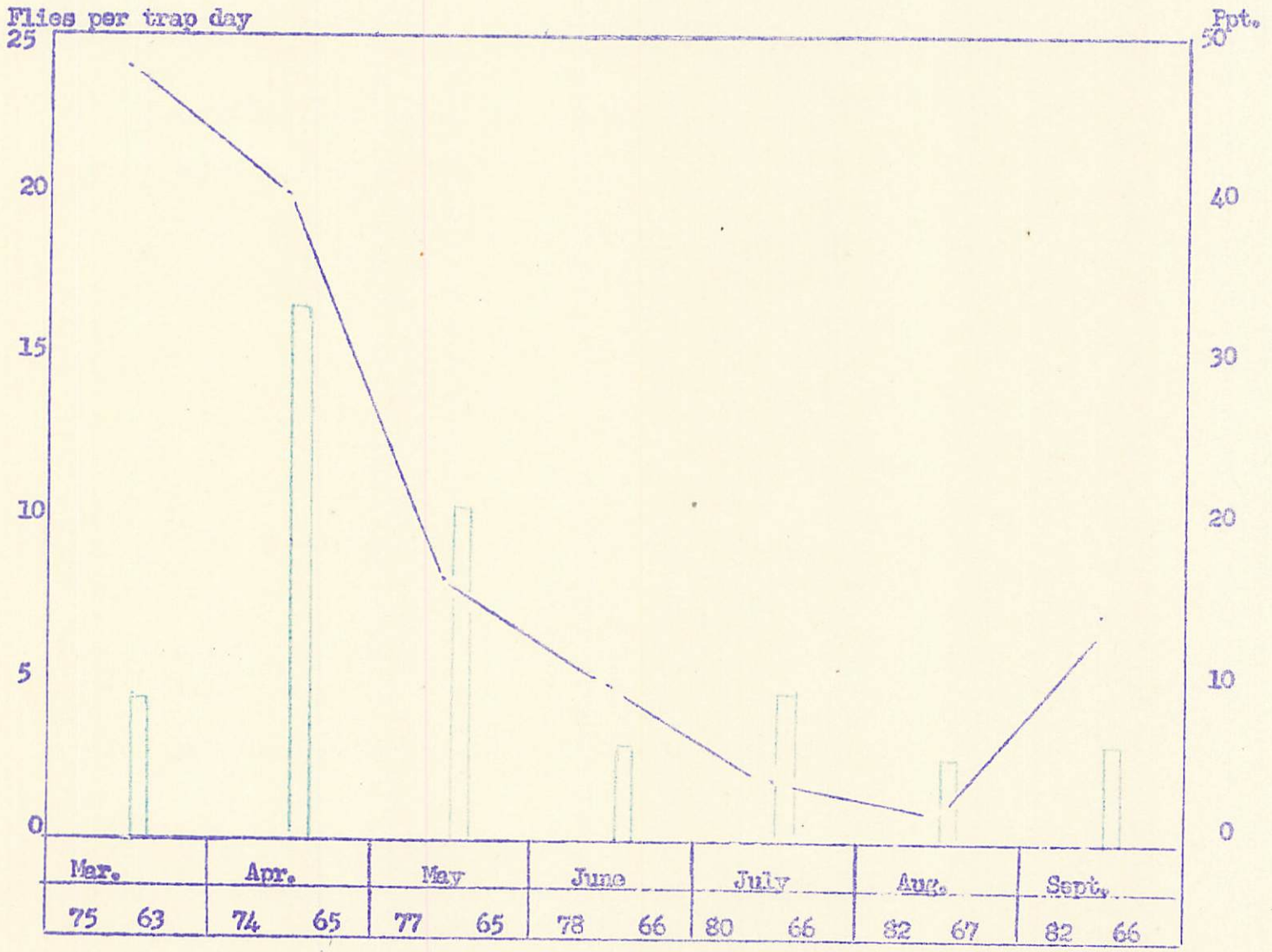
Monthly rainfall

Figures on lower end of graph are mean max. and mean min. temperatures.

Graphic information based on 9110 flies.

POPULATION TRENDS, COSTA'S CITRUS ORCHARD, HILO (75')

Figure 22



Population trend, monthly average catch per trap day.

Monthly rainfall

Figures on lower end of graph are mean max. and mean min. temperatures.

Graphic information based on 9110 flies.

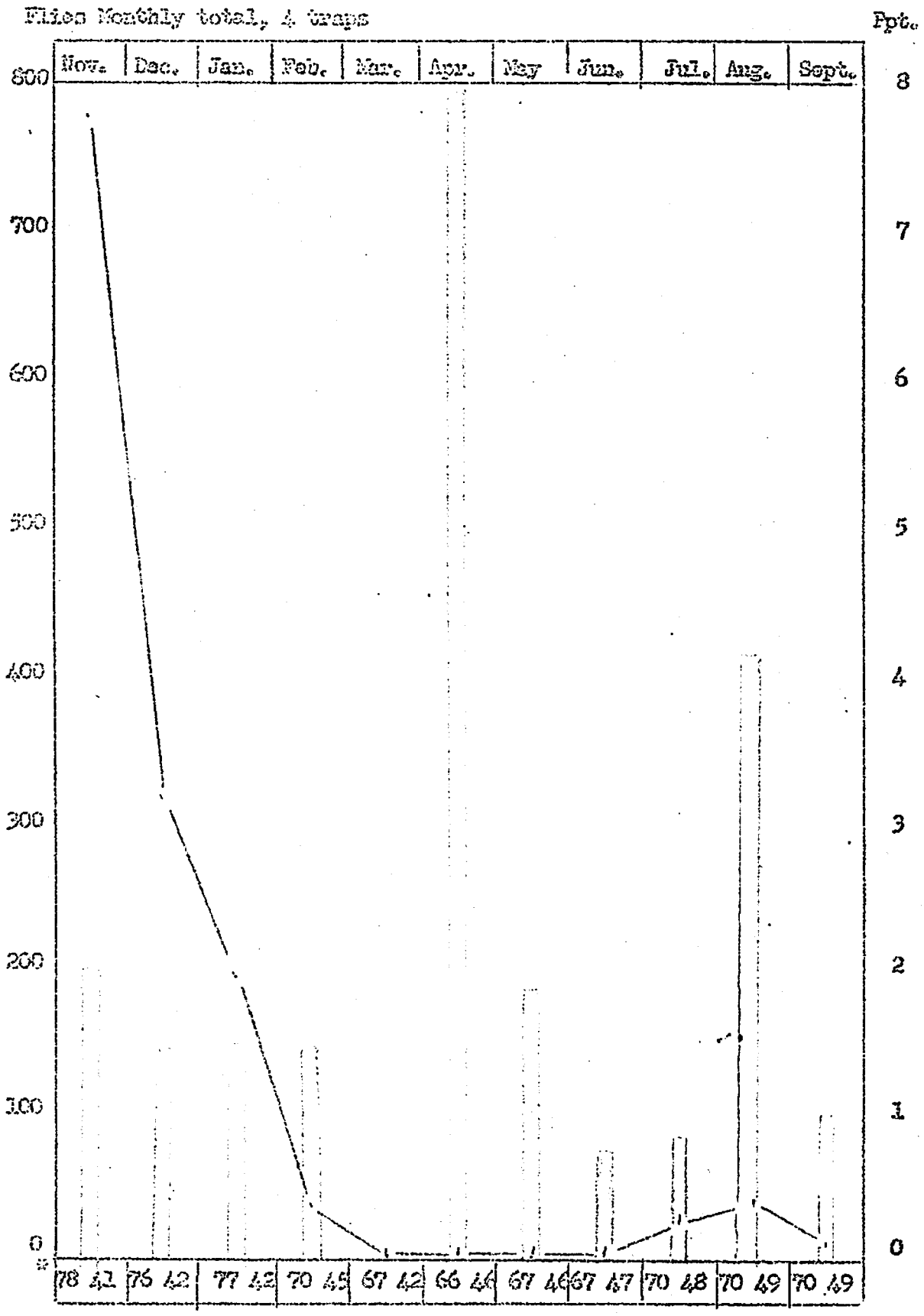
POPULATION TRENDS, HILO COSTA'S, (75')

TABLE 55.

Month	Max. Mean	Min. mean	Ppt.	Days	Traps	TD	Fly count	Index
Mar.	75	63	9.04	23	5	115	2779	24
Apr.	74	65	33.45	28	5	140	2796	20
May	77	65	21.04	35	5	175	1455	8
June	78	66	6.27	28	5	140	698	5
July	80	66	9.88	28	5	140	251	2
Aug.	82	67	5.63	35	5	175	176	1
Sept.	82	67	6.30	28	5	140	955	7
Total			91.61	205	5	1025	9110	Av. 9

[illegible], [illegible], (47001)

Figure 23



Note: Because of the low index at this station, it was necessary to use a different vertical scale. Therefore it is not comparable with the other populations.

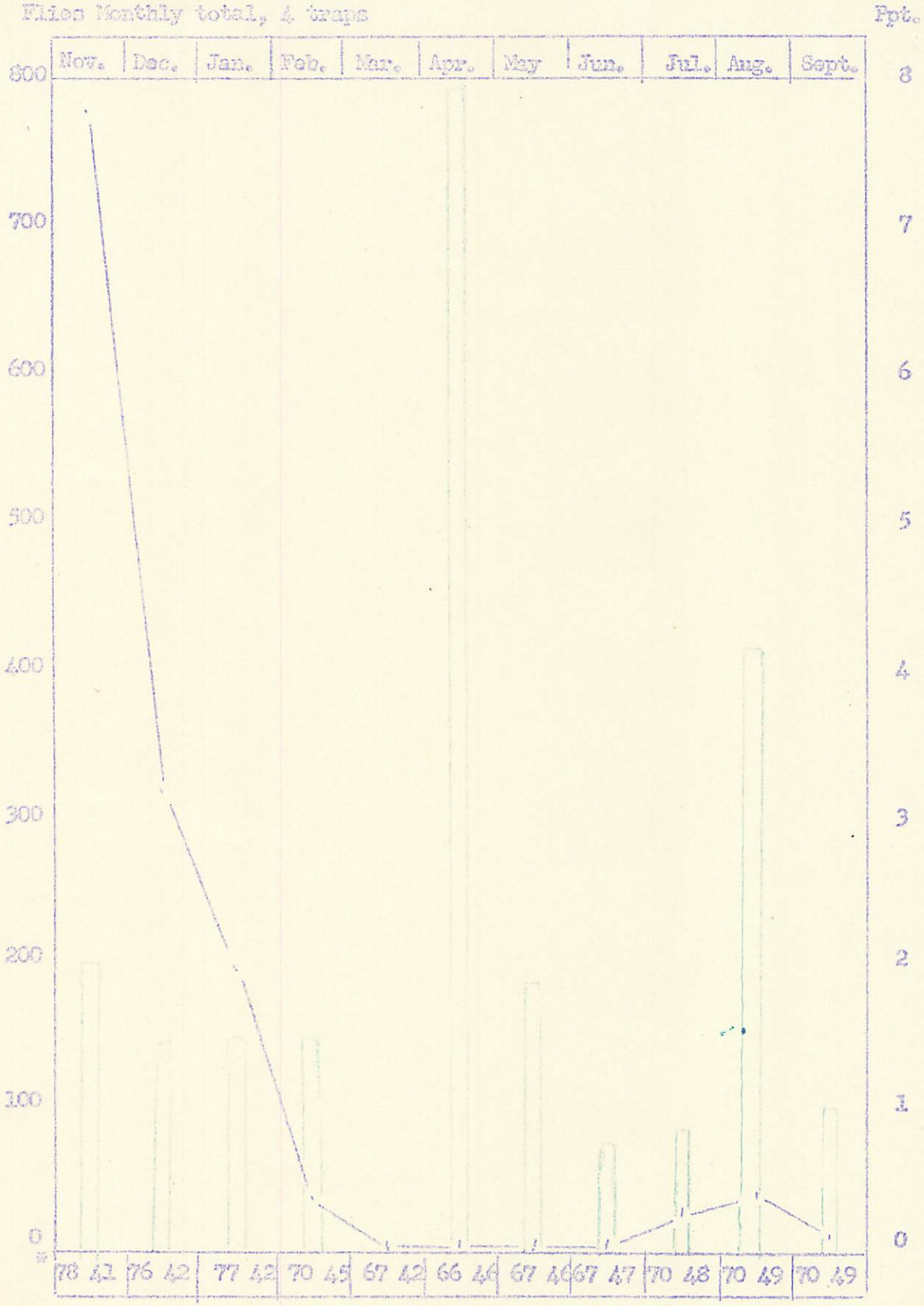
— Flies, monthly total

Monthly rainfall

* Max. mean and Min. mean temperatures

POPULATION TRENDS, WAIKII ORCHARD, (4700')

Figure 23



Note: Because of the low index at this station, it was necessary to use a different vertical scale. Therefore it is not comparable with the other populations.

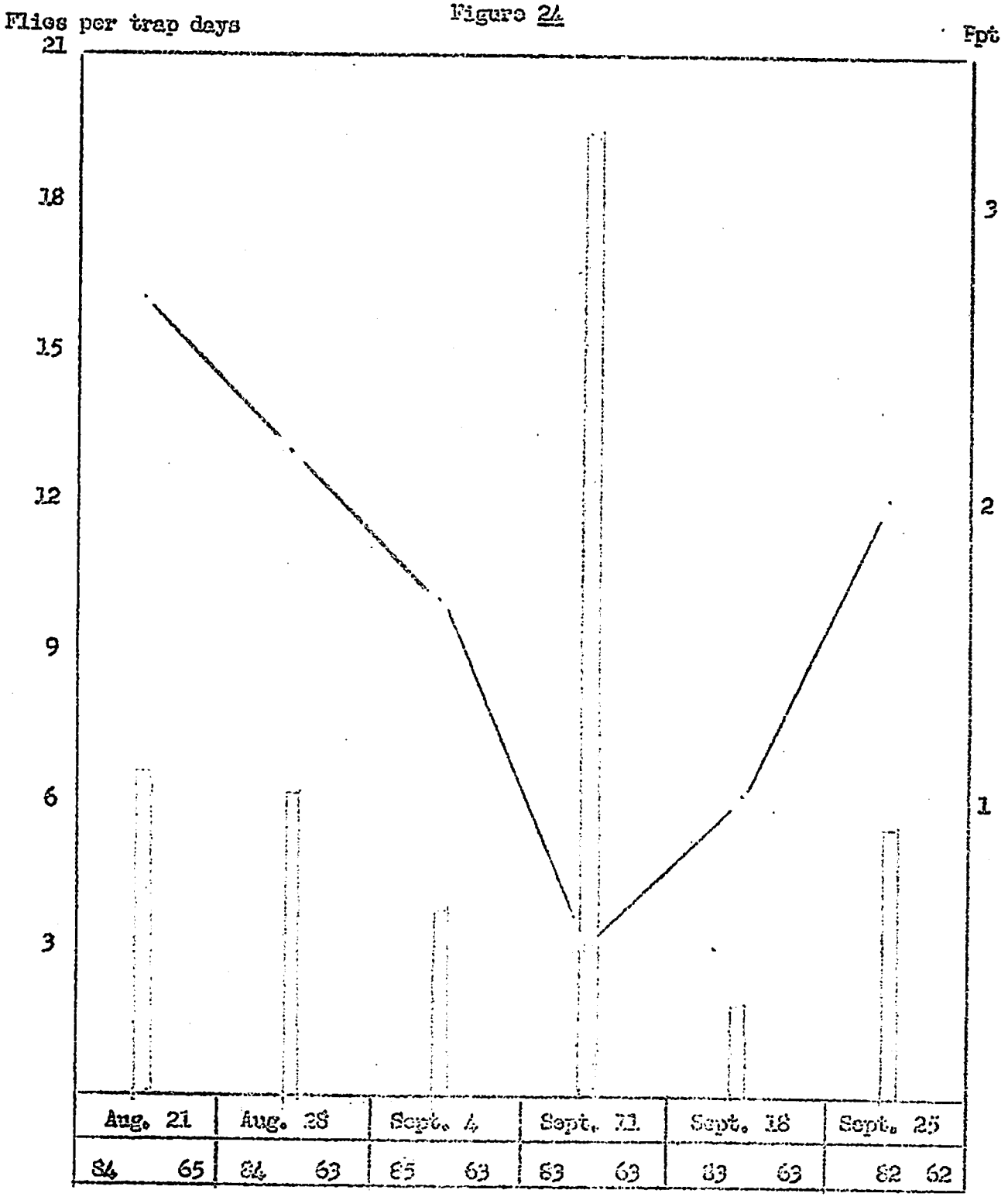
— Flies, monthly total

Monthly rainfall

* Max. mean and Min. mean temperatures

POPULATION TRENDS, KONA, (1700')

Figure 24



Flies caught per trap day, weekly average

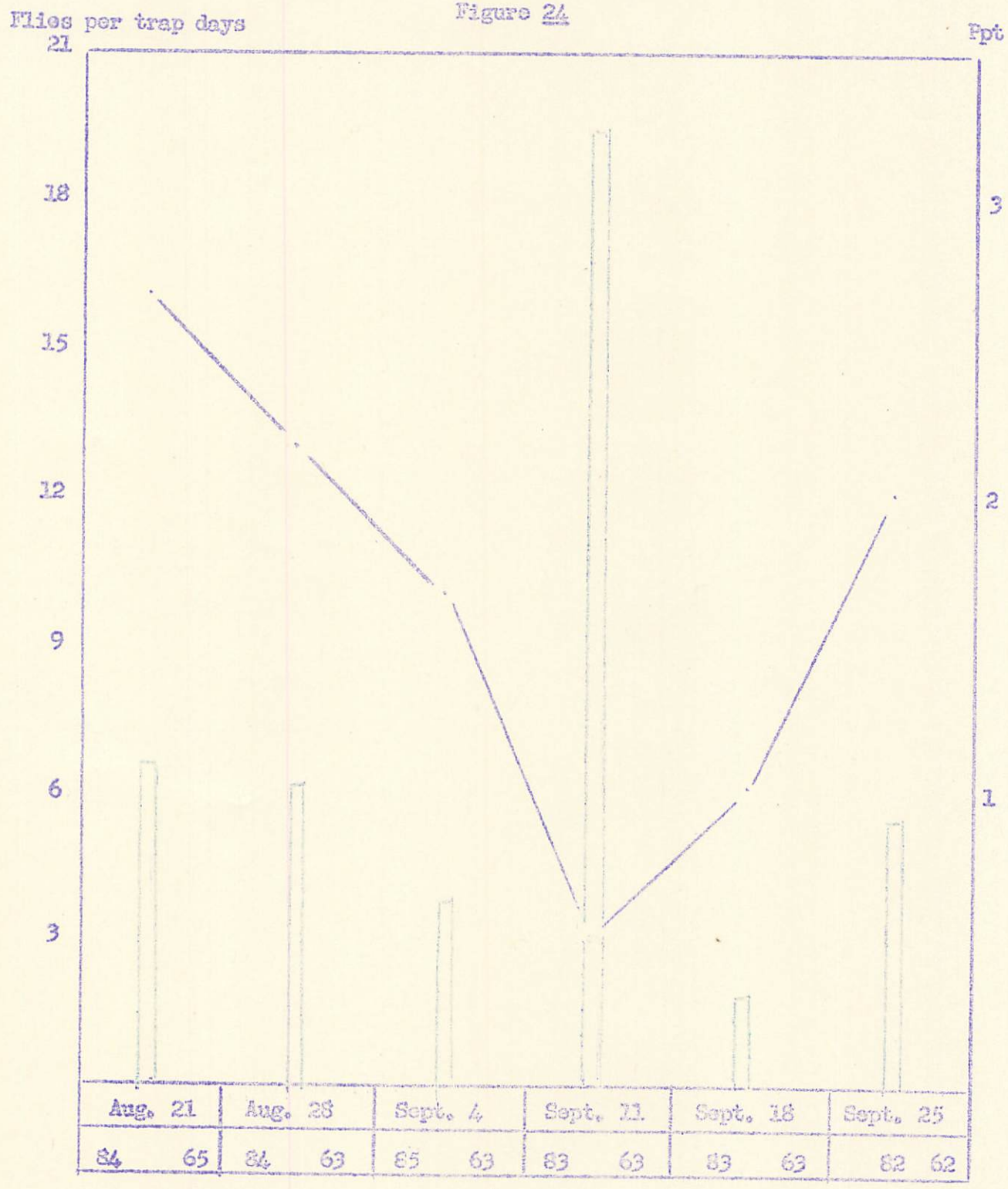
Weekly rainfall

Graphic information based on 1700 flies

* Max. mean and Min. mean readings

POPULATION TRENDS, KONA, (1700')

Figure 24



Flies caught per trap day, weekly average

Weekly rainfall

Graphic information based on 1700 flies

* Max. mean and Min. mean readings

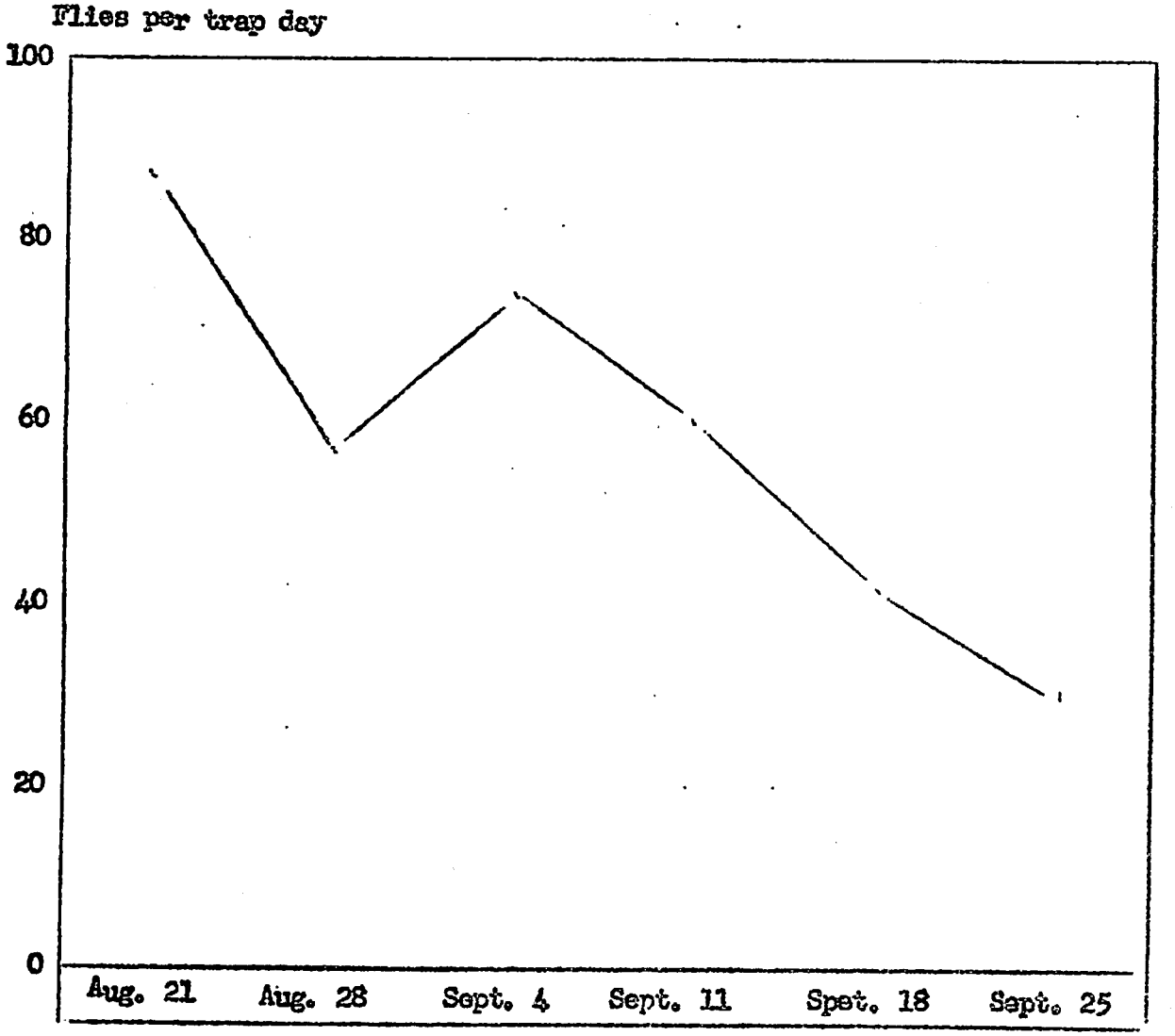
POPULATION TRENDS, KONA, (1700')

TABLE 56.

Month	Max. Mean	Min. Mean	Ppt.	Days	Traps	TD.	Fly Count	Index
Aug. 21	84	65	1.18	7	4	28	459	16
Aug. 28	84	63	1.01	7	4	28	361	13
Sept. 4	85	63	.63	7	4	28	283	10
Sept. 11	83	63	3.24	7	4	28	94	3
Sept. 18	83	63	.30	7	4	28	181	6
Sept. 25	82	62	.89	7	4	28	322	12
Total			7.25	42	4	168	1700	Av. 10

POPULATION TRENDS, HALFWAY HOUSE, KAU (2860')

Figure 25



——— Flies caught per trap day, weekly average

It was thought that this locality, which contains many guavas was a possible source of the M. L. T. T. flies. Most of the guava fruit had matured prior to the date the traps were set out. During the course of the trapping operations, only a few ripe guavas were available.

Graphic information based on 10, 954 flies.

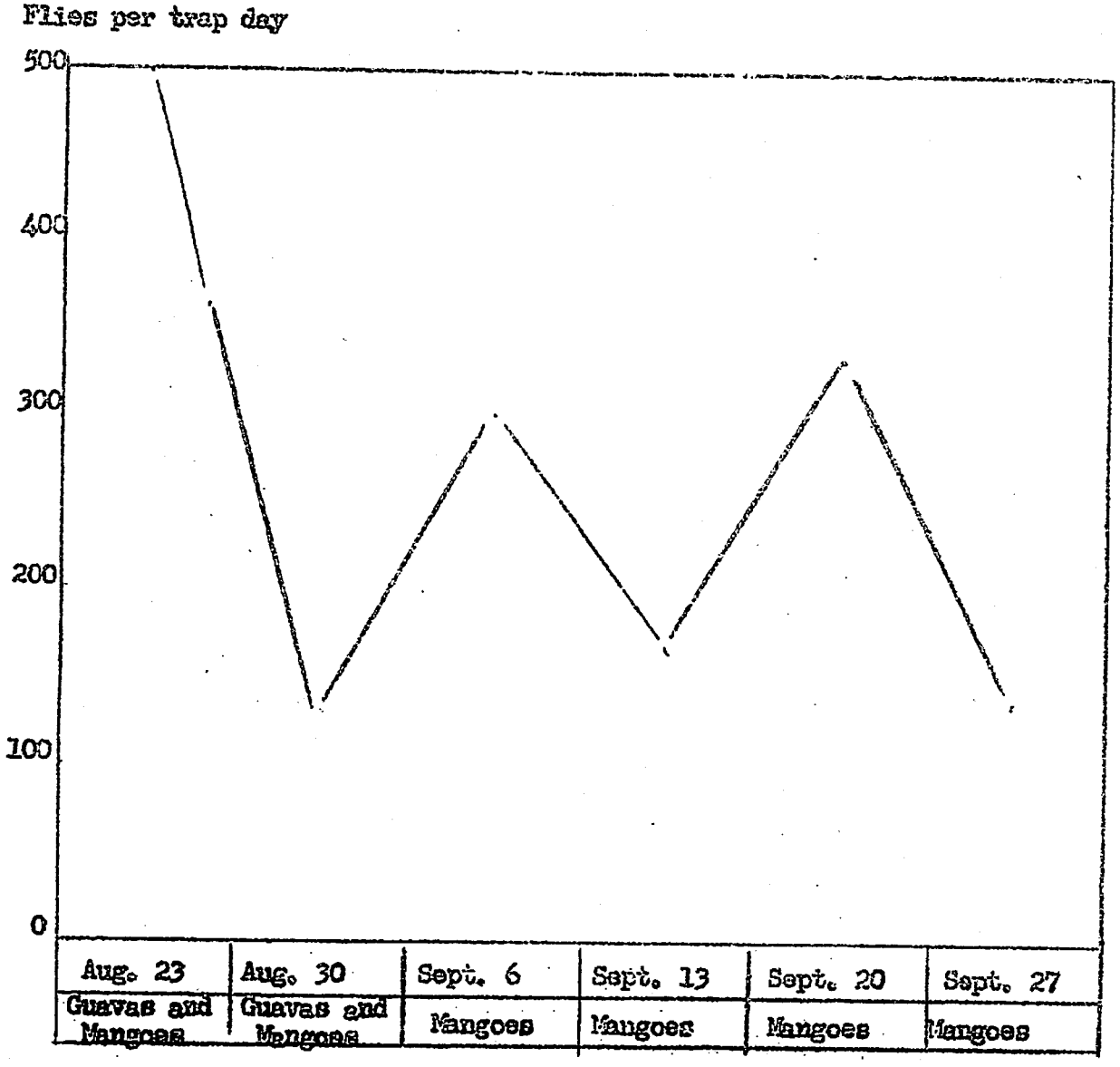
POPULATION TRENDS, HALFWAY HOUSE - KAPAPALA, (2860')

TABLE 57.

Month	Days	Traps	TD	Fly Count		Index
Aug. 21	4	5	20	1739		87
Aug. 28	7	5	35	2007		57
Sept. 4	7	5	35	2576		74
Sept. 11	7	5	35	2114		60
Sept. 18	7	5	35	1456		42
Sept. 25	7	5	35	1058		30
Total	39	5	195	10,950	Av.	58

POPULATION TRENDS, KUPAAHU (100')

Figure 26



— Flies caught per trap day, weekly average

Graphic information based on 55,255 flies

Rainfall, about 50 inches annually.

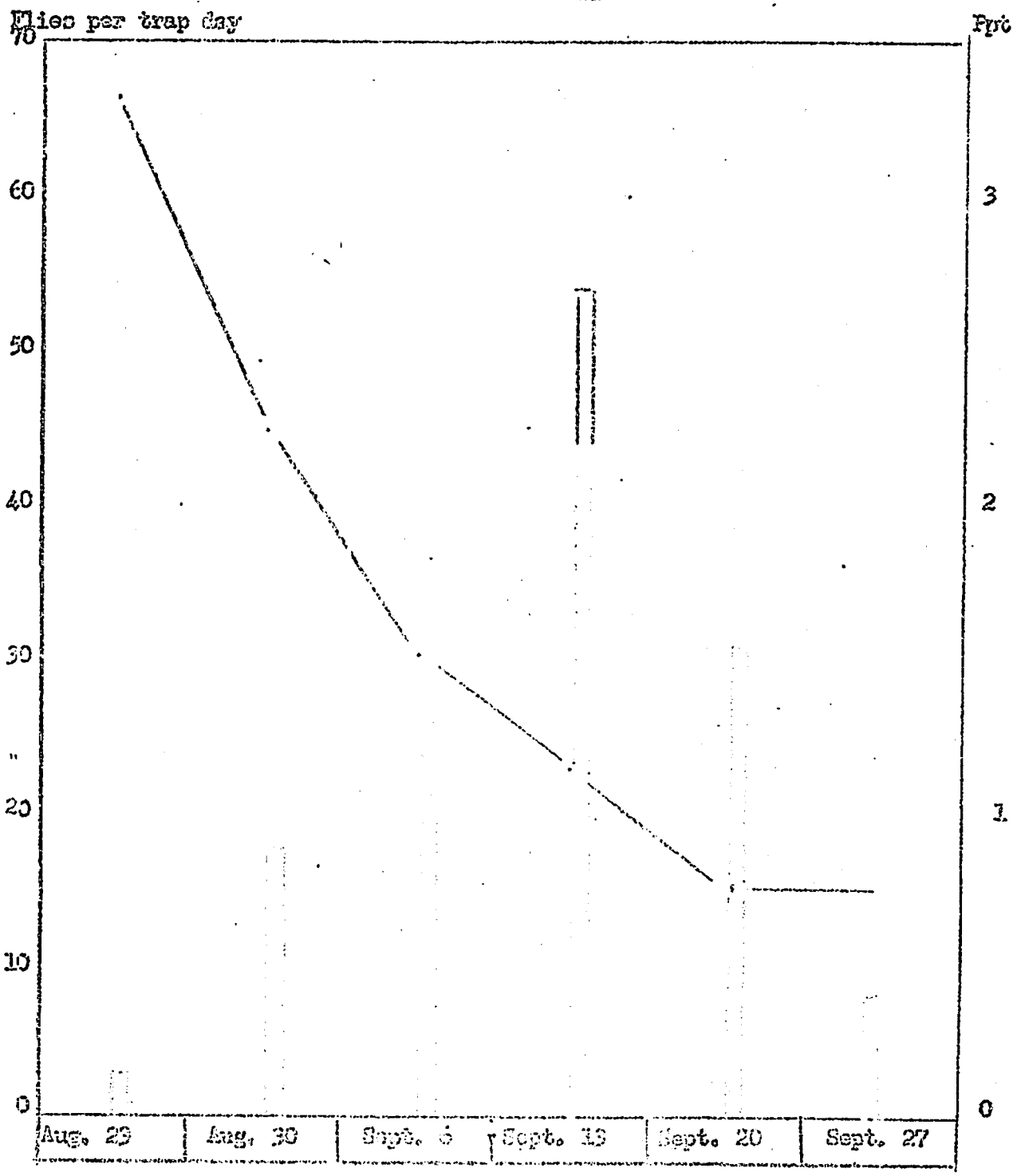
POPULATION TRENDS, KUPAAHU. (100')

TABLE 58.

Month	Days	Traps	TD	Fly Count	Index
Aug. 23	7	5	35	17,477	499
Aug. 30	7	5	35	4,679	134
Sept. 6	7	5	35	10,523	301
Sept. 13	7	5	35	5,962	170
Sept. 20	7	5	35	11,737	335
Sept. 27	7	5	35	4,877	139
Total	42	5	210	55,255 Av.	263

POPULATION TRENDS, SUNADA'S, HILO (100')

Figure 27



-- Flies caught per trap day, weekly average

Weekly rainfall

Graphic information based on 5463 flies.

POPULATION TRENDS, SUNADA'S, HILO (100')

Figure 27

— Flies caught per trap day, weekly average

Weekly rainfall

Graphic information based on 5463 flies.

POPULATION TRENDS, HULO, SUMADAIS (1001)

TABLE 59.

Month	Ppt.	Days	Traps	TD	Fly Count	Index
Aug. 23	.15	7	4	28	1859	66
Aug. 30	.88	7	4	28	1252	45
Sept. 6	1.19	7	4	28	847	30
Sept. 13	2.69	7	4	28	655	23
Sept. 20	1.81	7	4	28	427	15
Sept. 27	.42	7	4	28	423	15
Total	7.14	42	4	168	5463	Av. 32

There has been little correlation between dorsalis emergences from Jerusalem cherry collections and trap populations on the M. L. T. T. between 4250 and 5100 feet. Most of the emergences have been Med. flies. A subsequent survey of the country S. W. of the M. L. T. T. resulted in the discovery of considerable Jerusalem cherry areas at lower and warmer localities and a corresponding increase in Oriental fruit fly activity. Since the results of collections made in this locality would not be known for sometime, and with the approach of the winter months on the M. L. T. T. not far off, it was felt that a release of marked flies in the S. W. Chalden country would be opportune. This release was based on the hypothesis that some of the fly populations on the M. L. T. T. were emanating from guava country five miles S. W. of the Jerusalem cherry range, and were drifting in the prevalent S. W. winds to the M. L. T. T.

Accordingly, at 1:00 p.m. on September 1st, 1950, 2,843 red marked dorsalis males were released at an elevation of 3910 feet, Chalden, 1 1/2 miles southwest of the M. L. T. T.

Weather conditions at the time of the release were as follows:

Temperature: 73°F; relative humidity, 90%; sky, cloudy; wind, north east, about 2-3 miles per hour to release, calm at time of release.

The flies were active and dispersed in all directions.

Prior to the release, an encircling trap pattern was set out and the nearest trap was one half mile from the point of release.

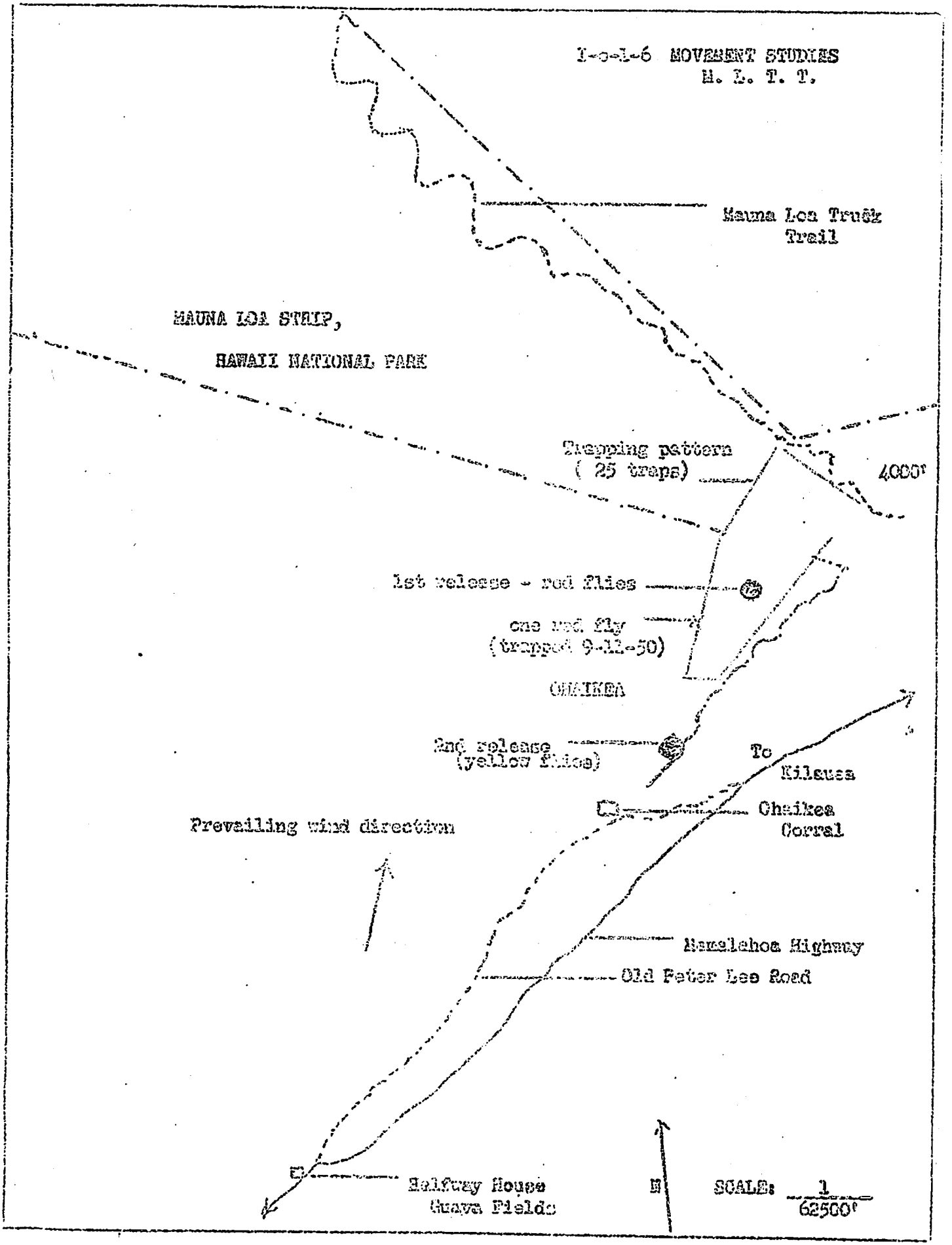
Thirty minutes later a second release of a out five thousand yellow marked flies was made 2 miles, S. W. of the first release, near the Chalden Corral (Old Peter Lee Corral) at an elevation of 3,530 feet. Weather conditions in this locality were as follows:

Temperature, 82°F; relative humidity, 96%; sky, cloudy, very low; wind, north-east prior to release, but calm at time of release.

The flies were active and flew in all directions. Many however, remained at the release point. About 30 were observed on a mossy bank where they were apparently obtaining moisture and many were observed under the fronds of the Ammaus fern, Sadleria cyathoides. Jerusalem cherries were plentiful at the first release point and there was considerable vegetative cover for shelter. The country at the second release point was mostly open and there were few if any native fruits available. It was speculated that the red marked flies would eventually drift to the lower portion of the M. L. T. T. and the yellow flies would do likewise, except that there would be a greater distribution along the trail as a result of wind currents which favored the yellow flies.

To date, only one red marked fly has been recovered. It was recovered in interceptor trap number P-7, one half mile south west of the release point.

Although the weather was favorable at the time of release, two disrupting factors may have delayed or prevented the interception of marked flies. Mr. Fay Finch, Volcanologist of the Hawaiian Observatory, U. S. Geological Survey reported that inclement weather set in two days after the release and that there was a shift in wind direction. A sharp drop in fly populations on the M. L. T. T. was also noted. Cattle proved to be the second disrupting factor, for many traps were found on the ground. Some were broken by these animals in their attempt to get at the salt solution.


I-o-l-6 MOVEMENT STUDIES
H. L. T. T.
Mauna Loa Truck Trail
MAUNA LOA STRIP,
HAWAII NATIONAL PARK
Stepping pattern
(25 traps)
4000'
1st release - red flies
one red fly
(trapped 9-11-50)
CHAIKEA
2nd release
(yellow flies)
To Kilauea
Chaikea Corral
Prevailing wind direction
Namalahoa Highway
Old Peter Lee Road
Halfway House
Guava Fields
N
SCALE: 1/62500'