TANGLEFOOT BANDING OF COCO-NUT PALMS AGAINST *SEXAVA*.

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In preparing a scheme of investigations into the *Sexava* problem, every possible avenue of attack had to be considered. In view of the fact that the eggs are deposited mainly in the soil, and the nymphs have to ascend the palms, experimental trials with tanglefoot banding of the palms appeared to be well worth carrying out to determine what results could be obtained in destroying the young hoppers before they could reach the head of the palm.

Such trials were first carried out on Pak Plantation, Manus, with a mixture having a resin base. The results demonstrated that large numbers of first, and to a lesser degree second, stage nymphs were caught in the bands and destroyed; a few were found to cross the obstruction, but their movements showed that a sufficient amount of the mixture adhered to their "feet" as to hamper their movements and render them an easy prey to ants, &c. These tests were carried out by Mr. N. E. H. Caldwell, B.Sc., Assistant Entomologist.

Further trials were later carried out on Mokareng Plantation, Manus, but the pressure of the parasite breeding and liberation forced this line of work into abeyance for the time being.

In January-February, 1937, Mr. B. A. O'Connor, B.Sc.Agr., Assistant Entomologist, laid out two plots side by side for comparative testing of two types of tree-tanglefoot, the one with a resin base, the same as that used in previous trials, the other with a waxy base. Although the question of damage to the palm by the direct application of the resin-base mixture on to the trunk did not arise in this case, it is a matter of considerable importance with soft-barked trees; the waxy base material has been developed to eliminate this danger, and samples were given to the Entomologist by the English manufacturers while in England on leave in 1936.

These plots were in a moderately infested area of palms, and lay in the direction in which dispersion would probably take place.

Due, possibly, to climatological conditions, the waxy-base material, although yielding good catches for about two weeks, steadily deteriorated, and became useless in a very short time. This matter has been taken up with the manufacturers, who advise that they will endeavour to prepare a material that will stand up to the exacting conditions experienced (*vide* Graph No. 2).

On the other hand, the resin-base material gave good results for about two and a half months, and remained tacky and operative in a lesser degree for four months.

A peculiar feature in these trials was the attack by wild bees on the waxy-base material about two weeks after the inception of the trials; two bands were completely denuded within a week, and others were removed later. After the waxy-base bands had been severely affected, the bees began to remove the resin-base material.

The results for the first eleven weeks showed a marked and more or less regular fluctuation in the numbers caught, particularly noticeable when the counts per row per week are examined (*vide* Graph No. 1), but we were not able to definitely link this with variations in the emergence of *Sexava* nymphs.

The variation in the numbers caught on even adjacent palms was very great, even from day to day; this was also noted in the case of individual palms; some palms yielded consistently higher catches than others. The counts per palm per week to 1st April are shown in the appended table.

On some occasions, for unavoidable reasons counts were made at two, and occasionally three, day intervals, and it was noticeable that on these occasions there were remains of nymphs, such as one leg, showing that some of those caught on the bands had been removed by predators such as small lizards and ants. These were counted as well as possible but some may have been removed completely, and were not countable. There is, therefore, evidence to show that although the counts made represent the majority of the nymphs caught, they do not represent the absolute total, as there was an indeterminable number that could not be included.

Older nymphs than those referred to and adult *Sexava* were able to cross a 6-inch band, but in the process they collected a certain amount of material on the tarsi (or feet) which would possibly lead to their being attacked more easily by lizards, &c.

Bands of different widths were used, but it was found that any under 4½ inches were not satisfactory, both in catching and lasting qualities. In practice, the simplest method of application was by hand, this not only being quicker than with a piece of board, but it also gave the approximately correct width.

One pound of this material is sufficient to treat five palms, so that 1 cwt. should be sufficient to treat over 500 palms; the rate at which it can be applied depends very greatly on the celerity of the operator. We have received advice that this material can be supplied from England at 100s. (sterling) per cwt. in cwt. lots.

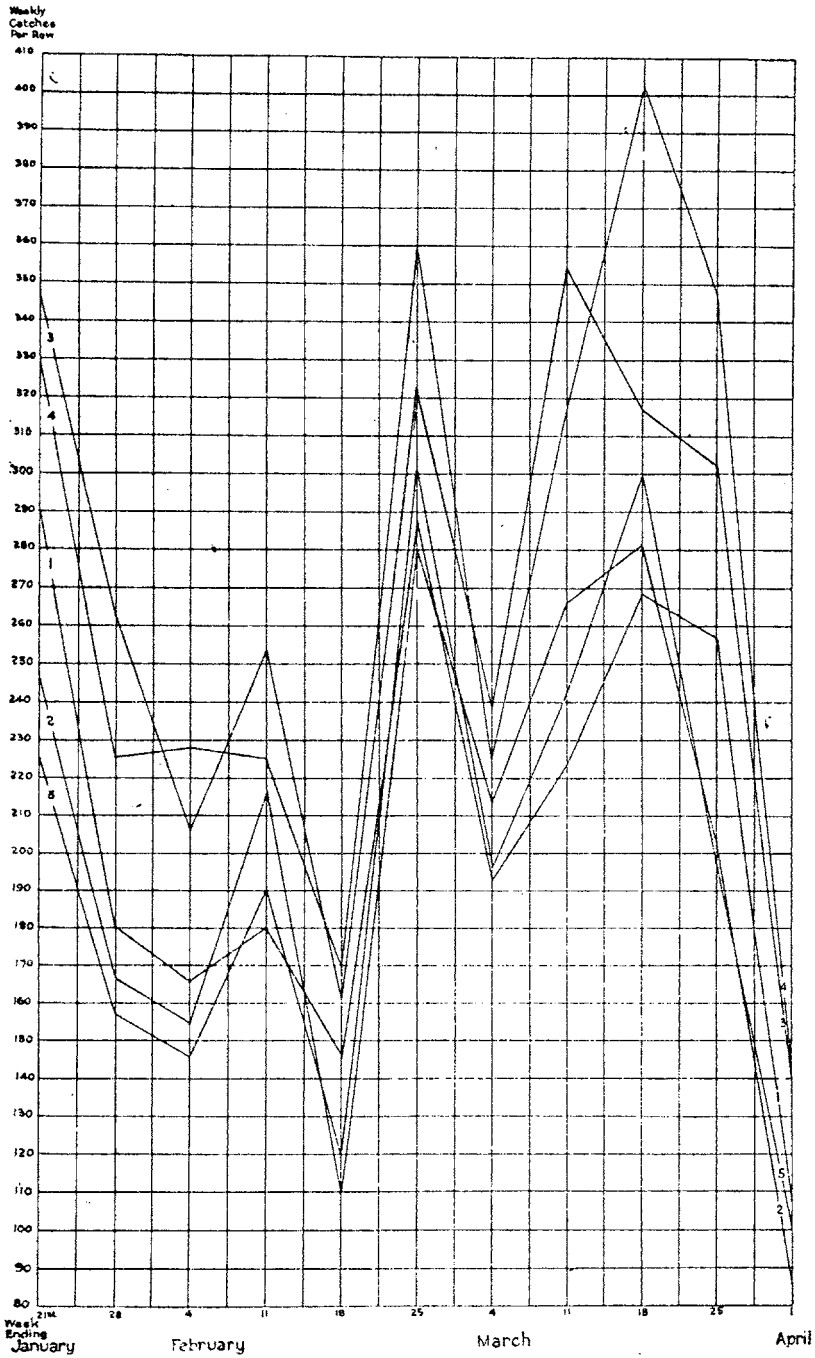
It seems possible that in the early stages of infestation, when the hopper is relatively localized, this method might be used with considerable benefit in reducing population of the early stages before the nymphs can reach the head of the palms.

TANGLEFOOT BANDING (RESIN BASE).

Weekly catches per palm, Nos. 1–30.

Palm No.	For Week Ending—											Total.
	January.		February.				March.				April.	
	21.	28.	4.	11.	18.	25.	4.	11.	18.	25.	1.	
1 ..	15	10	6	11	10	18	18	23	14	19	7	151
2 ..	32	28	29	21	15	39	30	21	40	37	31	323
3 ..	59	44	47	70	52	94	48	54	58	82	42	680
4 ..	53	25	21	20	21	47	35	52	56	54	23	407
5 ..	91	47	29	26	30	63	39	42	47	30	19	464
6 ..	42	27	34	32	19	27	23	39	63	36	14	346
7 ..	34	35	28	21	13	25	27	28	34	28	21	294
8 ..	33	24	23	42	10	42	29	31	31	19	13	277
9 ..	67	33	29	60	33	72	39	45	38	28	12	456
10 ..	32	13	11	14	16	21	10	31	49	27	9	233
11 ..	37	30	22	26	24	57	52	62	57	49	24	440
12 ..	45	32	42	37	14	62	57	70	74	55	24	512
13 ..	55	51	32	26	23	31	27	27	44	38	9	363
14 ..	48	33	20	30	20	43	26	53	37	23	13	346
15 ..	55	34	30	32	28	56	46	46	37	49	50	473
16 ..	47	31	21	32	15	62	33	54	48	53	31	427
17 ..	71	49	55	46	34	61	44	72	66	71	33	592
18 ..	69	56	48	51	37	68	62	103	97	69	25	685
19 ..	41	13	32	27	22	49	24	45	64	48	19	384
20 ..	51	44	26	30	23	54	21	59	60	64	28	440
21 ..	69	49	23	18	16	60	29	29	27	37	12	369
22 ..	52	38	38	30	33	84	37	49	60	71	37	528
23 ..	73	47	60	66	56	53	45	57	78	53	18	606
24 ..	50	35	50	40	20	63	61	81	112	73	51	636
25 ..	40	24	17	19	19	27	23	27	47	24	9	276
26 ..	33	27	13	15	13	36	15	22	23	21	5	223
27 ..	16	19	10	15	8	40	28	25	28	29	21	239
28 ..	72	58	57	60	34	86	50	62	67	47	25	618
29 ..	39	18	29	30	19	46	41	50	52	53	30	406
30 ..	21	12	22	39	26	56	43	56	81	27	24	407

GRAPH No. 1.—TANGLEFOOT BANDING (RESIN BASE)—ROWS 1-5.—
NUMBERS CAUGHT PER ROW PER WEEK.



GRAPH No. 2.—TANGLEFOOT BANDING (WAXY BASE).—ROWS 7-12.—
CATCHES PER ROW PER WEEK.