

*OBSERVATIONS ON MITE ATTACKS IN HAPUTALE

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Past Observations and Weather.—Tea mites have been observed in the past in isolated patches, but prior to 1956 had never given cause for alarm. They had usually become noticeable during the months of July and August, but with N.E. rains normally falling in September, a natural form of control had been effected, and little or no harm to the tea had occurred.

Yellow mite and red spider had both been readily detected, but scarlet and purple mite, both of which live on the underside of the leaf, may well have been present in small numbers but gone unnoticed.

Rainfall for the 6 months period December 1955 to May 1956 was the lowest since records were first kept on this estate 61 years ago. Rainfall for the first five months of the year was 14.19 inches, some 30 inches below the decennial average; the number of wet days was 44, 35 days short of the decennial average. Rainfall during the normally dry period June to September was slightly above average, which, although having no direct bearing on the natural control of mite attacks, did hasten the recovery of debilitated bushes.

Observations in 1956.—Purple and scarlet mites were first noticed about the middle of May, on scattered bushes, and soon became prolific in two widely separated areas in the lower part of the estate. The soil in these two areas is generally poor and mainly gravel, and it would appear that, even if mites were present throughout the rest of the estate, the poor water holding property of this soil resulted in uneven competition with the sucking action of the mites, and the damage caused in the early days of the attack was more conspicuous than in other parts of the estate.

By the beginning of June, scarlet and purple mite had become active to one degree or another throughout all fields below an elevation of about 5,000 feet. In the first instance, fields between 1 and 2 years from pruning were worst affected, but later mites were to be found on tea of all ages, including some only 6 months from pruning.

Yellow mite infestation became heavy by about the middle of June, but was confined mainly to young fields of a year old or younger.

Red spider was noticed on isolated bushes early in June and concentrations became heavy in patches in both young and old fields by August.

Control Measures.—**TEA IN PLUCKING.**—Spraying of the two worst affected areas, within which considerable defoliation was taking place, was started in June using "Thiovit", a tainting acaricide. Three applications were given at weekly intervals, and retipping started 3 weeks after the final application.

* The Institute does not necessarily endorse the views expressed in papers contributed by persons other than members of the staff.

Other areas, in which attacks developed at a later date, were treated before defoliation occurred with 3 rounds of "Akar" spray. This acaricide, being non-tainting, the sprayed areas were kept in the plucking round, spraying taking place within one or two days after plucking.

The results of both types of acaricide treatment were excellent, and no living mites were detected in the treated areas shortly after the final spraying round. The tea treated with the tainting acaricide, however, now presents a fuller appearance due no doubt to the benefit derived from the enforced rest.

At the beginning of September a young field, 9 months from pruning, became heavily infested with yellow mite and red spider. "Akar" being non-effective against yellow mite, one round of "Thiovit" spraying was carried out, at double the normal concentration, followed by a 3 weeks' rest. Results were excellent and this method of control would appear to be warranted if yellow mite attacks become severe towards the end of the dry season with reasonable prospects of rain to provide further control.

For both types of acaricide 100 gallons of liquid per acre per round were sprayed.

PRUNED TEA.—One field, pruned in July, was heavily infested with scarlet mite before pruning. After the prunings had dried off, this field was sprayed with "Thiovit", at 40 gallons of liquid per acre for three rounds, particular attention being paid to the maintenance foliage left on the bush after pruning. It is hoped that pruned tea so treated will be comparatively free from mite attacks for 3 years or more.

Method of Spray Application.—Normal single jet blister spraying equipment was used, the spray being applied on the lines indicated in the *Tea Quarterly* of December, 1955. Sprayers were charged by a motor charge pump.

Costs.—TEA IN PLUCKING.—

"Thiovit" spraying (tainting)

| | | |
|----------------------------------|-----|-------|
| 4 lbs. "Thiovit" per acre @ -/88 | ... | 3.52 |
| Labour—2.3 labourers per acre | ... | 5.87 |
| | | <hr/> |
| | | 9.39 |

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| Cost per acre for 3 rounds | ... | Rs. 28.17 |
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"Akar" spraying (non-tainting)

| | | |
|------------------------------------|-----|-------|
| 1/10 gallon "Akar" per acre @ 7/80 | ... | 7.80 |
| Labour—2.3 labourers per acre | ... | 5.87 |
| | | <hr/> |
| | | 13.67 |

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|----------------------------|-----|-----------|
| Cost per acre for 3 rounds | ... | Rs. 41.01 |
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PRUNED TEA.—

"Thiovit" spraying.

| | | |
|----------------------------------|-----|-------|
| 4 lbs. "Thiovit" per acre @ -/88 | ... | 3.52 |
| Labour—1 labourer per acre | ... | 2.50 |
| | | <hr/> |
| | | 6.02 |

| | | |
|----------------------------|-----|-----------|
| Cost per acre for 3 rounds | ... | Rs. 18.06 |
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The labour costs are the average for a total of 94 acres sprayed, but varied in each field, according to the availability of water. The use of hand charge pumps would undoubtedly increase the labour costs above the figures shown.

The choice of the type of acaricide to be used must rest on the extent to which the mite attack has developed. If defoliation has occurred on a large scale, then resting is advisable and the cheaper "Thiovit" is the obvious choice. The use of "Akar" would be preferred if defoliation has not occurred to any extent, the extra cost of the material being offset by the crop harvested.

The limiting factor to the extent of control measures that can be taken is the availability of water. On this estate many springs had dried up by the end of May for the first time in living memory. The volume of water required being over six times the amount required for blister protection; the acreage sprayed was limited to those areas in which water was to be found in sufficient quantity.

Shade and Green Manure Trees.—Scarlet mites were found in small numbers on some pollarded Albizzias, and normal lopping was found to be sufficient for control.

Larger mite populations were, however, present on Grevilleas. There does not appear to be any really effective answer to mite control on tall shade which is normally left unlopped, but as a compromise all branches below 12 feet have been removed in areas known to be infested.

Future Control.—Mite attacks in 1956 have necessitated some alterations to the pruning programme. One field, heavily infested with scarlet and purple mite and scheduled to come down in June 1957, has been advanced to January with the object of eliminating the mite population before weather conditions become favourable for a further build up.

All fields below 5,000 feet, due to be pruned in 1957, are to be sprayed with "Thiovit" after pruning, and allowance has been made in the estimates for the treatment of up to 50 acres of tea in plucking, should this be required later in the year.

An examination of defoliated bushes in an untreated area was made during the first week of January 1957, and many heavy concentrations of scarlet mite were found. The worst of the north east monsoon weather is normally past by this time, and, should weather conditions similar to the early part of 1956 recur, it is reasonable to expect further mite attacks during 1957.

It is open to conjecture whether or not spraying for the control of mites will become a routine measure in the future, as for blister blight, until such time as the vulnerable acreage has acquired the necessary immunity as a result of post pruning treatment.