

CROP PROTECTION BY MODIFIED AGRICULTURAL METHODS.

PART II. THE KATABOOLA LOSS OF CROP EXPERIMENT

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The knowledge that old fully expanded tea leaves are immune to blister blight infection suggests a form of agricultural control for tea in plucking with resort to spray protection. As Mr. Portsmouth has already told you it is possible, even under the severest weather conditions, by employing spray protection, to build healthy pre-tipping growth which will remain blister free throughout the rest of the cycle. Once that pre-tipping growth has been formed, blister blight susceptible material, that is to say the crop, will develop above the tipping level.

When the disease is very prevalent the third leaf on plucking shoot is usually so badly damaged that it is of no use to the bush. Therefore, with the recognised standard of good plucking, this is the principal leaf on which sporing blisters develop. In fact the build up of blister blight under monsoonal conditions, and the serious loss of crop such a build up entails, may be attributed to the generally approved standard of plucking to a bud and two leaves, leaving one full leaf above the fish leaf for the development of maintenance foliage.

Two forms of agricultural control have been suggested by this Institute for tea in plucking. They are:—

- (1) Shortening of the plucking rounds,
- (2) Hard or fish leaf plucking.

To determine whether fish leaf plucking and plucking on closer rounds are effective in reducing the ravages of blister blight an experiment was laid out on Kataboola Group. We are indebted to the Management of the Consolidated Estates Company and Mr. Garnier, the Superintendent, for the facilities provided and for so generously meeting the costs of the experiment. Thanks are also due to Mr. Peter Armstrong for supervising the plucking and the collection of the experimental data.

The experimental area, which is subject to severe blister blight attacks, consists of five plots, each one fifth of an acre in extent, pruned in December 1949, tipped at 7" and brought into plucking on 5th June, 1950. It was not possible to commence experimental recordings until 24th July, by which time the plots had already suffered severely from blister damage. Plot treatments were as follows:—

Plot 1. Unprotected with fungicides.

Plucked at 10 day intervals, taking a bud and 2 fully opened leaves, leaving one leaf above the fish leaf unplucked. This plot gives the yield under normal estate practice.

Plot 2. Protected at weekly intervals with Perenox, at a concentration of 4 ounces in 10 gallons water, at an application rate of 15 gallons per acre,

Plucked similarly to Plot No. 1. Yield figures correspond as nearly as possible to returns that may be expected in the absence of blister blight, since spraying on 7 day rounds affords almost complete protection.

Plot 3. Protected at 10 day intervals with Perenox at the same concentration and application rate as for plot 2. Spraying was done immediately following plucking. Plucked similarly to plots 1 and 2. Yields from this plot represent the returns under the usual wet spraying routine.

Plot 4. Unprotected. Plucked at weekly intervals to the fish leaf. Only shoots which have developed a bud and 2 fully opened leaves above the fish leaf were removed.

Plot 5. Unprotected. Normal estate plucking of 2 opened leaves and a bud above a third leaf. Plucking rounds were, however, closed up to 7 days.

Yields and other data for the period 24th July to 30th October are set out in Table I.

TABLE I.
Kataboola Loss of Crop Experiment. Period 24-7-50
to 30-10-50.

Plot No.	Treatment	Yields expressed as made tea per acre. lbs.	Crop returns in comparison with Plot No. 1. lbs.	No. of spray applications.	Approximate cost of spraying.
1	<i>Unprotected.</i> Normal plucking at 10 day intervals.	148	—	—	—
2	<i>Protected weekly.</i> Normal plucking at 10 day intervals.	174	+ 26	15	Rs. 37-50
3	<i>Protected every 10 days.</i> Normal plucking at 10 day intervals.	159	+ 11	11	Rs. 27-50
4	<i>Unprotected.</i> Plucked to fish on 7 day rounds.	179	+ 31	0	Nil
5	<i>Unprotected.</i> Normal plucking on 7 day rounds	137	- 11	0	Nil

The fish leaf plucked area is now being rested with spray protection so as to form new healthy maintenance leaf above which normal plucking will continue until the next S.W. monsoon in May 1951. The period of resting will probably be 6—8 weeks, but it may be reduced if another blister blight attack develops as spray protection is not very efficient on a thick mass of new foliage.

For the five months period under review the plot plucked to the fish leaf gave an increase of 5 lbs. made tea per acre above the weekly sprayed plot. In comparison with what is likely to be the normal estate protective

practice of 10 day spraying rounds fish leaf plucking showed an increase in yield of 20 lbs. made tea per acre.

It is very likely that the crop returns for plot 3 (sprayed every 10 days) will catch up or exceed that of the hard plucked area when the latter is rested. To offset this, however, the cost of about 25 spraying at 10 day intervals during the monsoonal period May to December as compared with only 6 — 8 sprayings during the resting period on the hard plucked area must be taken into consideration.

The closing up of rounds, while continuing normal plucking, appears to be entirely ineffective as an anti-blister blight measure and, as shown by the returns from plot 5, actually increases the amount of crop lost. However, when making the original recommendation to close pluck we were careful to point out that it applied to conditions of leaf attack only. During most of the course of this experiment severe stem attacks were continually experienced with the consequence that suitable conditions for this form of agricultural control to prove its worth did not occur. The value of fish leaf plucking during conditions of severe stem attack does not however appear to be in doubt.

We therefore suggest that you experiment with fish leaf plucking during blister blight attacks as an alternative to spray protection. We must, however, insist that the resting period with spray protection is essential. This spray protection must also be commenced three weeks before plucking is stopped in order to give protection right from the formation of bud initials.

Ordinary estate practice has shown that it is useless to attempt to switch over direct from fish leaf to normal plucking as pluckers cannot be persuaded to stop stripping. The only way to break the stripping routine is to keep the pluckers out of the field for a time.

Preliminary experiments by Mr. Garnier have indicated that resting should be followed by one normal round to harvest all 2 leaves and a bud above full leaves. A skilled gang should be put into the field to break back so as to leave one full leaf above the original plucking table.

