PLANTING TOPICS

YIELD STIMULATION OF RUBBER TREES

Stimulation for economic increased yields of budded and seedling rubber trees yielding below 800 lb. dry rubber per acre per year is of considerable importance to the rubber industry of Ceylon, especially in cases where no definite programme has been laid down for replanting or where high intensity tapping systems on a short term policy cannot be adopted.

A considerable acreage of old unselected seedling rubber of 40 years of age and over is being tapped at an intensity below 200 per cent. This type of rubber with satisfactory renewed bark and good standards of tapping is yielding from 350 to 500 lb. dry rubber per acre per year at the present time and may be expected to give economic returns in increased yields, if the correct procedure of yield stimulation is adopted.

There is also a fair acreage of pre-war plantings of budded rubber yielding 600 to 700 lb. of rubber per acre per year. These trees which are now about 20 years of age, and in tapping on bark of first renewal would be expected to respond very favourably to yield stimulation.

Increased yields from young rubber trees by stimulation results in a severe set-back in growth. Yield stimulation of young rubber trees cannot, therefore, be recommended under any circumstances.

An experiment carried out on budded rubber planted in 1936 on Dartonfield Estate and treated with yield stimulants containing the synthetic growth substance 2, 4, 5-T as the active ingredient, has given increased yields of nearly 30 per cent over the control in the first six months after treatment. The applications are made on scraped bark below the tapping cut once in 6 months and the trees are tapped on the S/2, d/2, 100% system. A 2, 4, 5-T proprietary preparation which is applied on unscraped bark below the tapping cut gave only a 9 per cent increase in yield over the control and a proprietary preparation of thick consistency with 2, 4-D as the active ingredient gave a 16 per cent increase in yield over the control in the same experiment.

The quality of renewed bark is a limiting factor in obtaining increased yields with yield stimulation. Bark which is less than $6\frac{1}{2}$ mm. in thickness will not stand up to the depth of scraping required for proprietary stimulants of thick consistency and poor penetrating properties.

In our experience the maximum amount of scraping which is safe for our wet weather conditions reduced this thickness of the bark to one of approximately 5.5 mm., which is just sufficient for satisfactory tapping.

It is not possible to forecast with any accuracy the level of increased yields obtained by yield stimulation from the results of a limited number of small experiments as so much depends on the condition of the bark treated with the stimulant. The best response is always obtained from virgin bark and from well renewed bark.

The extent of bark scraping for application of stimulants, as measured vertically, should not exceed 1¾ inches on alternate daily tapping which, with a bark consumption of about 7 inches a year under Ceylon conditions, is tapped out in three months before the stimulant has any adverse effects on the bark, especially in the wetter districts of Ceylon where the incidence of Phytophthora bark disease can be high on certain clones.

The correct depth of light scraping on virgin and renewed bark can be determined by first scraping off the corky bark and then continuing to scrape, with a steel wire brush or scraper, until the typical reddish layer is exposed. The first pin points of latex will indicate that the scraping is sufficient in a particular area of the bark; any excessive drip of latex from points will indicate that the required depth of scraping has been exceeded. Labour can be trained in a few hours to keep to the correct depth of scraping.

Any latex exuding from the bark after scraping should be carefully removed before the stimulant is applied. This latex should be allowed to coagulate on the bark and this may be ensured by allowing a suitable interval of time to elapse between scraping and application of the yield stimulant.

Stimulants of thin consistency can be applied with a flat 1-inch paint brush, and those of thicker consistency may be applied with the forefinger taking off any excess with pressure on the finger. In all cases it is important that the applications be made thinly and evenly. Any indiscriminate daubing of the yield stimulant will result in adverse effects on the bark, especially under the climatic conditions of the wet low-country districts.

In the case of trees tapped on a half-spiral cut alternate daily, S/2, d/2, 100%, the stimulant can be applied on a scraped strip of bark 1¾ inches wide below the cut once in 6 months if the area is to be replanted within the next 10 years. If there is no definite replanting programme for a particular area it would be best to carry out the stimulation once a year.

On trees tapped on double-cut systems of up to 133 per cent intensity the applications can be made over a scraped area 1½ inches wide below each cut for downward tapping.

On old unselected seedling rubber it may be more economical to exploit the virgin bark above the normal tapping panel for increased yields. The double-cut systems will then be introduced with one downward half-circumference cut on the normal tapping panel, and one high half-circumference cut on the opposite panel which will be tapped from a height of about 7 feet with the aid of a ladder. The applications will be made as for double-cut systems on a scraped area of 1½ inches wide below the cut on the bark to be tapped.

On high level tapping a pronounced drop in yield normally occurs as the tapping cut approaches the junction of virgin bark and renewed bark, especially if the renewed bark is poor. This fall in yield may be greatly reduced by stimulation of the virgin bark island.

Up to the present this Institute has had no old unselected seedling rubber on which to carry out yield stimulation experiments but the impending acquisition of a block of about 200 acres of old seedling rubber would provide the type of old rubber on which to carry out in 1960 these experiments on a commercial scale, with the necessary controls for an accurate assessment of the effect of yield stimulation on old seedling rubber under Ceylon conditions.

C. A. de S.