NOTES ON GROWING INDIAN CORN INTERPLANTED IN OLD TEA AFTER PRUNING*

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Land.—For preference choose an easy lie of land — not too steep and without too much permanent shade. Existing green manure trees should be lopped just before planting.

Time of Pruning Tea.—Pruning should take place 2 to 4 months before I. C. is put out, according to elevation. At Luckyland, at an elevation of 4,500 feet the I. C. will be planted in a field pruned between the 1st and 31st July. In the Welimada district, 3,500 to 4,000 feet, a fortnight later.

Time of Planting.—The I. C. seed should be put out the day after the first good N. E. shower of rain about the end of September or early October. It is not advisable to plant before the 15th September, with an early N. E. as the corn will be ripe sometime in January and if the N. E. continues to end January, as it often does, the ripe corn will be damaged. Late planting, say after the 15th October, may clash with a rush of leaf, when labour and factory accommodation are not available.

The same time of pruning and planting should meet conditions on the South-West side of the Island.

Preparation of the Land.—The I. C. should be planted in alternate lines of tea. The opposite line to the one the prunings are usually stacked or buried in should be prepared. The whole acreage to be ready by 15th September.

Holing.—Mamoty holes to be cut in advance of the planting season. Round holes, about 12 inches in diameter at top and rounded off to a centre depth of about 10 inches are sufficient. The holes should be spaced 2 feet apart from centres of holes and as much as possible in the middle of the tea line.

A fair task for holing is 400 to 500 holes for a name, depending on the tilth of the soil, lie of land, weather conditions, stones, etc. In tea planted 3½ ft. × 4 ft. the I. C. holes should work out at about 2,700 to the acre.

Manuring.—Except on very rich soils, in the hollows, most lands will require manuring. The best is well-rotted cattle manure, next I prefer 6 to 8 months old line refuse, and failing these two, ordinary compost with the addition of some tea refuse.

Cattle manure may be applied at the rate of 1 lb. per hole (1¼ ton per acre), line refuse and compost 2 lbs. per hole, to be placed into each hole before filling in commences. A little soil from silt-pits, and drains, or jungle soil if handy, help the crop tremendously and are of benefit to the tea as well.

With the aforesaid treatment and the return to the land of the compost derived from the I. C. stocks after harvesting, there is no need to fear any evil effect to the tea crop. On the contrary, it may well increase.

In a good interplanted area which had yielded 20 bushels per acre, the out-turn of ripe compost made from the stocks and leaves, with the addition of a little sun flower and cattle manure worked out at an average of 3 tons per tea acre.

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

Filling-in.—After the placing of cattle manure or compost, etc., at the bottom of the hole, sufficient soil is added and *mixed* to fill the hole not quite to the top so as to leave a depression something like the shape of a dinner plate. This will give the plants a better anchorage and, together with the earthing up, prevent them from falling down later on when they are liable to become top heavy. The land is then ready for planting.

Preparation of I. C. Seed.—Obtain the proper variety of seed. There are a number of different kinds but I have found that the best is a type originally obtained from Bintenne and, from this during the past two seasons, a specially selected yellow variety has been propagated giving a more uniform growth of plant, cob and colour of corn and, I believe, higher yield.

I can book a few orders now, of this specially selected yellow variety at cents 30 per lb. of dry cobs.

78 to 80 lbs. of cobs will go to the bushel. Approximately 1,800 seeds go to the cut measure and as my recommendation is to plant 3 seeds per hole it follows that 4½ to 5 measures are required to plant one tea acre of 2,700 holes.

The seed should be soaked in water for a few hours the day before planting out and, in the evening, remove it from the water and place it, spread thinly, about one inch thick, between two wet sacks — don't let it soak in water all night.

Just before planting out, in the morning, mix half a cigarette tin of kerosene oil to one bucket-ful of wet seed. The mixing must be thoroughly well done. The smell of the kerosene oil protects the seed against attacks by lizards, birds and white ants before it has time to germinate. It does no harm if applied a few hours before planting. Better results could be obtained if the seed is sifted so as to eliminate the small undersized seeds.

Planting.—This is quite simple and goes very quickly. Plant 3 seeds to a hole in a triangle, about 3 inches apart. Each seed to be pushed about one inch into the the loose wet soil, holding the seed with the thumb and forefinger and covering it over with a stroke or two of the palm.

Earthing-Up.—When the plants are about 2 feet high the soil round about should be piled up round them into a mound about 10 to 12 inches high. This gives the plants a better anchorage and also provides the secondary roots which spring up, after a time, from the first and second joint of the cane, an added source of nurishment. If heavy rainfalls are experienced this earthing-up may have to be repeated at a later stage.

Supports.—On exposed places or where growth is luxurious it may be necessary to support the points with sticks 3 or 4 feet high or even to tie loosely together the two or three separate plants growing in one point. If earthing-up has been properly done this supporting will only be necessary for a small percentage of the plants.

Protection from Pests and Thieves.—The enemies of I. C. are stray cattle from an early stage. Then monkeys, squirrels, crows, parrots, parrakeets and, if the locality is near uncultivated land, wild boar. There is nothing for it but to have watchmen with guns. A 30-acre block will require one watchman at night and possibly two in the daytime.

It is, however, surprising how quickly all these pests, especially monkeys, crows and wild boar, will disappear and not return when they find out that the crop is being watched.

A few notices placed in the outskirts of the plantation warning people that the watchmen at night have instruction to shoot at anything moving in the corn has a very salutary effect on intending thieves. These precautions, are, of course, only necessary during the last month when the corn is ripening and during the few days of harvesting.

Harvesting.—Compared to other food crops, the gathering of the cobs, drying, and thrashing the corn is a simple and clean operation, requiring only a fraction of the labour. The crop should not be harvested until 95 per cent of the sheaths enclosing the cobs have turned yellow or are dry. If dry weather is prevailing, it is just as well to let them dry longer on the plants but a few days' rain at this stage may damage a percentage of the crop by turning the tips of the cobs mouldy and, in extreme cases, some of the corn will start germinating.

When gathering, the sheaths should be left on the plants. The reason for this is that three operations are done in one, *i.e.*, the corn is collected, the sheath is removed and it is left on the stock to increase the compost which will be made later.

Every labourer is provided with a pointed stick (like a pencil). The point is inserted at the top of the cob through the sheaths and drawn upwards thus cutting them in two. These two ends are then taken, one each, in the right and left hand and drawn apart thus exposing the clean cob which is broken off at the base and thrown into small heaps to be gathered by another gang.

In dry weather and with the sheaths quite dry on the day of harvesting, 100 lb. of cobs will eventually give one bushel. After drying for some weeks in the sun or by artificial means in the lofts of a tea factory, 76 to 82 lbs. of cobs will give one bushel depending on the degree of dryness.

Drying.—When large quantities are involved, say 300 to 1,000 bushels, it is not possible, and the weather cannot be depended on, to dry the cobs in the open but if one loft of the tea factory, preferably the top one, is lent to the food production effort for about 3 weeks the process of drying the cobs before storing them is simplified. This drying space is really what limits the acreage to be planted. 500 bushels or 50,000 lb. of cobs can easily be dried in a loft with a floor area of 5,000 sq. ft. The bottom two hessian tats should be temporarily removed thus facilitating the spreading and turning over of the corn. The cobs are then spread about a foot deep and turned over every other day. The withering fans, when not wanted for tea manufacture can be turned on to this loft.

In two or three weeks the corn should be quite dry and ready for storing. I have found that, if it is stored on the cob, no attacks by weevils need be feared. It can be put into bags and stored in a dry place from where monthly requirements can be taken for shelling.

Shelling.—This is a simple matter and all Tamil labourers know how to do it. Two women can shell 12 bushels in one day.

Costs.—Approximate costs are as follows :—

Holing per acre	...	6 labourers
Manuring & transport.		8 ,,
Filling-in	....	6 ,,
Planting	...	3 ,,
Earthing-up	...	6 ,,
Supports	...	3 ,,
Watchmen	...	4 ,,
Harvesting	...	8 ,,
Drying	...	3 ,,
Shelling	...	3 ,,
Total	...	50 labourers

Say at a Check-Roll average of Re. 1	...	Rs. 50.00
Add to this cost of manure or compost	...	„ 15.00
Add to this cost of seed	...	„ 5.00
Add to this cost of transport		„ 5.00
Add to this cost of cartridges	...	„ 50
Total cost per acre	...	Rs. 75.50

General Remarks.—If the I. C. is planted too soon after the pruning of the tea the quicker growth and shade of the corn will do the tea a lot of harm. The I. C. should be planted in tea a month before tipping.

A field of 22 acres planted in Indian corn on 1st September, 1942 yielded for the 12 months of 1942, *698* lbs. tea per acre. In 1943, *1,211* lbs. tea per acre.

Yields of the same field for previous cycle of pruning were :—

1938 ... 586 lbs. tea per acre
1939 ... 1,109 „ „ „ „

I attribute the increase in yields to the effect of the compost and manure applied to the Indian corn.

The above 22 acres yielded 432 bushels of corn. The area planted in 1943, 30 acres, gave 650 bushels or over 21 bushels per acre.