

Chitta Rastali.	5-12-10	15.10	17.30	}	Do.
	17- 1-11	17.25	17.90		
	1- 2-11	17.85	18.65		
	17- 2-11	18.20	18.00		
	8- 3-11	18.44	17.60		
Barbados 208	24- 1-12		16.80	}	Do.
	24- 2-12		18.60		
	13- 3-12		19.25		
Vellai cane.	24- 1-12		15.30	}	Do.
	24- 2-12		16.65		
	13- 3-12		17.75		

I am indebted to Mr. Krishna Iyengar of Oorghally, Mysore, for kindly supplying me with the above figures. Besides the above a number of analyses were done here and they confirm the above results.

From the above figures it is seen that the arrowed canes start with a higher sucrose content than the non-arrowed ones. In the case of Chitta Rastali it will be seen that the arrowed canes reached their maximum sucrose content as early as 1-2-11 and began to deteriorate rapidly.

The arrowed canes on account of shooting and the formation of pith at the top joints deteriorate sooner than the non-arrowed canes and should not therefore be left unharvested growing on the ground much longer than about 2 months from the time of arrowing. It would be an advantage to harvest the arrowed canes first and sometime afterwards to take up the harvest of the non-arrowed canes. This would ensure uniformity in the ripeness of canes harvested and would save possible loss due to either over or under maturity.

K. Krishnamoorthy Rao.

Green manure crops in the Periyar tract.

If a traveller from Madura nearing Kodaikanal Road looks at Vikramangalam hills to the west of the railway, he would notice the

almost bare *Zemin* area of the hill in striking contrast to the adjacent forest reserve well-stocked with trees. This is evidently due to the unrestricted license given by the Zemindary to the removal of leaves from that area. If the Forest Department had not stopped the depredations of the leaf-cutting knife in portions of this presidency, I fear most of the hills would long ago have been what the Zemindary hill is to-day, and the ryots ever-increasing demand for green leaves would still remain unmet. The disastrous effects which the want of vegetation brings in its train would be an additional evil. A timely solution of this difficulty has been very luckily found in the idea of producing the leaf-requirement of a land from the land itself by the raising of green manure crops. It is much cheaper to grow crops to be ploughed in, than to cut and cart the leaves to the field. It will also be seen that a green manure crop usually adds to the soil a by far larger quantity of vegetable matter than any possible heavy dose of carted leaf at from Rs. 6 to Rs. 10 a cartload.

An ordinary tenant thinks of green-manuring as a means invented by the land-lord to save his expenses on manure, the more so, when the tenant is left alone to face the difficulty of ploughing in the rank growth of the green-manure crops. The laziest of tenants would prefer penning sheep or cattle to any other sort of manuring, not for its manurial value, but for the ease with which he can carry on the preliminary cultivation. This is a point which every land-holder will do well to remember when his tenants deprecate the value of green-manuring. It is in fact easier to plough in cattle manure than a green manure crop, and to minimise this difficulty is one of the aspects of the problem.

If a ryot chooses to sow Dhaincha in a standing crop of paddy in a single-crop land a few days before harvest, he allows it to grow till it is time to plough the land. This means a growth of from 5 to 6 months. By this time the stem grows woody, seeds are formed and both the seeds and leaves may shed. A sense of false economy on the part of the ryot is often the cause of a reduced seed rate of Dhaincha with the result that the difficulties of dealing with this crop subsequently increase and Dhaincha growing becomes unpopular.

should otherwise be. If the seed is sown thickly, the stems will be very thin and the crop will not seed soon. In addition to this, limiting the duration of the crop to 3 months in the Perivat tract would obviate all the difficulties, at the same time supplying a decent amount of green-leaf. Another minor complaint is, that the growing of a green manure crop in wet lands curtails the grazing area of the village. This complaint is usually from ryots of the stamp that have their animals to take care of themselves and they have not much use for them. And we know the indifferent grazing they get in wet lands during the dry months. If the duration of a green manure crop is curtailed within reasonable limits to suit the land and the crop, a good portion of the wet land will yet be available for grazing, at any rate for sometime.

A set of thoughtful ryots contend that growing green manure crops on lands during hot months, prevent the proper cracking of the land and the free action of the weathering agencies on it. The contention is not far wrong. To meet these attempts should be made to shorten the duration of the green manure crops within limits so as to allow the land time to lie fallow during the hot months. This aspect of the problem affects single crop lands most. Therefore the question naturally resolves into one of a judicious selection of the suitable green manure crop and the time of sowing it. I should like to emphasise this point very much, as the success of growing of green manure crop depends largely upon those 2 factors.

Dhaincha is the crop for saline lands and Kolingi and Sann Hemp for sweet ones. Dhaincha takes from two to three months Sann Hemp nearly two months and Kolingi five months before being fit to be ploughed in. Therefore in single crop lands Kolingi can be sown undressed in the puddle at the transplanting time. This undressed seed remains unaffected under water and sprouts when the fields get dry.

Dressed seed may be sown before the last draining of the previous paddy. Kolingi grows very slowly at first and spreads out fast with the early rains of the monsoon and as such keeps the land practically

exposed during the hot months. It is also to be remembered that Kolingi does best in red, sandy or even slightly gravelly soils and these soils do not require as much exposure as a heavy soil. In ill-drained soils it often fails to germinate. Double crop lands cannot afford sufficient time to allow the Kolingi to grow thick enough to form a green manure crop. In saline lands it is unsuccessful. Sann Hemp, does well in all other description of sweet land including red soil. It needs much less time than Kolingi. This enables the ryot to grow Sann Hemp in both single and double crop lands. This is grown with the May or June rain in the latter, and in July or early August in the former. If so grown, even the heavy soils that require fallowing most, get it in spite of the green manure crops.

Saline land not benefitted by fallowing and Dhaincha, the green manure crop for such lands, can be sown just a day prior to the draining before the harvest of the second crop in double crop lands, and with the first receipt of water in the channel in single crop lands. This prevents the crop remaining longer than necessary in the field. The seed rate of Dhaincha should never be less than three Madras measures per acre. Even 4 measures is not much. If a ryot has no irrigation facilities to sow Dhaincha so late as to enable him to obtain a crop fit for being ploughed in, he may as well sow them to suit the availability of water and cut the crop at the proper stage of development and heap the cut stuff in the field. These heaps may be covered with a layer of earth and can be used when required. This also affords an opportunity of exposing the land to the hottest sun of the year.

The seed rate of a green manure crop will have to be slightly increased when the sowing is late. If a crop grows too high, the large volume of vegetable stuff which it produces cannot be possibly ploughed into the 3 inch surface soil that is moved by the ordinary country plough. Therefore in the usual course of events a heavy green manure crop becomes unwieldy and the ryot is naturally inclined to remove a portion of it to other unmanured lands. In sweet lands it has been found to affect the subsequent paddy crop very badly. Therefore it is necessary to see that the crop is not unwieldy at "

When slowly mould board ploughs, like the Climax (which was tried by the writer and warmly appreciated here), come into greater use, the ploughing in of green manure crops will be an easy affair. It is worth noting here that the Climax plough is being worked by an average sized pair of this locality and it turns out much better and more thorough work than a country plough. It may be necessary to rotate one green manure crop with another to suit the changing conditions brought on by green manuring. A field may with advantage be not under a green manure crop for a year just as land is fallowed in regular rotation.

If a green manure crop is on a fertile land or the growth of the crop is very thick the land often requires a dressing of a phosphatic manure. This is probably due to the increased nitrogenous and other matter supplied by the green manure crop, requiring a proportionately increased supply of phosphates to enable the crop to take full advantage of the situation.

The above points are being brought to the notice of the ryots through the efforts of the Agricultural Department and even the few people that had taken wrong lines and got disappointed are one by one coming forward to take it up again.

K. Unni Krishna Menon.

Some experiments in Manganallur Agricultural Station.

While on a visit to the Manganallur Agricultural Station, I had the opportunity of meeting a retired government official who is spending the days of his retirement in taking care of his lands which he probably purchased during his official career. He had heard of the Farm in his district of Tanjore where he was told that improved varieties of seed could be obtained and with the object of obtaining them and getting some information about the improvement of his lands, he visited the farm one morning. He evinced a great deal of interest in all that the Manager had to say and he congratulated