

Economic Planting of Rice

Transplanting is the normal practice obtaining over the larger part of the area under irrigated rice. Fourfifths of the rice grown in the world is transplanted and almost all countries like Spain, Italy, Japan etc., where the highest acre yields of rice are recorded adopt transplanting. The fact that the yield per acre is increased by transplanting is well recognised.

For a long time past the Agricultural Department has been advocating the economic methods of transplanting rice, by the reduction of the seed rate usually adopted. Sturdy seedlings tiller better producing larger earheads. Sturdy seedlings can be raised only by thin sowing of the nurseries. Thin sown nursery produces a better type of seedlings, than in a thick sown nursery. Their early vigour is reflected in a higher yield. Experiments at most of the Rice Research Stations, Samalkota, Maruteru and Coimbatore over a number of years have shown definitely that the crop grown from thin sown nursery always gave increased yield ranging from 6 to 15 percent, compared to the crop raised from thick sown nursery. The Common practice is to sow thick using $7\frac{1}{2}$ to 12 lbs. of seed paddy for each cent of nursery and raising about 5 cents of nursery for planting an acre of the field. Some seeds do not germinate, while some that germinate lag behind in growth. The nursery is over-growthed and the seedlings grow lanky and matted together. The women who transplant have a certain "feel" of the thickness of the bunch of seedlings they hold between their fingers, plant only that number of seedlings that give them that correct "feel". Counts have shown that there are as many as 20 seedlings per bunch thus planted. Associated with thick sowing there is a tendency always for the women to plant in bunches wide apart.

In the economic method of planting advocated by the Department only 3 lbs. of seeds are required for sowing in one cent of nursery, 7 to 8 cents of nursery are required for providing enough seedlings per acre in the case of medium duration varieties or 10-12 cents for Kar varieties. The seedlings grown in such thin sown nurseries are robust and thick and fewer number of them give the required "feel" for the transplanting. Generally, for medium and long duration varieties 6"-8" spacing between the plants and for short duration kar varieties 4"-5" spacing is the optimum. Compared with the common practice of thick sown nurseries, the method of economic planting with a reduced seed rate advocated by the Department gives a saving of at least 25 lbs. (10 m.m.) of seed per acre. By adopting the reduced seed rate over the 10 million acres of paddy in the Province, there will be a saving of nearly a lakh of tons of paddy seed. By this simple improvement in cultural practice in Tanjore District alone, there will be a saving in seed paddy that would be enough to feed its entire population for three weeks. Thus sowing thin in the paddy nurseries, besides giving a definite increased yield assures immediately an appreciable saving in seed. (From the Director of Agriculture).

Agricultural News Letter

Rust Resistant Strain of Korra. The Korra crop in the Ceded districts is invariably susceptible to the disease known as *rust*, characterized by rusty brown spots on the leaves. In certain seasons, when the intensity of the disease is high, the yield of the crop is considerably reduced. A selection S. I. 3756 evolved at the Millet Breeding Station, Coimbatore, has been found to comparatively resist the

disease better than the local. Tests that were conducted for the past three seasons in the Bellary district have conclusively proved its suitability to resist the disease and yield higher than the local. Seeds of this strain can be had from the Superintendent Agricultural Research Station, Hagari (Bellary District).

Improved Strain of Irrigated Cholam. A high yielding strain, K. 2, has been found suitable for cultivation in the two seasons—January,–February and April May, in Tirunelveli district. The strain is short in height and matures earlier than the local by about 10 days. The ear-heads are medium sized and compact with well-set white pearly grains. The cultivation of the strain not only saves the cost of one irrigation but also gives extra produce valued at Rs. 37–8–0 per acre at the present price of cholam.

New Ragi Strain. K. 1. ragi yielding 18 per cent over the local (288 lbs. per acre) isolated at the Agricultural Research Station, Koilpatti, is now available for distribution. The new strain resembles the local in respect of duration ear-head etc., and at the present price of ragi, a net profit of Rs. 36/- per acre is expected out of its cultivation.

Hybrid Cumbu. Two new hybrid cumbu varieties X. 1 and X. 2 were recently released for trial from the Millet Breeding Station, Coimbatore. They have been produced by crossing promising pure lines which exhibited the maximum hybrid vigour when crossed. District trials, conducted in Tiruchirapalli district in the Musiri and Perambalur taluks have been very encouraging. Extensive trials are being arranged in the coming season to find other areas suitable for cultivating the hybrid cumbu X. 1 and X. 2.

Advice to Fruit Growers. Malta, Nepali oblong, Italian, Rajahmandry and Lucknow seedless are the most promising varieties of lemons, which commence to bear within two years of planting. Layers of these varieties are produced on a large scale at the Government Fruit Nursery, Kodur and at some of the Agricultural Research Stations in the Province. About twenty reputed mango varieties introduced for trial from North, Central and Western India, failed to fruit even after ten years of planting at the Fruit Research Station Kodur in the Cuddapah district. Efforts made to induce them to flower by adopting devices such as ringing the trunk and their branches and smudging the trees did not prove successful. The fruit growers of this Province are therefore advised not to introduce for commercial planting fruit varieties from other parts of India, however high their reputation may be, in their native habitat, but plant only varieties of known performance tested by the Agricultural Department.

Green Manure. An acre of paddy field requires 25 to 30 lbs. of small sized green manure seed like Pillipesara, *Sesbania speciosa* etc. Efforts to produce seed of this green manure crop on the paddy field bunds at the several Agricultural Research Stations show that it is easily possible to obtain 25 lbs. of seed from *Sesbania speciosa* planted on the well-trimmed field bunds of an acre of land immediately after planting paddy in July-August. Planting of seedlings is to be preferred to dibbling seed directly on the bunds. Nursery of *Sesbania speciosa* should be sown on a small high level plot four to five weeks in advance of the completion of paddy planting in one's holding. The plants grow quickly and commence to flower in November. Pods ripen by middle of January.

Coconut Seedlings. In order to supply the public with selected seedlings at comparatively low price, a comprehensive coconut nursery scheme financed by the Government and the Indian Central Coconut Committee was sanctioned by the Government of Madras in October 1948, and was put into operation from 10th

November 1948. Eight nurseries have been started at the eight research stations, viz., Anakapalle, Samalkot, Maruteru, Tindivanam, Pattukottai, Coimbatore, Pattambi and Nileshwar. Under this scheme, it is proposed to produce annually 160,000 seedlings to plant about 2,000 acres. Seednuts from selected trees having all the desirable characters will be collected mainly in the months of February to June and the supply of seedlings will commence from July and continue throughout the monsoon months.

Quality in Fruit Products. To prevent a large number of spurious and synthetic fruit drinks with little or no fruit in them but with plenty of essences and brilliant colours being sold under false labels and passed off as first class and real fruit juices, the Fruits Products Control Order, 1948, has been brought into force by the Government of India. Under this order, it is necessary for a manufacturer to possess a licence before opening any fruit preservation concern, and the products manufactured have to conform to certain standards. The Bio-chemist, Government Fruit Products Research Laboratory, Kodur, who is in charge of this order will give guidance and advice to manufacturers already in the field and those proposing to start new concerns.

Pith formation in Sugarcane. Sugarcane stem is generally solid in structure made up of mostly soft tissues full of sugary juice. Under certain conditions of cultivation and weather, the stem forms hollows in the centre or the stem may be composed of dried up non-juicy tissue. Such deterioration in cane is termed as pithiness in sugarcane. This will result in a loss in tonnage of cane and sugar. Hollowness or cavity pith in the stem is generally formed at the base and it spreads to the top. The dried up tissue or corky pith is formed at the top only. Pith formation leads to poor juice quality and low recovery of sugar besides low extraction percentage. Pith formation is a varietal character. C. O. 527 forms large amount of corky pith at the top; C. O. 449 and C. O. 349 form large cavity at the bottom and Pith formation in C.O.419 is comparatively low. Application of a large dose of Nitrogen, arrowing (shoot-ing into blossom) or flowering, too frequent or copious irrigation or raising the crop under swamp conditions and continuous ratooning encourages pith formation. Pithi-ness also develops when cane is not harvested at the optimum stage of ripeness.

Preservation of Seed Potatoes. Seed material from the main crop of potatoes on the Nilgiris develop several long sprouts and shrink very much in long storage. The development of long sprouts are disadvantageous as they use up a fair proportion of the reserve food. They also break easily while handling. "Fusares" a Bayer Product, brings about the inhibition of the sprouting when dusted over the seed tubers soon after harvest and the treated tubers remain firm and the sprouts are short. One pound of dust is sufficient to dust two hundred-weights of seed.

DDT and Benzene Hexachloride. Recent investigations have shown that it is possible to control most of the insect pests by a judicious use of either Benzene Hexachloride or DDT. DDT either as a 5 per cent dust or 0.1 per cent spray and that it is a specific for jassids on bendai, brinjal, cotton and paddy. The spray was found to have a salutary effect against the pests of cruciferous plant also. Yet another interesting finding about DDT is the control of Agathi weevil. This is a serious pest in Betelvine gardens against which we were till now practically helpless. Dusting with DDT 5 per cent was recently found to cause over 90 per cent mortality. The owners of betelvine gardens are so convinced of the beneficial effect of this treatment that they are now coming forward to have their entire infested gardens treated. The betelvine bug is another major pest of the garden. The same chemical was found capable of decimating this pest also. Benzene Hoxachloride has specific action against some other insect pests. The dust was found effective against striped bug of paddy.

Disease Position in the Province. A case of plant poisoning was investigated at Kollegal taluk of Coimbatore district. The village affected was Kamakarai about 10 miles from Kollegal situated on the border of the hills. It was reported that a batch of fifteen animals belonging to two owners died suddenly within half an hour after eating a wild variety of grass called "Kagayanagallu" in Canarese. The plant resembles elephant grass, growing upto 4½ to 5 feet in height. Animals exhibited shivering, salivation, giddiness, rolling of eyeball, dilatation of the pupil, tympany prostration, struggling and death. Since the symptoms were highly suggestive of Hydrogen cyanide, samples of grass were sent to the Government Analyst, Guindy and the Research Officer, Toxicology Section, Medical College, Madras both of whom confirmed the findings as positive for Hydrogen Cyanide".

Artificial Insemination. In May 1949 the number of animals inseminated was 85. Five calves born by Artificial Insemination were verified. In June 1949, the number inseminated was 45 and the number of calves verified was 5.

Research Notes

In the crop-weather data collected in 1948—49 in regard to the two varieties of cholam, viz., Co. 1 (Periamanjai) and Co. 3 (Talaivirichan), grown side by side, it appears that Co. 3, inspite of its tillering habits, has got the capacity to utilise the soil moisture in a more economical manner than Co. 1.

Fortnightly soil samples at three different depths in the portions of the same field occupied respectively by these two strains were taken for assessing, in duplicate, the moisture contents. The mean of the averages of the soil moisture data as percentage are presented hereunder—'depth-war',—with reference to each important growth phase of these two varieties of cholam :—

S. No.	Details of the growth phase	Depth at which the soil sample is taken						Total rainfall in inches during the period	Acre yield in lb.			
		3"		6"		12"			Co.1		Co.3	
		Co.1	Co.3	Co.1	Co.3	Co.1	Co.3		Grain	Straw	Grain	Straw
1.	Sowing to flowering (3—8—1948 to 15—11—1948).	6.35	6.96	9.63	10.74	12.40	14.25	2.75	114	2544	124	2707
2.	Flowering to ear formation (16—11—1948 to 31—12—1948)	10.27	10.96	10.58	10.79	13.40	14.59	2.78				
3.	Seed maturing stage (1—1—1949 to 25—1—1949)	4.04	4.53	6.90	6.47	10.85	9.64	Nil.				

If the water requirements of these two strains of cholam are similar, there should not be any difference between the moisture contents at everyone of these stages and that too in regard to each depth. In the first two phases of growth, Co. 1 seems to have consumed more soil moisture than Co. 3; but in the third phase of growth, Co. 3 looks like requiring more soil moisture, particularly from deeper