

“Some facts of Importance to Paddy-Growers”

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1. *The maintenance of seed-purity in paddy strains.*—The Paddy breeding station, Aduturai was started in 1922 and the selection-work on paddy that had previously been commenced at the old Mangauallur Agricultural Farm, was continued at this station. As a result of several years of arduous work nine improved strains of paddy have been evolved and seed of these pure strains distributed to ryots in the Cauvery delta to be grown in place of the inferior, mixed, local seed. These Aduturai strains of paddy have proved very popular and the demand for seed is far in excess of the possible supply. Ryots who have grown these strains have appreciated their qualities of even heading, uniform ripening, and high yield. These good qualities shown by the crops raised from improved strains will be kept up only so long as the seed is kept pure and free from admixture of any kind. If care be not taken to keep the seed pure, the crop deteriorates and the yield diminishes in proportion to the degree of contamination in the seed. It is therefore very essential that precautions should be taken by every ryot for keeping the seed pure.

There are four stages at which seed is likely to get contaminated, to wit, the seed-bed, the planted-field, the threshing floor, and storage receptacles.

‘Seed-bed’.—The nursery fields often contain stray seeds fallen from the last harvested crop. Such seeds should be sprouted and removed, so that they may not get mixed up with the pure seed to be sown. For doing this, the nurseries should be ploughed and water let in for 3 or 4 days and sufficient time allowed for all the seeds lying in the field to sprout up. It is uneconomical to hand pick and remove the sprouted seedlings. When all the seeds have sprouted which will be in about a week after the letting in of water, a thorough ploughing will uproot all the sprouted seedlings, and they will gradually rot. The seed beds should then be finally prepared and pure seed sown.

This can be practised in all 'samba nurseries' in the Tanjore delta, since wet nurseries only are adopted for samba crops. However in the case of dry nurseries for kuruvai crop, this precaution is not practicable and the other precautions detailed below should be taken to ensure purity.

Planted fields - The fields in which seedlings are to be transplanted also contain dormant paddy seeds fallen from the previous harvest. It is essential that these residual grains in the field should be sprouted and removed before the field is got ready for planting. This object is easily achieved by letting water into the field after the first ploughing, and keeping the field wet for a week. The residual seeds in the field would have sprouted well by that time, and the subsequent ploughing would uproot and destroy them. The fields should then be got ready for transplanting. The flowering-time of the crop is another stage at which plants belonging to other varieties can be easily spotted out and removed. This operation is called roguing. When the crop has fully flowered the very early and late plants in the field should be pulled out and removed. Other plants which look dissimilar to the general type in height, colour or habit, should also be removed. It is not necessary that this 'roguing' should be done in all the cultivated fields. It is quite sufficient to confine this operation to a small area, the harvested grain from which will provide adequate stock of seed for the next season's sowing. For example, if a ryot is cultivating 20 acres of land with a particular variety of paddy, if roguing should be done only in one field about a 'mah' $\frac{1}{3}$ rd of an acre in extent, he will have enough pure seed for the next sowing.

Lurking rogues.—It is a common practice for some ryots to grow different varieties of paddy in very closely adjacent fields or even in portions of the same field. Whenever two crops, 'sirumani' and 'Nellore samba' for instance, are grown in adjacent positions, a certain amount of 'natural crossing' takes place in the rows of the two crops that are in close proximity to each other. This amount of 'natural crossing' has been estimated in paddy to range from 1.4 to 2.9 per cent. If in the two varieties 'sirumani' and 'Nellore samba' grown close to each other, a spikelet of a sirumani plant should get crossed with Nellore

saniba, the resultant grain could not be distinguished from other sirumani grains. The crossed 'sirumani' grain would in the succeeding crop produce a sirumani plant with sirumani-like grains. This is so because 'sirumani' size of grain is dominant to Nellore samba size of grain. Here then is a lurking rogue, a plant so like the true type, but none the less a rogue! The lurking rogue naturally escapes observation and in the next crop produces to the surprise of the ryot, some plants of Nellore samba type and some plants of sirumani type! How then is the ryot to get rid of the lurking rogues that elude the chase. The remedy is very simple, and consists of eliminating the border-crop from the sheaves that are meant to be threshed for seed-paddy.

Threshing floors.—The ordinary ryots' threshing floor is a great source of contamination. Sometimes a common threshing floor is used by several land holders, and often different varieties are threshed on the same threshing floor without any attention being paid to cleanliness. It is not certainly necessary to have costly brick or granite threshing floors, but with the exercise of sufficient care, even the ryots' ordinary threshing floor can be made to serve quite as well. In threshing sheaves, the grain from which is to be used for seed purposes, great care should be taken to sweep the threshing floor free of all stray paddy grains, and the sheaves should be threshed right in the middle of the cleanly-swept space. The grains that get scattered all round the threshing-floor should not be gathered up for seed-purposes. If the seed taken from such carefully-threshed sheaves is kept for sowing the next season, purity of seed will be ensured. Here again, all this care and vigilance need be confined only to threshing small lots, the grain yield of which is to form the seed-stock for the next season.

Storage receptacles.—Very commonly seed-paddy is stored by ryots in straw-twists (kottais) or in gunny bags. These straw twists are dangerous envelopes for seed-paddy. However well straw may be threshed, there will still be found attached to the panicle portions of ill-filled and undeveloped grains. These half-filled and ill-developed paddy grains (commonly known as karukkai) sticking on to the

straw have been found to germinate quite well and grow. Since threshed straw from different varieties of paddy is all usually stacked in the same heap, one can easily imagine what happens when sirumani paddy seeds should be wrapped up in Nellore samba straw-twists. Herein lies the danger of using straw-twists for preserving seed-paddy. If straw-twists cannot be altogether dispensed with for storage the obviously safest course would lie in using the straw of the same variety for each kind of paddy seeds, after making sure that straw of the wrong type has not crept in.

Gunnies again, are receptacles that have to be used with great vigilance. When a gunny is used for storing seed-paddy, it should be turned inside out and the corners and chinks examined carefully for stray grains sticking to the sides. A stray grain of another variety lurking in a corner of the gunny is enough to vitiate seed-purity if left undetected.

Lastly, seed-paddy should be dried occasionally during storage in order to keep off mouldiness, etc., and it is very necessary to exercise the strictest supervision during drying so that a few seeds of one variety do not get mixed inadvertently with seeds of another variety.

2. *Turning to good account leaf and waste organic matter.*—The application of dressings of green leaf as a fertiliser for paddy is recognised by every paddy cultivator. Green leaf is scarce in deltaic tracts, and there is a keen scramble for leaf as soon as freshes in the river arrive and cultivation operations have to be begun. All available green leaf by the side of river banks, channel courses etc. is then hurriedly gathered up and applied to nurseries and fields, but the supply proves very inadequate. If, however, during the rainy season, when hedge prunings, weeds and other organic matter are available in large quantities, should be turned to good account by being composted in pits together with a sprinkling of water-suspension of cattle-dung and bonemeal, a supply of synthetic Farm Yard Manure would have been put by, for use during the ensuing season. Such pits which are used for making Synthetic Farm Yard Manure should be protected from the sun and

rain. If all organic waste matter, such as weeds, green leaves, dry leaves etc. should be carefully utilised for making manure, the manurial problem would be rendered a little easier of solution.

3. *Prevention of crab-damage in paddy fields, and turning dead crabs to manurial account.*—Crabs cause damage to paddy crops in several ways. They nibble sprouting seedlings in the nurseries and also cut across newly planted seedlings in fields. The former mischief results in a dearth of seedlings in seed-beds, while the latter renders it necessary to fill up gaps caused by the destruction of plants. This annoyance is most felt in thin-sown nurseries and economically planted fields. The crabs also make holes through the bunds of fields and a field may get completely drained through these holes at a time when water is most needed by the crop.

A simple method of preventing crab-damage has been adopted at the Paddy breeding station, Aduturai with highly successful results. The device is inexpensive and self acting. A wide mouthed ordinary mud-pot (chattie) is buried in a corner of the paddy so that the mouth of the pot is just flush with the level of the soil in the field. The pot is baited with two handfuls of raw rice bran, moistened, and made into large lumps for convenience in handling. If the whole field is under water, the pot also will naturally get filled with water. This, however, will not wash out the bran in the pot as wet-bran quickly settles to its bottom. The smell of the rice bran attracts the crabs which drop into the pot and are held captive there, the sloping convex neck of the pot effectively preventing all means of escape. The bait, to wit, raw rice bran, may be renewed every alternate day. Usually five crab traps should be placed in each acre field, one near the inlet, one near the outlet, one at the centre, and two at the corners. Since channel courses act as the courses of supply these traps may be put down in beds of channels as well. The irrigator who usually looks after the irrigation and drainage of fields may be entrusted with the looking after and baiting of these crab-traps. The crabs which fall into the pots should be cleared every day, otherwise they die

by drowning after twenty four hours, and the dead bodies start decomposing. The crabs cleared from the pots every day should be killed and thrown into pits, and a layer of earth strewn well over to prevent birds of prey being attracted. This process is repeated every day and when the pits are full, the rotted crab-manure can be dug out and applied to fields. At the Paddy Breeding station, Aduturai a systematic campaign against crabs resulted in the production of over 20 cartloads of manure during one season from the daily catches of crabs in crab pots. Such crab manure when tried in a field scale against an equal bulk of local cattle manure proved to be of high fertilising value. Using a crop of Aduturai No. 1 (Red sirumani) crab manure and village-cattle manure were turned in at the rate of 300 lb. per cent, and the results showed that crop reared on crab manure yielded 11 per cent more grain and 37 percent more straw. The manurial value of dead crabs enhances the usefulness of crab traps, firstly as a preventive measure against damage, and secondly as a beneficial fertiliser for the crop,—a case of "pressing the enemy into service"
