
EDITORIAL

Brighter Prospects for Dryland Rice

ALTHOUGH mudland rice cultivation has made considerable headway in recent years, there has been very little progress in the production of dryland rice, which is grown on the highland in the same way as any other dry-sown crop.

The chief reason for the poor production of dryland rice is the weed factor. Rampant weed growth, especially in the early stages, stifles the rice crop thereby causing a depression in yield by 25% or more and the resulting harvests are far from economic.

When the Agricultural Research Station was set up in Mahalluppallama in the early fifties with the objective of establishing a settled system of arable farming in the dry zone, one of the investigations undertaken was the feasibility of growing dryland rice profitably in the water-logged bottom lands which were found to be unsuitable for the cultivation of most other highland crops.

Early experiments indicated that mechanical weeding was unsuitable because of the short intervals between *maha* showers which did not allow the soil to dry out sufficiently to permit the efficient use of hand or machine-operated weeders.

This finding shifted the emphasis on weed control to the use of suitable chemical herbicides. However, because grasses constitute the dominant weed flora in those areas of the dry zone where dryland rice is sought to be grown, early efforts to find a herbicide that could be used to destroy graminaceous weeds in the standing crop without damaging rice, were disappointing. It was only with the advent of 3, 4 DPA in recent times that it has been possible to bring weed control in rice through chemical herbicides within the bounds of reality.

The best results are obtained when PCP and 3, 4 DPA are used in combination—the former in the pre-emergent phase at the rate of 4 lb. of active ingredient in 80 gallons of water per acre and the latter in the post-emergent period at 2 lb. a.i. in 20-40 gallons of water per acre.

Since weed growth is damaging to the rice crop particularly in the early stages of growth, post-emergent treatment with 3, 4 DPA is found to be most effective when applied at the two-leaf stage of the weeds i.e. between 15th and 18th day after sowing the rice crop. Further applications are unnecessary since the subsequent growth of the rice crop is sufficient to shade out the weeds.

Weeds are not the only problem in a settled system of dryland rice farming. Dry zone soils are known to lose their fertility rapidly. This is why dryland rice cultivation is confined almost entirely to the *chenas* where renewed soil fertility is capable of supporting economic crops for one season or two at the most. On regularly cultivated highland, however, unless the nutritional requirements of the rice crop are supplemented periodically with fertilizers it is not possible to maintain economic yields.

At Mahailuppallama the best response to fertilizers has been achieved with a basal application of 1 cwt. of concentrated superphosphate, 28 lb. muriate of potash and 28 lb. of ammonium sulphate followed by a top-dressing of 1 cwt. of ammonium sulphate per acre one month after sowing.

The climax of dryland rice research at Mahailuppallama—incorporating these findings on weed control, fertilizer practice and land management—was reached in the *maha* season of 1963/64 when a phenomenal average yield of 71 bushels per acre was obtained over a total extent of 24 acres grown with Dikwee 328. The acre cost of production using a full complement of hired labour was Rs. 424. Assuming the sale of 71 bushels at the guaranteed price of Rs. 12 per bushel this would leave a nett profit of Rs. 428.

This exceptionally high yield may be attributed to the perfect timing of all agronomic operations, the unusually favourable weather conditions that obtained during the last season and the utilisation of the results of investigations that have been carried out during the preceeding years. The well distributed rainfall last season has also produced comparable high yields in certain other areas on newly cleared land with its initial high fertility. However, the most important feature of the achievement at Mahailuppallama is the demonstration that careful management and application of correct techniques could produce high yields on land that has been cultivated for 25 years. The Mahailuppallama research team is confident that consistent yields of 50 bushels per acre can be taken from regularly cultivated highland with good management.

BRIGHTER PROSPECTS FOR DRYLAND RICE

The success of dryland rice farming is ultimately linked with the quantity and distribution of rainfall. Meteorological data over the last quarter century have established the fact that there is sufficient rainfall in most areas in the dry zone during the *maha* season to mature a 3½ months crop of dryland rice, provided sowing is done at the beginning of the season in early October.

Dikwee 328 is unfortunately a 4-month variety which may be adversely affected by water shortage if not sown at the correct time. To overcome this hazard, research at Mahailuppallama has been directed towards the breeding of a shorter aged variety in the 3½ month class with comparable yield characteristics. A number of introduced varieties and hybrids have been tested for this purpose and certain Philippine strains have shown great promise of superceding Dikwee. It should not be long, therefore, before a suitable 3½ month strain is selected to meet the peculiar climatic requirements of the dry zone. With the establishment of such a variety it should be possible to further improve the bright prospects that now obtain for dryland cultivation of rice.

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