https://doi.org/10.29321/MAJ.10.A04390

Studies on Dormancy in Rice — A Preliminary Note

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(Received on 19—12—1950)

It is well known that most of the short duration varieties of rice do not require a resting period after harvest as a pre-requisite for proper germination. This is advantageous inasmuch as the seeds harvested in one season come in handy for immediate sowing in the succeeding season. But the disadvantages are more than one. If for any reason the harvest of the ripe crop is delayed, it lodges on account of age or due to wind or beating rain and the grains germinate in contact with water which always stagnates in the field at the harvest time of such early varieties in many parts of the rice-growing tracts. Even if the crop does not lodge and come into contact with the water film beneath, some moisture left in the ear helps to germinate the grains in some of the short duration types. Adt. 19, a strain isolated in the variety Sarapalli, is one which succumbs easily to this condition. It has also been recorded that varieties which have a quick-after-harvest sprouting have also a tendency to lose viability under normal conditions of storage. This is found in some of the medium duration varieties also. Vellaisamba is a case in point. It deteriorates as quickly as some of the short term rices, especially when the seeds in storage have to pass through a heavy monsoon period as in the districts of Malabar and South Kanara.

Since short duration varieties are time-limited, they are less susceptible to the vagaries of seasons, and induction of dormancy in such types of hybridization would prove a useful line of work in rice improvement. By way of preliminary investigation, 140 short duration types mostly Chinese and Japanese, with durations ranging from 80 to 120 days, were selected for study. Ripe earheads from each were collected and immersed in about half an inch of water kept in a shallow tray and the number of grains germinating was counted every day for seven days. Percentage of germination are presented in

TABLE I

Germination percentage of the types

Germination percentage	0–10	11–20	11–30	31–40	41–50	51–60
Number of types	22	6	1	1	...	3
Germination percentage	61–70	71–80	81–90	91–95	96–100	
Number of types	...	3	4	4	150	

Out of the 140 types, 109 gave 91 to 100 per cent germination, 18 types from 10 to 90 per cent while 22 gave nil or up to five per cent germination. The nature and extent of germination in the above varieties, as grouped into four duration groups 50 to 60, 61 to 70, 71 to 80 and 81 to 90 days are brought out in plates I, II, III and IV.

As a result of the study it has been possible to fix up types which are not only very good yielders but are also completely dormant. Interesting variations in after-harvest sprouting of short term varieties could also be observed. The following tentative conclusions were drawn :—

Those that gave 100 per cent germination are those that possess short and broad grains with an L/B ratio of less than three and the husks are coarse, thick and hairy with stiff silica hairs, providing a larger pervious layer for absorption of moisture for quick germination.

It is proposed to follow up this line of work in all the seasons and study the seasonal variations regarding absence of dormancy and its association with size of grain, texture of kernel, thickness of husk and allied characters.