

Preliminary studies on raising three crops of paddy in the same land in one year

by

K. M. PALANISWAMY*

Synopsis: Preliminary studies were undertaken at the Paddy Breeding Station, Coimbatore during 1958-'59 on raising three crops of paddy in the same land in a year with the strains Co. 5, Co. 18, Co. 13 and TKM. 6. The results clearly indicated the possibility of growing three crops of paddy successfully, when irrigation facilities are available, in places where two crops are grown normally in a year. Growing a medium duration variety as the first crop followed by two short duration varieties as second and third crops has been found to be the suitable combination.

Introduction: Due to irrigation facilities becoming available on the completion of multipurpose projects, it appears possible to raise three crops of paddy, in places where two crops are already grown, by proper adjustment of time of sowing and selection of suitable strains. To test the possibilities of fixing up certain strains which could be adapted for treble cropping of paddy in areas where irrigation facilities exist, preliminary studies were taken up at the Paddy Breeding Station, Coimbatore during 1958-'59. The observations made are presented in this paper.

Materials and methods: The strains Co. 5, Co. 18, Co. 13 and TKM. 6 were selected for the study as they are popular among the ryots in the State. The strains were grouped into two combinations viz., combination I consisting of Co. 5, Co. 18 and Co. 13 and combination II consisting of Co. 5, Co. 13 and TKM. 6 for growing in one year. Field A for growing combination I and field B for combination II were selected. A seed rate of 30 lb. per acre was used for each variety. Five thousand pounds of green leaf, 150 lb. of Superphosphate and 75 lb. of Ammonium sulphate per acre were applied as basal dressing and a second dose of Ammonium sulphate at 75 lb. per acre was also applied one month after planting uniformly for each crop in different seasons. Nurseries for the crops were raised in other fields in time and seedlings transplanted in fields A and B adopting a spacing of 10" in between lines and 6" in between plants with 2 to 3 seedlings per hole in the case of the medium duration variety i. e., Co. 5, and 10" in between lines and 4" in between plants with 3 to 4 seedlings per hole in the case of other short term varieties viz., Co. 18, Co. 13 and TKM. 6. Particulars of sowing, planting and harvesting of each strain in the two combinations are presented below.

* Rice Research Assistant, Agricultural College & Research Institute, Coimbatore - 3
(Received on 28-8-1962).

Field	Combination	I crop			II crop			III crop					
		Strain	Date of		Strain	Date of		Strain	Date of				
			Sowing	Planting		Harvest	Sowing		Planting	Harvest	Sowing	Planting	Harvest
A	I	Co. 5	28-9-58	6-11-58	8-3-59	Co. 18	14-2-59	19-3-59	20-6-59	Co. 13	19-5-59	24-6-59	18-9-59
B	II	Co. 5	..	..	..	Co. 13	..	16-3-59	10-6-59	TKM. 6	..	..	..

In field A, after harvest of the second crop on 20-6-1959, the third crop was planted on 24-6-1959 thereby allowing only 4 days for the preparation of the field for the succeeding crop as the duration of the second crop selected was 125 days; whereas in field B, 15 days were allowed in its preparation as the second crop selected was only 110 days. *Sesbania speciosa* was applied to the first crop, and to the second and third crops *Gliricidia maculata* was applied. Harvest was done separately and grain yields recorded for each strain.

Results : The yields of grain recorded in each crop in the two combinations in different seasons are furnished below :

Field No.	Combination	I crop		II crop		III crop		Total yield in one year lb/ac.	% of addl. production by growing III crop
		Strain	Yield lb/ac.	Strain	Yield lb/ac.	Strain	Yield lb/ac.		
A	I	Co. 5	2,265	Co. 18	1,706	Co. 13	1,071	5,042	27%
B	II	Co. 5	2,365	Co. 13	2,200	TKM. 6	1,224	5,789	27%

It is seen that by growing a third crop of paddy in fields A and B where usually two crops were grown previously, an additional production of 27 per cent has been obtained in each. This increase in production has been found to fetch profit to an extent of Rs. 74/ per acre. It, therefore, clearly indicates the possibility of growing three crops of paddy in the same land in a year. Combination I has yielded 5,042 lb. per acre in one year whereas combination II has yielded 5,789 lb. per acre i.e., an increase of 14.8 per cent more than the first.

To find out the influence of raising the third crop in the same land in one year on the yield of the succeeding paddy crop i.e., first crop of the next year, a popular medium duration variety viz., Co. 2, which matures in 150 days was grown in the same fields and yields recorded. The same manurial schedule i.e., five thousand pounds of green leaf and 150 lb. of Ammonium sulphate to supply 55 lb. N. and 150 lb. of Superphosphate to supply 24 lb. P₂O₅ was also adopted in fields A and B separately. In field A where combination I was grown, an yield of 1,941 lb. of grain per acre

was obtained and in field B where combination II was grown an yield of 2,640 lb. of grain per acre was recorded. The yields thus obtained were found to be normal.

Discussion: While reviewing the cultivation practices in India, Ghose *et al.* (1956) have stated that in South India double cropping of rice is practised. Srinivasan (1934) has stated that in southern districts comprising Thanjavur, Tiruchirapalli, Madurai, Tirunelvely and portions of Coimbatore and South Arcot, where assured source of irrigation is available, two crops i. e., short duration *kuruwai* or *kar* (June to September-October) followed by a long duration *samba* variety (October to February-March) are grown. A medium or late duration variety is grown as a first crop from June to November and an early duration variety from January to April. In Cuttack, Vachhani (1955) found that by growing two rice crops followed by a green manure crop as third crop a total yield of 4,667 lb. of paddy per acre was obtained in a year. In an experiment conducted at the Central Rice Research Institute, Cuttack, it has been found that growing a medium duration variety followed by a short duration variety and a green manure crop before the first crop yielded 3,949 lb. of grain per acre in one year whereas 3,889 lb. of grain per acre was obtained when a long duration variety followed by a short duration variety and a green manure crop before the first crop were grown. This is in conformity with the proper selection of medium duration variety as first crop and a short duration strain as the second crop. It is therefore recommended that three crops of paddy be tested in other places and strains (fixed up) from among the available strains best suitable for different seasons in a year.

Conclusion: The results indicate the possibility of growing three crops of paddy successfully, when irrigation facilities are available, in places where two crops are grown normally in a year, by selecting suitable photo-periodically insensitive or period fixed strains in a judicious combination. Growing a medium duration variety as a first crop followed by two short duration varieties as second and third crops is found to be a suitable combination for raising three crops in a year. Combination II viz., growing Co. 5, Co. 13 and TKM. 6 strains was found to give 14.8 per cent more yield than combination I i.e. growing Co. 5, Co. 18 and Co. 13.

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