

Research Notes

Effect of seed age on seedling vigour and production potential of ASD rice varieties

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Rice is the staple food of over 60% of world population and contributes about 40% of dietary requirements. Rice seeds being its orthodox nature can be stored and used for seed purpose upto 9 months under ambient condition. Seed, the basic biological entity for any crop production starts ageing immediately after it attain physiological maturity in the mother plant. The living unit starts respire when it gets separated from its source of origin and there starts the seed age.

Rice Research Station, situated at Ambasamudram of Tirunelveli District coming under Tambarabarani river tract region, meets out a portion of seed requirement for rice production of this region. Normally rice cultivation in this tract comprises of two seasons (Kar and Pishanam). The second season i.e. Pishanam commences immediately after the harvest of the 1st season crop i.e. Kar. During this time, there is a very high demand for paddy seeds at Rice Research Station, Ambasamudram. Hence the Kar season seeds were processed and supplied to farmers for the Pishanam sowing. But the farming community who are in need of paddy seeds for their second crop is very reluctant to buy and sow the Kar season seeds as it is very fresh (i.e. 30-45 days old). Farmers are very fond of sowing old seeds of paddy wherein the crop performs better than the newly harvested seeds according to their pre conceived idea.

In order to drive away the preconceived idea of farmer's about the use of fresh and old seeds, this field experiment was laidout at Rice Research Station, Ambasamudram using varieties ASD 16 and ASD 18 for two seasons. The seed quality parameters viz., germination percentage, root length, shoot length, drymatter production and vigour index were evaluated before sowing of the seeds and observations were made on plant height, productive tiller/plant, panicle length, number of spikelets per panicle and seed yield (kg/ha) under field conditions. For all the characters evaluated, no significant variation was observed for any of the parameters studied in the rice variety ASD 16 and ASD 18. Therefore it was concluded that Kar season seeds can be used as seed for the second crop i.e. in Pishanam season without any yield reduction.

Several studies were conducted at the Dept. of Seed Science and Technology, Coimbatore in many crop varieties, about the use of fresh and old seeds for sowing. Those studies revealed that no significant variation for the vigour and production potential of fresh and old seeds (Anonymous, 2007). However the aged seeds registered decline in values of all the vigour parameters as the period of storage prolongs.

Investigations carried out at Rice Research Station, Ambasamudram revealed that the rice varieties ASD 16 and ASD 18 when swn

Table 1. Biometrical, yield and seed quality attributes - Var. ASD16

Parameters	S ₁		S ₂		S ₃		CD (0.05%)
	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂	
Plant height (cm)	88.3	88.9	89.6	90.0	90.5	89.5	1.48 (NS)
Productive Tiller (No.) / plant	7.1	7.3	8.7	8.8	10.2	8.4	0.98 (NS)
Panicle length (cm)	21.5	21.8	22.0	23.0	23.4	22.8	0.53(NS)
No.of fertile spikelets/ panicle	102.8	114.6	131.7	128.0	142.0	133.6	2.6(NS)
Seed yield (kg/ha)	4950	5250	5080	5230	5367	5600	219.2(NS)
Germination percentage	92.3	91.0	93.0	92.8	93.3	93.3	0.12(NS)
Seedling length - root(cm)	19.2	19.3	19.3	19.3	19.4	19.5	0.16*
Seedling length - shoot (cm)	15.6	15.7	15.4	15.0	15.5	15.3	0.12(NS)
Drymatter production (mg/10 seedlings)	141.2	144.4	142.3	145.2	145.2	144.5	0.32(NS)
Vigour index	3216	3181	3227	3238	3260	3284	--

Table 2. Biometrical, yield and seed quality attributes - Var. ASD 18

Parameters	S ₁		S ₂		S ₃		CD (0.05%)
	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂	
Germination percentage	92.3	91.8	91.6	92.8	93.0	93.0	0.16(NS)
Seedling length - Root (cm)	15.8	15.0	15.3	14.8	15.6	15.6	0.44*
Seedling length-Shoot(cm)	14.4	14.3	14.8	14.7	14.8	14.8	0.22(NS)
Drymatter production (mg/10 seedlings)	142.8	142.4	143.2	143.5	144.2	143.8	0.16(NS)
Vigour index	2788	2657	2768	2747	2805	2921	--
Plant height (cm)	74.9	76.6	75.2	75.5	79.4	75.6	1.48(NS)
Productive Tiller (No.) plant	8.9	9.5	10.3	9.9	10.5	11.6	0.98(NS)
Panicle length (cm)	21.9	21.5	21.8	21.7	23.3	23.2	0.66(NS)
No.of fertile spikelets/ panicle	85.8	81.7	96.5	97.2	124.3	105.6	0.22(NS)
Seed yield(kg/ha)	4416	4250	4500	4450	5150	4700	54.6(NS)

Abbreviation used

S ₁ - Dry seed	A ₁ -	Old (8 months old seeds)
S ₂ - Water soaked seed	A ₂ -	Fresh (30-45 days old seeds)
S ₃ - Carbendazim treated seed		

as freshly harvested (30-45 days old) or 8 months after harvest registered no variation for its seedling vigour and subsequent production potential under field conditions which were showed by the recorded values of all the parameters that were evaluated (Table 1 & 2).

It is evident from the field experiment that, freshly harvested rice seeds (30-45 days old) from Kar season can be used for the subsequent sowing in the Pishanam season.

And hence the farmers of Tambaraparani tract can be advocated to use Kar season seeds for immediate sowing in Pishanam after required seed processing.

References

Anonymous (2007). Dept. of Seed Science and Technology, TNAU, Coimbatore (Compiled in 25 years of Seed Research Manual).

Madras Agric. J., 95 (1-6): 218-222 January-June 2008

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Antibiotics for the management of bacterial fiacherie of silkworm, *Bombyx mori* L

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Supplementation of mulberry leaves with antibiotics viz., streptomycin sulphate, gentamycin, cloxacillin and kanamycin at 0.05 and 0.1 per cent concentration resulted in lowering the fiacherie incidence significantly compared to control. (Baig *et al.*, 1990). Sridar *et al.* (2000) reported that, administration of ampicillin @ 500 ppm reduced the incidence of fiacherie from 63 to 39 per cent with an increase in larval weight, cocoon weight, shell weight and shell ratio by 12.0, 13.6, 32 and 1.3 per cent, respectively over the pathogen inoculated larvae. Oral administration of six antibiotics viz., ampicillin, amoxycillin, cephalixin, cloxacillin, chloramphenicol and tetracycline in four concentrations of 1.0, 1.5, 2.0 and 2.5 per cent showed a positive impact on larval growth and cocoon characters, besides

elevating silk filament length (Savithri *et al.*, 1999).

A study was conducted in the Department of Sericulture, Tamil Nadu Agricultural University, Coimbatore to identify effective antibiotics for the management of flacherie disease in silkworm, *Bombyx mori* L. both by conducting *in vitro* and *in vivo* studies using the isolated *Bacillus thuringiensis* strain, 01-TAD -01.

In vitro effect of antibiotics on the growth of *B. thuringiensis* strains

Using the filter paper disc diffusion technique, inhibition zones around the discs were measured for determining the antimicrobial activity of the antibiotics. The inhibition ranged