

STORAGE LIFE OF SPROUTED RICE SEED AS INFLUENCED BY LEAF LINING MATERIALS IN COUNTRY BASKETS

The coastal belt of Kerala has a unique system of paddy cultivation in saline soils using a saline resistant rice variety **pokkali** and this system of cultivation is locally known as 'pokkali cultivation' or saline farming. In this type of cultivation, a special method is adopted for sprouting the pokkali rice seeds. The seeds are tightly packed in country baskets made of plated coconut leaves, the inside of which are lined by materials like banana or teak leaves (Tomy *et al.*, 1984). An observational trial was taken at the Rice Research Station, Vyttila to evaluate the best lining material to be used in the country baskets used for sprouting seeds.

The experiment consisted of six lining materials and three time intervals. The lining materials used were karinghota (*Samadera indica*) leaves (V1), banana (*Musa sp.*) leaves, (V2), koova (*Curcuma zerumbet*) leaves (V3), polyfilm 250 gauge (V4), polyfilm 600 gauge (V5) and teak (*Tectonia grandis*) leaves (V6). The time intervals were 2, 3 and 4 weeks after soaking. Three sets of baskets made of plated coconut leaves, the inside of which were lined with the above lining materials were used for sprouting the seeds. Each basket was filled with 7 kg of Vyttila 1 rice seeds. The baskets were then soaked in water for 18 hours, after which they were taken out and stored in shade for 2, 3 and 4 weeks. Observations were taken on percentage of germinated seeds, ungerminated seeds and decayed seeds after 2 weeks, 3 weeks and 4 weeks storage period and data were statistically analysed.

From Table 1, it can be seen that

at two weeks period, koova leaves gave significantly highest percentage of germination which was on par with banana leaves and karinghota leaves. During three weeks and four weeks periods banana leaves and koova leaves respectively gave significantly higher percentage of germination which were on par with all other treatments except polyfilms of 250 and 600 gauges.

With regard to decayed sprouts, koova leaves gave significantly lowest percentage both at two and four weeks periods and was superior to all others. At three weeks periods, banana leaves gave significantly lowest percentage and was on par with koova leaves (Table 2).

In the case of percentage of ungerminated seeds, the effect was significant only at three and four weeks periods. During three weeks period, teak leaves gave significantly lowest percentage and was on par with karinghota, koova and banana leaves. But during four weeks period, koova leaves gave significantly lowest percentage which was on par with banana and karinghota leaves (Table 3).

The reason for the low percentage of germination noted in the polyfilms may be the poor drainage of water from the baskets and difficulty in oxygen exchange. When seeds in tightly packed baskets were soaked in water, seeds expanded by imbibition of water and the pressure and temperature inside the basket were increased. When the excess water in the basket was drained off, oxygen entered in the interspaces and the seed started sprouting utilising the available moisture and oxygen. By the

Table 1. Effect of lining materials on germination of seeds (%)

Treatments	2 weeks	3 weeks	4 weeks
V1	88.3 (70.04)	87.8 (69.57)	79.0 (62.79)
V2	88.6 (70.09)	90.5 (72.04)	81.8 (64.77)
V3	92.8 (74.60)	89.0 (70.75)	87.5 (69.39)
V4	68.3 (55.82)	66.5 (54.72)	35.8 (44.97)
V5	82.0 (66.55)	64.5 (53.52)	10.3 (18.52)
V6	81.0 (65.72)	88.5 (68.9)	77.8 (58.13)
CD (0.05)	(4.84)	(5.83)	(17.21)

Figures in brackets are mean values in angles

Table 2. Effect of lining materials on percentage of decayed sprouts

Treatments	2 weeks	3 weeks	4 weeks
V1	5.8 (13.67)	5.5 (13.49)	12.0 (20.19)
V2	4.3 (11.61)	1.5 (4.99)	10.0 (18.27)
V3	2.0 (6.81)	4.0 (11.49)	4.8 (12.12)
V4	20.5 (26.86)	21.3 (27.07)	45.5 (42.40)
V5	9.3 (15.55)	20.3 (26.08)	73.5 (22.26)
V6	13.8 (20.04)	6.8 (14.79)	73.5 (22.26)
CD (0.05)	(4.49)	(7.65)	(5.91)

Figures in brackets are mean values in angles

Table 3. Effect of lining materials on percentage of ungerminated seeds

Treatments	2 weeks	3 weeks	4 weeks
V1	5.9 (14.11)	6.7 (15.01)	9.0 (17.29)
V2	7.1 (15.45)	8.0 (16.11)	8.2 (16.81)
V3	5.2 (13.15)	7.0 (15.19)	7.7 (16.12)
V4	11.2 (19.10)	12.2 (20.92)	16.2 (23.70)
V5	8.7 (16.68)	15.2 (22.92)	16.2 (23.70)
V6	5.1 (12.91)	4.7 (14.45)	7.4 (22.71)
CD (0.05)	NS	(3.97)	(3.38)

Figures in brackets are mean values in angles

respiration of seeds and sprouts the available oxygen inside the basket was exhausted and the anaerobic condition prevented further growth and the sprouts thus remained quiescent up to four weeks. The pokkali cultivation primarily depends on the availability of south west monsoon. So when the soil and weather conditions become

favourable for sowing, the baskets containing sprouted seeds are resoaked in water and used for sowing.

The results indicated that koova leaves, banana leaves, karinghota leaves and teak leaves are better lining materials for the country baskets used for sprouting pokkali seeds.

Rice Research Station
Vytila 682 091, Cochin, India

Reena Grittle Pinhero
T.U. George

REFERENCES

- Tomy, P.J., Goerge, T.U. and Jose, S. 1984. *Pokkali Cultivation in Kerala*, Kerala Agricultural University, Trichur, pp.10

□ □ □