

OPTIMUM TIME OF SOWING FOR SESAMUM IN ONATTUKARA*

Onattukara is an important rice growing tract of Kerala. This typical coastal sandy tract is ideally suited for raising sesamum in summer season after the second crop of rice since some rainfall is received during December before the harvest of mundakan rice which provides adequate residual soil moisture for raising this crop. One of the important constraints faced by the farmers is the poor stand establishment of the crop either due to excess or inadequacy of soil moisture. The present investigation was taken up to find out an optimum time of sowing for getting optimum plant population and better growth and yield.

The experiment was conducted during the summer rice fallow season of 1979-80 at the Rice Research Station, Kayamkutam with the variety Kayamkulam 1 (75-80 days). The seed rate used was 5 kg/ha⁻¹ and a uniform dose of N, P₂O₅ and K₂O@ 30:15:30 kg ha⁻¹ was applied as basal. The trial was laid out as a factorial experiment in randomised block design with three replications. The treatments were as follows.

i. Time of sowing

- T₁ Sowing the next day after harvest of second crop of rice
- T₂ Sowing five days after first sowing
- T₃ Sowing ten days after first sowing

ii. Methods of preparatory cultivation

- M₁ Sowing and ploughing after harvest of second crop of rice
- M₂ Ploughing, sowing and harrowing after harvest of second crop of rice
- M₃ Ploughing, harrowing, sowing, harrowing and planting after harvest of second crop of rice
- M₄ Ploughing, sowing behind country plough after harvest of second crop of rice
- M₅ Dibbling in lines in stubbles after harvest of second crop of rice.

The crop was sown as per treatments on 25-1-1980, 30-1-80 and 4-2-80. The first sown treatments were harvested on 75 days after sowing (DAS) and out of the second sown treatments, M₁T₂ and M₄T₂ were harvested on 70 DAS while the other treatments M₂T₂, M₃T₂ and M₅T₂ were harvested on 74 DAS. The last sown treatments were harvested on 69 DAS.

The results of analysis on time of sowing are given in Table 1. A significant difference could be seen in plant population per plot due to time of sowing. The treatment T₂ recorded the maximum number of plants, but is on par with T₃. The first sowing (T₁) recorded a significantly lower population. When seeds were sown

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Table 1

Effect of time of sowing on plant characters, seed yield and quality characters of sesamum

Treat- ments Time of sowing	No. of plants/ plot	Plant height (cm)	No. of leaves/ plant	Leaf area (cm ² / plant)	No. of capsules/ plant	No, of seeds/ capsules	Seed weight (g/ plant)	Seed yield (kg/ha)	Protein content of seeds (%)	Oil content of seeds (%)	Oil yield (kg ha)
T ₁	628	51.51	13.24	129.97	15.39	38.60	1.29	467.40	19.93	51.70	242.58
T ₂	1036	52.40	21.67	212.43	16.28	39.47	1.57	510.96	19.64	49.17	250.75
T ₃	960	48.03	13.12	125.85	14.77	36.67	1.01	434.38	20.95	46.46	201.32
CD (5%)	155	NS	3.94	26.86	NS	NS	NS	50.83	NS	0.91	24.89

NS=Not significant

one day after harvest of second crop of rice the highest initial soil moisture status (16.44 per cent) experienced might have resulted in reducing the germination substantially resulting in low population. A similar reduction in germination was noticed by Rao *et al.* (1975) and Kunju and Salam (1980) due to excess soil moisture.

Plant height was not affected by time of sowing. However, delay in sowing beyond five days caused a reduction in plant height. Sowing five days after first sowing (T_2) has recorded the maximum value for leave number and leaf area. A favourable soil moisture condition available in this treatment might have favourably influenced the number of leaves and leaf area. T_1 has recorded the lowest values. Soil moisture content was lowest (11.54 per cent at sowing, 9.15 per cent at 15 DAS and 7.68 per cent at 30 DAS) in this treatment. This treatment has come to maturity six days earlier (69 days) than the first sown crop (75 days). The lesser number of leaves observed might be attributed to the low soil moisture content and the reduced number of days available for this treatment for growth and development. Reduction in leaf area under moisture deficiency might be due to reduced cell enlargement under moisture stress conditions (Begg and Turner, 1976).

Though time of sowing did not influence the yield components such as number of capsules per plant, number of seeds per capsule and seed weight per plant, a common feature noticed is that sowing five days after first sowing (T_2) has given the highest value for all these characters followed by T_1 and T_3 .

Time of sowing has significantly influenced the seed yield. T_2 has produced the highest yield. Plant population is an important aspect which determines yield in sesamum. The optimum soil moisture content for maximum germination was found to be 12-13 per cent from a laboratory study. The initial soil moisture content of 13.11 per cent at this time of sowing has naturally favoured an optimum germination and plant population. The values of different yield components were less in T_3 compared to T_1 , coupled with a lesser plant population in T_1 compared to T_2 has resulted in lesser yield in T_3 than in T_1 .

Though the content of protein was not influenced by time of sowing treatments, the oil content was significantly influenced. T_1 has recorded the highest protein content and the lowest oil content. Loof (1960) stated that since oil seeds contain a very little of carbohydrates, only protein and oil are the two major constituents present in major proportion and thus there would have existed an inverse relationship. The total duration was also less (69 days) in this sowing thus causing a reduction in oil content probably for want of sufficient time for conversion of protein to oil. The oil yield is determined by oil content and total seed yield. Therefore, the oil yield has behaved in the same pattern as that of yield since, there is not much difference in oil content between treatments.

A field experiment was conducted during the summer season of 1979-80 at the Rice Research Station, Kayamkulam to study the effect of time of sowing (sowing the next day after harvest of second crop of rice, sowing five days after first sowing and sowing ten days after first sowing) on growth and yield of *sesamum*. Sowing five days after harvest of second crop of rice has recorded the highest plant height, number of leaves, leaf area per plant, yield component and seed yield.

സംഗ്രഹം

ഓണാട്ടുകരയിൽ മൂന്നാം വിളയായി എള്ളുകൃഷി ചെയ്യുവാൻ ഏറ്റവും അനുയോജ്യമായ സമയത്തെപ്പറ്റി കായംകുളം നെല്ലുഗവേഷണ കേന്ദ്രത്തിൽ 1979-'80 ൽ ഒരു പരീക്ഷണം നടത്തുകയുണ്ടായി. മുണ്ടകൻ നെല്ലു കൊയ്തശേഷം 5-ാം ദിവസം എള്ളുവിത്തിട്ടുന്നതാണ് നല്ല വളർച്ചയ്ക്കും കൂടുതൽ വിളവു കിട്ടുന്നതിനും ഏറ്റവും പാറിയ സമയം.

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