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Performance of sesame (*Sesamum Indicum* L.) varieties under different plant geometry during post monsoon season

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Abstract
A field experiment was conducted at the Experimental Farm, College of Agriculture, Parbhani during post monsoon season of 2017 to evaluate the performance of three sesame varieties *viz*., Phule Til-1, AKT-64, JLT-408 under different spacing. The results revealed that the variety JLT-408 recorded highest grain yield (391 kg ha^{-1}) which was found superior over varieties Phule Til-1 and AKT-64. Variety JLT-408 recorded maximum growth and yield than rest of the varieties.

Keywords: Sesame, Plant geometry, Post monsoon season and performance

Introduction
Sesame is one of the world's oldest cultivated oilseed crop. Sesame is a self-pollinated crop which belongs to family *Pedaliaceae*. It is cultivated in warm regions of the tropic and sub tropics. It is grown on the plains up to an altitude of 1200 m with annual rainfall about 500 mm. Sesame is better known as "Queen of oilseeds" by virtue of its quality edible oil, protein content and its resistance to oxidation and acidity even when stored at ambient air temperature. The yields of sesame are generally low due to use of low yielding varieties with poor agronomic management practices such as inadequate plant stand. Thus, adoption of suitable variety and crop geometry will go a long way increasing yield of sesame. In this study the effect of different sesame varieties on growth, yield and yield contributing characters evaluated.

Materials and Methods
A field experiment was conducted during the post monsoon season 2017 at the Experimental Farm, College of Agriculture, Parbhani (Maharashtra) in split plot design replicated thrice with three varieties (Phule Til-1, AKT-64 and JLT-408) and spacings (30 x 10 cm, 45 x 10 cm, 60 x 10 cm and 45 x 15 cm). The soil of experimental field was clayey with low available nitrogen, medium in available P ha^{-1}. The field operations were done as per crop recommendations. The growth and yield attributes, yield were recorded timely.

Results and Discussion
Growth and yield attributes:
The sesame variety JLT-408 recorded maximum height over Phule Til-1 and AKT-64. This might be due to the varietal differences in growth. The similar differences in different sesame varieties as regards plant height were reported by Channabasavanna and setty (1992) [1] and Deshmukh *et al*. (2005) [2]. Variety JLT-408 was found to be superior in recording more number of branches plant^{-1} and number of capsules per plant over Phule Til-1 and AKT-64. These findings are in agreement with Rao *et al*. (1985) [4] and Subrahmaniyan *et al*. (2001) [5]. The yield contributing character *viz*., weight of seed per plant and number of seeds per capsules and capsule yield plant^{-1} were more in variety JLT-408 than the varieties Phule Til-1 and AKT-64 (Table 1). The test weight per plant was not influenced significantly by spacings. Numerically genotype JLT-408 recorded significantly more test weight than Phule Til-1 and AKT-64

Table 1: Number of seeds capsule^{-1}, weight of seeds plant^{-1}, capsule yield plant^{-1} and test weight (g) of sesame crop as influenced by different treatments

Treatment	Number of seeds capsule^{-1}	Weight of seeds plant^{-1} (g)	Capsule yield plant^{-1} (g)	Test Weight (g)
A. Varieties				
V_1 - Phule Til-1	33.12	1.83	5.14	2.82
V_2 - AKT-64	34.27	2.08	5.77	2.86
V_3 - JLT-408	34.56	2.27	6.28	2.90
SE(m)±	0.82	0.06	0.16	0.08
CD at 5%	NS	0.21	0.63	NS
B. Spacings				
S_1- 30 x 10 cm^2	32.83	1.47	4.32	2.71
S_2- 45 x 10 cm^2	33.54	1.95	5.54	2.83
S_3- 60 x 10 cm^2	34.63	2.33	6.19	2.92
S_4- 45 x 15 cm^2	34.92	2.51	6.90	2.98
SE(m)±	0.59	0.12	0.24	0.09
CD at 5%	NS	0.36	0.74	NS
Interaction				
V x S				
SE(m)±	1.03	0.21	0.38	0.16
CD at 5%	NS	NS	NS	NS
GM	33.98	2.06	5.73	2.86

Seed yield

Sesame variety JLT-408 produced significantly higher seed yield than Phule Til-1 and AKT-64 (Table 2). Differential yield potential due to different sesame varieties was reported by Nirval *et al*. (1990), Tripathi *et al*. (2007) [6]. Hence, from the above results it can be concluded that the sesame genotype JLT-408 can be grown at 30 x 10 cm spacing for higher grain yield during post monsoon season.

Table 2: Seed yield (kg ha^{-1}), straw yield (kg ha^{-1}), biological yield (kg ha^{1}) and harvest index (%) of sesame crop as influenced by different treatments

Treatment	Seed yield (kg ha^{-1})	Straw yield (kg ha^{-1})	Biological yield (kg ha^{-1})	Harvest index (%)
A. Varieties				
V_1 - Phule Til-1	315	903.09	1218.09	25.86
V_2 - AKT-64	356	1009.03	1365.03	26.08
V_3 - JLT-408	391	1082.24	1473.24	26.54
SE(m)±	10.06	25.98	41.50	-
CD at 5%	39.51	100.57	164.35	-
B. Spacings				
S_1- 30 x 10 cm^2	412	1135.09	1547.09	26.63
S_2- 45 x 10 cm^2	369	1022.13	1391.13	26.52
S_3- 60 x 10 cm^2	329	935.65	1264.66	26.01
S_4- 45 x 15 cm^2	306	899.61	1205.61	25.38
SE(m)±	12.96	17.84	37.11	-
CD at 5%	37.87	53.01	108.76	-
Interaction				
V x S				
SE(m)±	22.08	30.90	63.40	-
CD at 5%	NS	NS	NS	-
GM	354	998.12	1352.12	26.16

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