

Research Paper :

## Seed yield and oil yield of mesta varieties as influenced by spacing and nutrient sources

K. PUSHPA AND R. KRISHNA MURTHY

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### ABSTRACT

Field experiment was conducted at 19E block at field unit GKVK, University of Agricultural Sciences, Bangalore which is located at a latitude of 12°58' north, longitude of 77°03' east and at an altitude of 930 m above mean sea level in Eastern dry zone (zone 5) of Karnataka to study the seed yield, oil yield of mesta as influenced by varieties, spacing and nutrient sources. The seed yield differed significantly due to different plant spacing, varieties and nutrient sources. Among the varieties, variety AMV-4 recorded significantly higher seed yield (755 kg/ha) than variety HS-108 (582 kg/ha). Significantly higher seed yield was recorded under 45 cm x 10 cm spacing (687 kg/ha) than 30 cm x 10 cm (650 kg/ha). Further, application of 5 t of FYM per ha along with 40:20:20 kg NPK per ha fertilizer registered higher seed yield (698 kg/ha) compared to 100 per cent N equivalent through FYM (626 kg/ha). The oil yield differed significantly due to different plant spacing, varieties and nutrient sources. Among the varieties, variety AMV-4 recorded significantly higher oil yield (130 kg/ha) than variety HS-108 (80 kg/ha). Significantly higher oil yield was recorded under 45 cm x 10 cm spacing (110 kg/ha) than 30 cm x 10 cm (101 kg/ha). Further, application of 5 t of FYM per ha along with 40:20:20 kg NPK per ha fertilizer registered higher oil yield (113 kg/ha) compared to 100 per cent N equivalent through FYM (92 kg/ha).

See end of the article for authors' affiliations

Correspondence to :

### K. PUSHPA

Soil Science and  
Agricultural Chemistry,  
Department of Natural  
Resource Management,  
College of Forestry,  
Ponnampet KODAGU  
(KARNATAKA) INDIA

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**M**esta is one of the important crops which provides fibre, forage and paper pulp and has broadened our agricultural diversity to reduce pressure on forest resources. In recent years, it has been proved that the crop could be allowed to grow upto seed setting stage and the sticks after seed collection can be utilized for pulp production to manufacture all types of paper including newsprints. Its seed contains 18 to 20 per cent oil, which can be directly used in soaps and other industries.

### MATERIALS AND METHODS

The experiments was conducted in 19E block at field unit GKVK, University of Agricultural Sciences, Bangalore which is located at a latitude of 12°58' north, longitude of 77°03' east and at an altitude of 930 m above mean sea level in Eastern dry zone (zone 5) of Karnataka. The soil of the experimental site was red sandy loam. The soil was near neutral in pH with low organic carbon content. The soil was also found to be medium in available nitrogen, available phosphorus, and available potassium content.

The experiment comprised of 16 treatment combinations consisting of two varieties, two spacing trails and four nutrient treatments.

### Treatment details:

Replication : Three  
Design : Split-split plot design

### Main plot treatment: varieties (V):

- 1) AMV-4 ( $V_1$ )
- 2) HS-108 ( $V_2$ )

Sub plot treatment : Plant spacing (S)  
1) 30 cm x 10 cm ( $S_1$ )  
2) 45 cm x 10 cm ( $S_2$ )

Sub-sub plot treatment: N sources (N)  
1) 40:20:20 kg NPK/ha ( $N_1$ )  
2) 40:20:20 kg NPK/ha + 5 t/ha FYM ( $N_2$ )  
3) 30:20:20 kg NPK/ha + 7.5 t/ha FYM ( $N_3$ )  
4) 100 per cent N equivalent through FYM ( $N_4$ )

### Treatment combinations:

The details of the treatment combinations were are as follows.  $T_1$  : AMV-4 + 30 cm X 10 cm + 40:20:20 kg NPK/ha,  $T_2$  : AMV-4 + 30 cm X 10 cm + 40:20:20 kg NPK/ha+ 5 t FYM/ha,  $T_3$  : AMV-4 + 30 cm X 10 cm + 30:20:20 kg NPK/ha+ 7.5 t FYM/ha,  $T_4$  : AMV-4 + 30 cm X 10 cm + 100 per cent N equivalent through FYM,  $T_5$  : AMV-4 + 45 cm X 10 cm + 40:20:20 kg NPK /ha,  $T_6$  : AMV-4 + 45 cm X 10 cm + 40:20:20 kg NPK/ha+ 5 t