

Short Communications

Studies on Yield and Economics of Linseed (*Linum usitatissimum* L.) Varieties under Utera System of Cultivation in Medium Land Ecology for Food Security in Jharkhand

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ABSTRACT

Among the oilseed crops cultivated during rabi season linseed is next in importance to rapeseed – mustard in area as well in production. Today it is considered to be oldest oilseed in the world. India ranks second in area occupies 2.96 lakh ha yielding out 1.49 lakh tones having an average productivity of 502 Kg/ha (2012-13). India contributes about 14.89 % and 6.56 % to world area and production, respectively. The major parts of linseed areas lies in the states of MP, Chhattisgarh, UP, Maharashtra, Bihar, Odisha, Jharkhand, Karnataka and Assam. Our state production of 05 thousand tones is realized from an area of 18 thousand ha with low productivity of 278 Kg/ha (2004). It's value addition has paved the way for it's diversified uses in nutraceutical and medicinal purposes and recently propounded that it is the best herbal source of Omega-3 & omega-6 fatty acids. Mono-cropping with paddy is the dominating cropping system of Jharkhand comprises upland, medium and lowland ecology. The paddy dominated medium and lowland having an area of 6.29 & 4.81 lakh ha, respectively remain fallow after paddy harvesting. The area under utera / paira cropping of linseed is increasing with the decline in lathyrus cultivation. The medium land which remain fallow can be utilized for utera / paira cropping of linseed and other crops like lentil, chickpea & lathyrus by utilizing residual soil moisture for germination and subsequent growth of crop. The better yield of linseed can be obtained with the help of rain shower from January to April. But this system limits the scope of application of modern improved technologies along with use of inputs which results in lower productivity. The suitable variety is the most critical input by using which productivity of linseed can be increased. Thus, this objective taking in mind present study was undertaken to evaluate the suitable variety for increasing growth, yield and economics of linseed production under utera / paira system of cultivation

Keywords

Linseed
(*Linum usitatissimum* L.)
Food Security

Introduction

Among the oilseed crops cultivated during rabi season linseed is next in importance to rapeseed – mustard in area as well in production. Today it is considered to be oldest oilseed in the world. India ranks second in area occupies 2.96 lakh ha yielding out 1.49 lakh tones having an average productivity of 502 Kg/ha (2012-13). India contributes about 14.89 % and 6.56 % to world area and production,

respectively. The major parts of linseed areas lies in the states of MP, Chhattisgarh, UP, Maharashtra, Bihar, Odisha, Jharkhand, Karnataka and Assam. Our state production of 05 thousand tones is realized from an area of 18 thousand ha with low productivity of 278 Kg/ha (2004). It's value addition has paved the way for it's diversified uses in nutraceutical and medicinal purposes and recently propounded that it is the best herbal source of Omega-3 & omega-6 fatty acids. Mono-cropping with paddy is the

dominating cropping system of Jharkhand comprises upland, medium and lowland ecology. The paddy dominated medium and lowland having an area of 6.29 & 4.81 lakh ha, respectively remain fallow after paddy harvesting. The area under utera / paira cropping of linseed is increasing with the decline in lathyrus cultivation. The medium land which remain fallow can be utilized for utera / paira cropping of linseed and other crops like lentil, chickpea & lathyrus by utilizing residual soil moisture for germination and subsequent growth of crop. The better yield of linseed can be obtained with the help of rain shower from January to April.

But this system limits the scope of application of modern improved technologies along with use of inputs which results in lower productivity. The suitable variety is the most critical input by using which productivity of linseed can be increased. Thus, this objective taking in mind present study was undertaken to evaluate the suitable variety for increasing growth, yield and economics of linseed production under utera / paira system of cultivation.

Materials and Methods

The present study was conducted at research farm of Birsa Agricultural University, Kanke, Ranchi during rabi season for consecutive three years (2009-12). The experiment was conducted in Randomized Block Design replicated four times comprising five varieties (T-397, Sweta, Shekhar, R- 552 & Padmini). The broadcasting of seed was done in the standing crop of rice 10-15 days before of harvesting with increased seed rate of about 40 Kg/ha to maintain optimum plant population. After paddy harvesting N was top dressed @ 30 Kg/ha to linseed in addition to 80:60:40::N:P:K Kg/ha to rice in

kharif.

The data on, yield attributes and yield were recorded. The crop was harvested in 2nd fortnight of April. Economic indices viz. gross monetary returns (GMR), net monetary returns (NMR) and benefit: cost ratio (B: C ratio) were computed on the basis of cost involved in the cultivation and value realized from the produce per unit area under various treatments.

Results and Discussion

05 varieties of linseed were evaluated for three years (2009 to 2012) to find out suitable variety of linseed for utera cultivation at Kanke. On the basis of mean data of three (2009-2012) variety T-397 was showed it's superiority over rest of the varieties (Shekhar, R552 & Padmini) and recorded maximum mean seed yield (416 Kg/ha) and it was followed by variety Sweta (373 Kg/ha). On the basis of mean data higher NMR (Rs.9497/ha) and B: C ratio (1.51) was obtained with T-397 and it was followed by Sweta (NMR Rs. 8109/ha & B: C ratio (1.23). This is might be due to deep root system and higher yield potential of crop which resulted better growth of crop through better absorption of residual moisture and nutrients under resource constraints situation also and ultimately contributing to higher yield attributing characters and yield. These results are in conformity with the findings of Chopra and Badiyala (2015).

It is concluded that variety T-397 of linseed having high yield potential coupled with consistent performance under resource constraints situation is more productive and profitable under utera / paira system of cultivation to achieve food security by taking next crop under residual moisture condition.

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