

**STUDIES ON RISK MANAGEMENT IN JUTE CULTIVATION THROUGH JUTE AND PULSE STRIP CROPPING IN EASTERN U.P.**

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Pulses can be inter cropped with jute and give better utilization of resources i.e. soil moisture, nutrients, sun light etc. Pulses grow very vigorously and cover the ground surface, hence they suppress the weeds while do not get favorable conditions for producing seeds thus, the multiplication of weeds is checked. The protein need of Indian people is mostly met by pulses, the cheapest source of protein, apart from the human diet being leguminous, the pulse plants are important for maintaining the fertility status of soil. Considering the importance and possibilities to save precarious input like nutrients, water etc. without hampering the yield and better utilization of land, the present investigation was undertaken to study the feasibility of different pulse crops as intercrop with jute as the main crop.

The experiment was conducted at Crop Research Station, Bahraich (U.P.) during year of 2012-13 and 2013-14. The soil was sandy loam having pH 7.5 organic carbon 2.2 g kg<sup>-1</sup> available N, P, K 210, 12.5, 215 kg ha<sup>-1</sup>, respectively. Seven treatments viz. T<sub>1</sub> – Jute sole crop T<sub>2</sub> – green gram sole crop (variety RMG-62), T<sub>3</sub> – green gram sole crop (variety pant moong-5), T<sub>4</sub> – black gram sole crop (variety Pant U31), T<sub>5</sub> – Jute + green gram, pant moong 5 (9:9), T<sub>6</sub> – Jute + green gram (9:9), RMG-

62, T<sub>7</sub> –Jute + black gram Pant U31(9:9) were tried in randomized block design with 3 replications. Jute variety JRC-212 was sown in the last week of April and pulse crops were sown just after sowing of jute crop according to treatments. All the recommended package of practices was followed as per requirement of jute and pulse crops. The growth and yield contributing characters were noted and yield was recorded at harvest of crop. The economics was calculated on the basis of market prices of input of the produce. Sole crop of jute produced the highest amount of fibre significantly as compared to jute inter cropped with the component crops in view of the higher plant population compared with the inter cropping ones. Among the different intercropping systems, the highest yield of fibre was recorded under jute +black gram as roots provide more synergetic effect to develop jute plants. Black gram being leguminous crop, supplied atmospheric nitrogen through biological nitrogen fixation, Mung bean and black gram also helped to suppress the weeds as they grow vigorously and covered the ground surface since the beginning of growth of jute crop. The maximum plant height (324 cm) and basal diameter (1.53 cm) was recorded from jute sole crop which was found significantly superior over other treatments.

Table 1: Effect of cropping systems on plant growth, yield and economics of jute and pulse crop (mean of two years)

Treatments	Plant height (cm) Jute	Plant height (cm) Puls Crop	Basal diameter of jute (cm)	Grains /pod of pulse crop	Fibre yield of jute (q ha <sup>-1</sup> )	Grain yield (q ha <sup>-1</sup> )	Jute equivalent yield (q ha <sup>-1</sup> )	Net profit (₹ ha <sup>-1</sup> )
T <sub>1</sub> – Jute (sole crop)	324.00	-	1.53	-	26.86	-	26.86	34533
T <sub>2</sub> – Green gram (sole crop) variety RMG-62	-	52.4	-	8.0	-	6.75	21.87	33071.5
T <sub>3</sub> – Green gram (sole crop) Pant mung -5	-	56.6	-	6.75	-	6.60	23.94	31857.5
T <sub>4</sub> – Black gram Pant U31 as (sole crop)	-	45.75	-	5.9	-	5.45	19.35	24087.5
T <sub>5</sub> – Jute + green gram Pant mung -5 (9:9) row ratio	313.45	49.74	1.59	5.9	15.16	5.09	31.84	48016.5
T <sub>6</sub> – Jute + Green gram RMG-62 (9:9) row ratio	306.85	52.2	1.49	6.1	15.05	5.2	31.35	49666.5
T <sub>7</sub> –Jute + Black gram Pant Urd - 31(9:9) row ratio	316.85	48.75	1.61	7.0	15.88	4.51	30.86	44850
CD (P=0.05)	3.57	2.24	0.28	0.03	0.045	0.039	0.75	

The height of jute plant was significantly lower when it was inter cropped with black gram and mungbean. The highest basal diameter of (1.61 cm) was recorded under jute + black gram which was found significantly superior over other treatments. This might be due to synergetic effect of mungbean on jute crop by which jute crop gain more basal diameter. Result indicated that highest plant height (56.6 cm) was noted under sole crop of green gram variety pant moong-5 followed by sole crop of green gram variety RMG-62. Number of pods per plant was recorded with sole crop of mung bean and it was significantly higher over inter cropping of mung bean with jute. The numbers of seeds/pods were significantly higher in case of sole mung bean in comparison to its intercropping system. The highest grain yield ( $8.0 \text{ q ha}^{-1}$ ) was noted under green gram

sole crop. Similar finding were also reported by Singh *et al.* (2012), Mandal and Majumdar (2010).

The highest value of jute equivalent yield ( $63.83 \text{ q ha}^{-1}$ ) was recorded under jute + green gram 9:9 cropping pattern. The lowest jute equivalent yield ( $19.35 \text{ q ha}^{-1}$ ) was recorded under black gram sole crop which might be due to lowest yield of black gram. The highest net income of ₹. 49666  $\text{ha}^{-1}$  was recorded under (jute + green gram variety RMG-62). It may be due to both of jute and green gram yield under same treatment. The lowest net returns of ₹. 24087  $\text{ha}^{-1}$  was noted under sole crop of black gram. The results revealed that higher fibre yield ( $26.86 \text{ q ha}^{-1}$ ) was recorded under sole crop of jute and higher jute equivalent yield of  $31.83 \text{ q ha}^{-1}$  was noted under jute + green gram (9:9) row ratio. The higher net profit of ₹. 49666  $\text{ha}^{-1}$  was noted under (Jute + green gram in 9:9 row ratio).

## REFERENCES

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