

FIBRE CROPS

Jute (*Corchorus sp.*)

Varieties:

Variety	Year of release	Sowing time	Fibre yield (q/ha)	Reaction to stem rot	Remarks
A. <i>C. capsularis</i> :					
JRC 212 (Sabujsona)	1974	Mar-April	22-26	Moderately resistant	Suitable for mid and high land
B. <i>C. olitorius</i> :					
JRO 524 (Navin)	1977	Mid March to May	25-30	Resistant	Suitable for medium low land, resistant to premature flowering
Tarun	2007	End of Mar to May	31.50	Resistant to Stem rot and root rot	Suitable for all agroclimatic zones

Newly recommended *C. capsularis* variety

Variety	Year of release	Sowing time	Fibre yield	Reaction to diseases	Adaptation	Fibre quality
Apeswaree (<i>C capsularis</i>)	-	Mid Feb to April	Av. 25.5 q/ha	Resistant to stem and root rot	Suitable for upland, medium and low land situation	Better with high Fibre Tenacity, 25 g/tex

Newly recommended variety:

Kkhyati (AAUCJ-2) (Year of release: 2017) [Adaptation: All jute growing areas]

Soil: Loam or sandy loam is preferable.

Land Preparation:

Jute requires a clean and fine seedbed. Land is to be ploughed and laddered 5-6 times to obtain a fine seedbed.

In soils where pH is below 5.5, lime should be applied at least 21 days before sowing @ 20-30 q/ha once every 3 years.

Seed Rate:

A) For Line sowing:

- *C. capsularis* : 6-7 kg/ha or 800-900 g/bigha.
- *C. olitorius* : 5-6 kg/ha or 660-800 g/bigha.

B) Broadcast:

- *C. capsularis* : 10-11 kg/ha or 1300 – 1500g/bigha.
- *C. olitorius* : 6-7 kg/ha or 800 - 900g/bigha.

Seed inoculation:

Inoculate seeds with biofertilizers i.e. azotobacter @ 50 g/kg seed and PSB @ 50 g/kg seed.

Spacing:

For line sown crop, the spacing is 22-25 cm between rows and 5-7 cm between plants. Optimum plant stand should be 60-70/sq.m after thinning.

Manures and Fertilizers:

Wherever possible cowdung or compost should be applied @ 5 t/ha during land preparation; and the amount of nutrients thus supplied will be reduced by corresponding reduction from the recommended dose of fertilizer. One tonne of cowdung or compost supplies approximately 5 kg N, 2-5 kg P₂O₅ and 5.0 kg K₂O.

Nutrient	Requirement (kg/ha)	Form	Fertilizer requirement	
			kg/ha	kg/bigha
A. For Capsularis:				
N	40	Urea	88	12
P ₂ O ₅	25	SSP	156	20
K ₂ O	30	MOP	50	7
B. For Olitorius:				
N	30	Urea	66	9
P ₂ O ₅	25	SSP/MRP	156/125	20/15
K ₂ O	25	MOP	42	6

Note: In case of phosphatic fertilizers “Mussorie phos” can be substituted for SSP in olitorius jute at least 3 weeks ahead of final land preparation.

Mode of Application:

Apply 50% and 50% P₂-O₅ and 100% K₂O as basal dressing at the time of final land preparation and the remaining fertilizers at 4-6 weeks after sowing (CBZ, BVZ & NBPZ).

Top dressing of fertilizer mixture grade 8 : 10 : 12 at 15 DAS and MOP with subsequent foliar spray of urea is recommended.

Foliar Spray of Urea:

Where top dressing is not possible, foliar spray of urea is advocated. Urea (11.5 kg

N/ha) is sprayed between 40-60 days after sowing. The first dose of urea should preferably be given 40-50 days after sowing with a low volume power sprayer (Micronette) and the second spray is to be given after 10-15 days. With Aspee Bolo sprayer, three sprayings are required, the first spray being followed by two more sprays at an interval of 10 days. With hand operated (high volume) sprayer, it will be necessary to spray 2 times; the first one (40-45 DAS) being followed by another spray at 55-60 days after sowing.

Preparation of Urea Solution for Foliar Spray:

Amount of Urea (kg)	Amount of water (lit)	Strength of urea solution (%)	Nos. of spray	Type of sprayer
12.50	90	14%	2	Micronette power sprayer
8.50	85	10%	3	Aspee Bolo power sprayer
12.50	420	3%	2	Hand sprayer

INM for Jute (*Olitorius*)

Zones : CBVZ, NBPZ & LBVZ

Apply N-P₂O₅-K₂O @ 7.5-13-25 kg/ha as basal + Biofertilizer *Azospirillum* and PSB @ 50 g each/kg of seed. Apply 7.5 kg N/ha at 4-6 weeks after sowing.

Nutrients	Requirement (kg/ha)		Source	Fertilizer requirement			
	At sowing	After 4-6 weeks		At sowing		After 4-6 weeks	
				kg/ha	kg/bigha	kg/ha	kg/bigha
N	7.5	7.5	Urea	16.3	2.2	16.3	2.2
P ₂ O ₅	13	-	SSP	81.2	10.8	-	-
K ₂ O	25	-	MOP	41.8	5.6	-	-

Interculture:

Thinning of the plants should be done 3-4 weeks after emergence. One hand weeding is to be given at the time of thinning. Wheel hoeing between rows within 4-5 weeks after sowing suppresses weeds considerably.

In broadcast crop *bindha* should be used 2-3 times at 2-3 weeks of crop age. Thereafter, thinning should be done to maintain a spacing of 12-13 cm between plants to ensure a population of about 6-7 lakh/ha (60-70 plants/sq. m).

Chemical Weeding:

Fluchloralin @ 3 lit/ha in 1000 lit of water is to be applied as pre- emergence spray 3 days before sowing.

Harvesting and Retting:

Jute is to be harvested at the small pod stage to get optimum yield and good quality

fibre. If jute is succeeded by rice it can be harvested even at 100-120 days to facilitate timely ploughing for rice crop. Plants are to be cut close to the ground.

The harvested plants should be made in bundles of 15-20 cm diameter and left in the field in standing position for 2-4 days not only for shedding of leaves but also to facilitate the retting process. Thin and thick plants must be bundled separately.

Retting is the most important factor responsible for producing fine quality of jute fibre. The bundles are to be arranged side by side in water and tied together so as to form regular platform (*Jak*) and if possible, a second layer of bundles may also be placed on top and covered with materials like water hyacinth, *keturi* leaf, paddy straw thatch etc. The '*Jak*' should be submerged by putting weight of concrete slabs, bricks, stone or dry log, use of mud clods, banana stems and freshly cut logs as materials for weight should scrupulously be avoided.

Optimum temperature of water for retting ranges from 32-34°C. Depending upon the temperature condition the retting process takes about 10-30 days to complete when the fibre separates easily from the wood. Over retting and under retting should be avoided.

To accelerate the process of retting one or two sticks of *Dhaincha* or Sunhemp should be inserted in each jute bundle before steeping. This provided substratum for quick microbial activity leading to multiplication of microbes and intensification of retting process.

Apply CRIJAF sona microbial consortium equally in all the three layers of bundles of jute in the retting jak @ 4.0 kg for the produce of one bigha (**Zones:** CBVZ, NBPZ & LBVZ)

The fibre is to be extracted from each jute stalk separately and the stripped fibre should be washed thoroughly in clean water and dried in mild sunlight over a bamboo bar for 2-4 days.

Crop Rotation:

Crop rotation in the jute field is most important to maintain soil fertility and also to minimize the incidence of insect pests and diseases. The sequences of jute-rice- rapeseed and jute-rice-wheat have been found profitable and are recommended for adoption wherever possible.

Jute based cropping system for upland rainfed situation:

A cropping sequence of Jute (JRO 524 or JRO 7835) - Blackgram (SB-121 or Saonia mah) - *Toria* (TS-38 or M-27 or TS-36) has been recommended for upland rainfed conditions.

Plant Protection:

A. Insect Pests :

i) Jute hairy caterpillar, Semi looper, Yellow mite, Stem weevil:

- (a) Hairy caterpillar egg masses and caterpillars are to be hand picked and destroyed by putting them in kerosenized water. For semilooper, perches may be fixed in jute fields or nearby to facilitate predatory birds to sit on.

B. Diseases: Root rot, stem rot, seedling blight and anthracnose :

- a) Soil pH should be raised to 5.5 by application of lime.
- b) Application of potash should be increased up to 50 kg K₂O/ha.
- c) Jute-Rice crop rotation should be followed.
- d) Moderately resistant varieties like JRC 212, JRC 7447, UPC 94, JRO-524 and resistant variety Tarun should be grown.
- e) For managing damping off, apex rot and seedling blight: For managing these diseases caused by soil borne *Macrophomina phaseolina*, seed treatment with slurry method using commercial formulation of *Trichoderma* spp. @ 5 g/kg seed is effective.
- f) Seed treatment with a combination of azoxystrobin 18.2% + difenoconazole 11.4 % SC @ 1.0 ml/kg seed followed by spray @ 0.75 ml/lit at 40-45 days of crop age for the management of induced disease complex in jute (seedling blight, stem rot, root rot) caused by *Macrophomina phaseolina*.

C. Integrated pest and disease management module for *olitorius* jute :

- Soil application of *Trichoderma viride* @ 2.5 Kg /ha (mixed with 150 Kg FYM, covered with moist gunny bag and incubated for 48 hours in shade) in soil at the time of sowing.
- Manual weeding at 3-4 weeks after sowing
- Hand picking and destruction of egg masses and larvae of Bihar hairy caterpillar
- Erection of bamboo perches @ 40 Nos./ha
- Two sprays of neem oil @ 4 ml/lit of water at 2nd week of June and 1st week of July.
- One spray of recommended insecticide (if necessary).