Crop Calendar of Jute (*Tossa* jute: *Corchorus olitorius* and *White* jute: *C. capsularis*)

SL. NO	Operation	Time (Week/Month)	Details of operation
1.	Land preparation	First to second week of March	Soil is pulverized with tractor or bullock drawn plough followed by laddering. At the time of final ploughing following fertilizer to be mixed with the soil FYM or compost @ 5-6 t/ha Depending on the degree of acidity, lime @ 2-4 t/ha may be applied in the soil once in 3-4 years (Lime should be applied one month before sowing) NPK for (*Tossa* jute): 60:40:40 kg/ha NPK For (*White* jute): 60:50:50 kg/ha Full P&K and half of the N to be added during final ploughing
2.	Sowing	For Tossa jute: 3rd Week of March to 2nd week of April For White Jute: Mid March	**Tossa Jute variety:** JRO 204 (Suren) – First week of March CO-58 (Sourav): First fortnight of March JRO 2407 (Samapti: Second week of March onwards JBO 2003H (Ira): Last week of March JRO-128 (Surya)- Mid March to End April S-19: First week of March JRO-8432 (Shakti Tossa)- Mid March to end April JRO-66 (Golden Jubilee Tossa)- Mid April JRO-524 (Navin)- Third week of March to end of April **White jute variety:** JRC 517- mid March (North Bengal Assam, Bihar, Odisha and UP) JRC 532- mid March mid March (North Bengal Assam , Bihar, Odisha and UP) NDJ (Ankit) – mid February (Bihar, Odisha, UP, Assam) JBC (Arpita) – mid March ((Bihar, Odisha, UP, Assam) **Seed rate:** Tossa jute: 3-4kg / ha (for line sowing), White Jute: 4-5kg/ ha (for line sowing), for broadcasting seed rate is 7-8kg and 8-10 kg/ha respectively **Seed Treatment:** Before sowing the seed should be treated with i) Carbendazim @ 2 g kg^{-1} or ii) Mancozeb @ 5 g kg^{-1} or iii) *Trichoderma viride* (formulated product @ 10 g kg^{-1}

3.	1st Weeding and thinning	1st Week of April to 4th week of April (15 DAS)	In row crop, weeds between rows can be smothered by a wheel hoe fitted with scrappers or tines. In order to reduce weeding cost on labour, post-emergence application of Quizalofop ethyl (5 EC) at 1.5-2 ml/lit of water has been found effective in controlling the grassy weeds. Recently CRIJAF has developed two weeding implement namely Nail weeder and Herbicide brush which can be used for better weed management.
4.	2nd Weeding and thinning	2nd week of April to 5th week of April (21 DAS)	-Do- First thinning at three weeks after sowing and second or final thinning is to be done 10-15 days later. 45-50 plants per sq. m. should be assured after final thinning
5.	Top dressing	2nd week of April to 5th week of April (21 DAS and 35 DAS)	30 kg nitrogen/ha to be applied
6.	Irrigation	2nd week of April to 5th week of April (21 DAS and 35 DAS)	Jute is basically a rain-fed crop but irrigation is essential for early sowing in jute based multiple cropping. The total water requirement of jute crop is at 495 mm/ha.
7.	Pesticide application	April to June (as and when required)	i) For yellow mite incidence, spray fenazaquin 10 EC @2 ml/lit. or spiromesifen 240 SC @ 0.7 ml/lit of water as and when mite population exceeds above 50 mites/cm2 on second unfolded leaf. ii) For Bihar hairy caterpillar and semilopper, spray lamda cyhalothrin 5 EC @ 0.7 ml/lit. or profenophos 50 EC @2.5 ml/lit of water as and when damage exceeds above 10%. iii) For mealybug, spray profenophos 50 EC @2.5 ml/lit or chlorpyriphos 20 EC @2.5 ml/lit of water as and when exceeds 10%. iv) If stem rot disease appears in patches: spray copper oxychloride @ 5 g/lit or carbendazim @ 2 g /lit in affected patches only. If disease exceeds 2% and spread all over the field: Same application may be repeated.
8.	Harvesting	15th July to end of July	Jute plants are harvested/cut close to the ground. After harvesting plants are left in the field for 3-5 days for shedding of leaves. Thick and thin plants are to be sorted out and then tied in bundles of 15-20 cm diameter. Jute bundles should then be taken to the retting tank and kept standing 30-60 cm deep in water for 2-3 days before the entire bundles are steeped / immersed into water. Water in retting tank should be clear and immersion of bundles should be maintained with heavy materials like stone/bricks/etc.
9.	Retting and extraction	1st week of August to 15th August	Water in the retting tank should be slow flowing for better quality fibres. For completion of retting in stagnant water about 15-20 days period is required, whereas,

	it takes a few days more in flowing water. In stagnant water use of CRIJAF microbial retting consortium @ 3-4 kg talc based formulation/*bigha* of land may be use for better quality fibre. Extraction is normally done by hand.

- DAS: Days after sowing

Crop Calendar of Mesta (*H. sabdariffa and H. cannabinus)*

SL. NO	Operation	Time (Week/Month)	Details of operation
1	Land preparation	Just before monsoon	Land is to be ploughed with pre-monsoon shower followed by laddering to obtain fine tilth. **Fertilizer application:** FYM @ 5-6 t/ha is to be applied during land preparation. In medium fertile soil, the recommended dose of fertilizer is 40:20:20 (N: P_2O_5: K_2O, kg/ha). P and K will be applied as basal while N is to splitted as – 1/3rd at sowing, 1/3rd at time of first weeding (21 DAS) and 1/3rd at second weeding (35 DAS). For drier tracts, if soil moisture is not favourable, foliar application of urea (1.0%) may be done.
2	Sowing	2nd week of June to 1st week of July	**Variety:** *H. sabdariffa*: AMV-1, 2, 3, 4 (AP), HS-4288 and HS 7910 (W.B., Bihar, Assam, Tripura, Meghalaya) *H. cannabinus:* HC 583 (for West Bengal) **Method:** Broadcasting but line sowing with the help of seed drill is preferable as yield increases by 15 – 20 %. **Seed rate:** ***H. cannabinus*** – 15-17 kg/ha for broadcasting and 13-15 kg for line sowing ***H. sabdariffa:*** 13-15 kg/ha for broadcasting and 11-13 kg for line sowing **Seed treatment** with Mancozeb @ 3 g/kg of seed is desirable before sowing. In flea beetle and mealybug endemic areas seed treatment with thiamethoxam 70 WS @ 5g/kg of seed or clothianidin 50 WDG@ 3g/kg of seed. **Spacing**: Optimum plant population for mesta is around 4 – 5 lakh/ha. For broadcasted crop, plant to plant spacing of 12-15 cm is to be maintained by thinning. For line sown crop, 25-30 cm row to row and 7-10 cm plant to plant spacing is required
3.	Intercultural	1st week of July to 3rd week of	In general, two weedings - 1st at 21 DAS and 2nd at 35 DAS is sufficient. In case of

	operation	July (15 DAS)	heavy weed infestation, three weeding – 1st at 14-21 DAS, 2nd at 28-35 DAS and 3rd at 42-49 DAS is recommended. Light thinning during 1st weeding and final thinning during 2nd weeding is recommended.
	Top Dressing	First week of June and Third week of July	1/3rd at time of first weeding (21 DAS) and 1/3rd at second weeding (35 DAS). For drier tracts, if soil moisture is not favourable, foliar application of urea (1.0%) may be done.
4.	Irrigation	Mainly Rainfed (irrigation as an when required)	Mesta is raised in India as a rainfed crop. The water requirement of mesta is about 50 cm. One to two irrigations at the early stage of growth gives better germination and crop stand.
5.	Pesticide application	As an when required	1. For mealybug, spray profenophos 50 EC @2.5 ml/lit or chlorpyriphos 20 EC @2.5 ml/lit of water as and when exceeds 10% plant damage. 2. Among the diseases, foot and stem rot is the major one. Proper drainage, crop rotation, seed treatment with Mancozeb @ 3g/kg seed, soil drenching with Mancozeb @ 2g/l of water or growing resistant varieties like AMV-3 can help in managing the disease effectively.
6.	Harvesting	Last week of November to 3rd week of December	Kenaf (*H. cannabinus*) is harvested at 120-25 days cropage sowing while roselle (*H. sabdariffa*) is harvested at 140-45 days after sowing
7.	Retting and Fibre extraction	15th December to 1st week of January	The plants are to be cut at the base, bundled into convenient size, kept in standing position in 50-60 cm depth in flowing water for 3-4 days. After that, the bundles are to be immersed into flowing water (10cm depth) with the help of weight (tannin and iron free material). The volume of water : retting material should be 20 : 1. The optimum temperature of retting water should be around 34°C while the optimum pH should be 6.5-7 under which retting is completed in about 12-15 days. In stagnant water use of CRIJAF microbial retting consortium @ 3-4 kg talc based formulation/*bigha* of land Extraction is done by beat – break and jerk method, thoroughly washed in clean water so that no bark or stick remains with the fibre. After cleaning the fibre is to be dried under sun for 2-3 days.

Crop Calendar of Sisal (*A. sisalana)*

SL. NO	Operation	Time (Week/Month)	Details of operation
1.	**Land preparation**	Just before monsoon	For sisal planting, whole field is not ploughed to check soil erosion. Only the planting pits of $1ft^3$ are made by spade. About 4400 pits are dug in one ha land area. Before sowing 2-4 kg of FYM may be added in each pit for better establishment of sisal suckers.
2.	Planting	July – Aug.	**Planting material:** Sisal is propagated vegetatively by means of bulbils and / or suckers. Suckers are collected from 3-4 years old plantation of sisal, whereas bullbils are collected from pole (flower stalk emerged after 10-12 years of growth of sisal plants. **Planting Method:** Two types of planting methods are in vogue : (1) single row planting which is less profitable (2) double row plantation which is recommended method for being more profitable and giving better yield. The recommended spacing for single row plantation is 2.0 m x 1.0m and in double row plantation is2.0m + 1.0m x 1.0m.
3.	Cultural operation	Sept. – Oct.	In the later parts of monsoon, weeding should be done followed by application of fertilizer @60:30:60 kg/ha. In between double rowed sisal plantation crops like kulthi, blackgram, greengram, cowpea, peagionpea as an intercrop may be grown for additional income of the planters.
4.	Irrigation	April – May / Oct. (Drip only if available)	As it is a xerophytic crop no irrigation is provided. However, if possible drip irrigation can be provided to increase the yield.
5	Pesticide application	Fungicide (July - Aug)	For sisal weevil, spray chlorpyriphos 20 SC @2.5 ml/lit of water.Zebra disease of sisal is a major disease caused by *Aspergillus* species. The disease is manifested in rainy season specially when relative humidity of atmosphere is higher. Spraying with Matalaxyl (0.25%) + Mancozeb 72% WP(0.25%) can effectively control the disease followed by Mancozeb (WP) –1 of the same doses after 15 days. Bole rot of sisal caused by *Aspergillus niger* can effectively be managed by providing proper drainage and spraying with Mancozeb (WP) –1 @ 0.2%.
6	Harvesting (Leaf cuttings)	Nov. – Feb.	Harvesting of sisal leaves starts from 2½ year old plantation. Harvesting is done once in a year, generally starting from the 1st week of November upto Feb to March. While harvesting 10-12 leaves are retained in (A. sisalana) sisal plant and

			20-25 leaves are retained in hybrid sisal which facilitate better growth and good fibre yield on subsequent years.
7	Extraction, washing, drying, bailing	Nov. – Feb.	Sisal leaves after harvesting are collected from the field in a bundle of 50 leaves and transported to extraction shed. Fibres are extracted by Decorticator. The average output of a machine is 7,000 to 8,000 leaves in case of single feeder machine and 9,000 to 10,000 leaves in double feeder machine per day. After extraction, fibres are washed thoroughly in plain water for two times. Washed fibres are hanged on wire for sun drying for 2 days. The dried fibres are bailed for transportation/storing

Crop calendar of Sunnhemp (*Crotalaria juncea* L.)

SL. NO	Operation	Time (Week/Month)	Details of operation
1	Land preparation	First – second week of April	Soil should be pulverized with tractor for well germination. At final filth fertilizer (NPK: 20:60:40 kg/ha) should be applied in the soil
2	Sowing	15th April – End of May (North India) and Oct. – Nov. (South India)	**Varity:** K-12 (black), K-12 (yellow), Sh-4 and SUIN 053– Recommended for U.P West Bengal, Bihar, Madhya Pradesh Chindwara : Recommended for M.P. and other states. **Seed rate:** 25 kg seed / ha (in line sowing) is sufficient if germinability is 80% or above. For broadcasting 35 kg seed / ha is recommended. **Seed Treatment:** with carbendazim @ 2g/kg of seed
3	Weeding and thinning	5th May to 10th May	As it is a fast growing crop farmers generally do not use weeding however, one weeding at 20-25 DAS improve fibre yield. Proper thinning should done to maintain the spacing 5-7 cm plant to plant
4	Irrigation	End of April – End of May	In early sown crop i.e mid April sown crop 1-2 irrigation should be provided, in monsoon crop no irrigation is required
5	Pesticide application	May - June	Early sown crop is affected by hairy caterpillar which may be controlled by spraying of profenophos 50 EC @ 2 ml/ lit. of water. In monsoon crop top shoot borer is the main pest which may be controlled by spraying of same pesticide
6	Harvesting	Last Week of July – Mid August	Harvesting time is very important for ensuring better quality fibre. Normally

			pod formation stage (90-100 days) is selected at Central India while at Southern parts of India; the crop is harvested at pre-flower or full blossom stage (120-150 days).
7	Retting and Fibre extraction	1st Week of Aug. – 3rd week of August	Retting is the process of removing fibre from the bark and the process involves steeping and keeping the stems submerged in water for a period of generally 3-5 days. In cold water retting takes about 7-9 days. Extraction can be done manually.

Crop calendar of Ramie (*Boehmeria nivea* L Gaud.)

Under Irrigated Conditions

Month	Fortnight	Field activity or operation (Ist year)	Field activity or operation (IInd Year)	IIIrd Year	IVth Year	Vth Year
January	Ist	Irrigation and Land preparation (well drained upland sandy loam soil with pH – 5.5 to 7.0; Humid warm climate ,Temp. 25 °C - 30 °C and 1500 to 3000 mm annual rainfall): Rhizome/ plantlets uprooting. 9.0 q rhizome or 55, 000 nos. plantlets /ha. (10-15 cm rhizome pieces) and plantation of crop, spacing 60x30cm at 5.0 cm depth. **(Improved varieties: Kanai and Hazarika)**	Stage back, fertilizer (NPK: 30:15:15) water management (irrigation and drainage)	√	√	√
	IInd	Irrigation, Weeding and fertilizer application (20:10:10 NPK) with lime as per LR.	Water (irrigation and drainage) and pest management (need based)	√	√	√
February	Ist	Gap filling, Water and pest management. **Major disease**: Cercospora and anthracnose leaf spot and Sclerotioum Rot; **Major insect pest**: Indian red admiral caterpillar, Yellow coaster butterfly, leaf eating caterpillar, termite and white grub.	Water (irrigation and drainage) and pest management with mancozeb @0.2%	√	√	√
	IInd	Water and pest management (need based)	Crop Harvesting, defoliation, decortication, fibre			

			washing and drying at the age of 55-60days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK). Irrigation as per requirement **Yield: 4-5q/ha dry fibre**	√	√	√
March	Ist	Water and pest management (need based)	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Stage back for further uniform growth, weeding, cleaning, fertilizer application (30:15:15 NPK)	Water (irrigation and drainage) and pest management (need based)	√	√	√
April	Ist	Water (irrigation and drainage) and need based pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Water (irrigation and drainage) and pest management (need based)	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 50 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK) with lime. Irrigation as per requirement **Yield: 4-5q/ha dry fibre**	√	√	√
May	Ist	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after stage back. weeding, cleaning, fertilizer application (30:15:15 NPK). **Yield: 3-4q/ha dry fibre**	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Water (irrigation and drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
June	Ist	Water (irrigation and drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 50 days after previous harvesting. **Yield: 3-4q/ha dry fibre,** Weeding and fertilizer application (30:15:15 NPK) with lime.	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK). Irrigation as per requirement	√	√	√

			Yield: 4-5q/ha dry fibre			
July	Ist	Water (irrigation and drainage) and pest management (need based)	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Water (irrigation and drainage) and pest management (need based)	Water (irrigation and drainage) and pest management (need based)	√	√	√
August	Ist	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK). Irrigation as per requirement. **Yield: 3-5q/ha dry fibre**	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Water (irrigation and drainage) and pest management (need based)	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK). Irrigation as per requirement. **Yield: 4-5q/ha dry fibre**	√	√	√
September	Ist	Water (irrigation and drainage) and pest management (need based)	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Water (irrigation and drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
October	Ist	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 55-60 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK) with lime. Irrigation as per requirement **Yield: 3-5q/ha dry fibre**	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Water (irrigation and drainage) and pest management	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 50-55 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK). Irrigation as per requirement **Yield: 4-5q/ha dry fibre**	√	√	√
November	Ist	Water (irrigation and drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√

	IInd	Water (irrigation and drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
December	Ist	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 60-65 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK) with lime. Irrigation as per requirement. **Yield: 3-4q/ha dry fibre**	Water (irrigation and drainage) and pest management (need based)	√	√	√
			Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 65 days after previous harvesting. Weeding and fertilizer application (30:15:15 NPK) with lime. Irrigation as per requirement **Yield: 3-4/ha dry fibre**	√	√	**Uprooting of rhizome**

Under rainfed conditions

Month	Fortnight	Field activity or operation (Ist year)	Field activity or operation (IInd Year)	IIIrd Year	IVth Year	Vth Year
March	Ist		**Plantlet collection**	√	√	√
	IInd	**Selection of land**: well drained upland sandy loam soil with pH – 5.5 to 7.0; Humid warm climate,Temp. 25 °C - 30 °C and 1500 to 3000 mm annual rainfall, **Improved varieties: Kanai and Hazarika**	Stage back for further uniform growth Weeding, cleaning and fertilizer application (30:15:15 NPK)	√	√	√
April	Ist	After pre monsoon rains, Land preparation, Rhizome/ plantlets uprooting. 9.0 q rhizome or 55, 000 nos. plantlets /ha. (10-15 cm rhizome pieces) and plantation of crop, spacing 60x30cm at 5.0 cm depth.	Water and drainage) and pest management (need based)	√	√	√

	IInd	Weeding and fertilizer application (20:10:10 NPK) with lime.	Water (drainage) and pest management (need based)	√	√	√
May	Ist	Gap filling, Water and pest management. **Major disease:** Cercospora and anthracnose leaf spot and Sclerotioum Rot; **Major insect pest**: Indian red admiral caterpillar, Yellow coaster butterfly, leaf eating caterpillar and white grub.	Crop harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after stage back. weeding, cleaning, fertilizer application (30:15:15 NPK). **Yield: 4-5q/ha dry fibre**	√	√	√
	IInd	Water (drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
June	Ist	Water (drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Stage back for further uniform growth, weeding, cleaning, fertilizer application (30:15:15 NPK)	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45- 50 days after previous cutting, weeding, cleaning, fertilizer application (30:15:15 NPK) with lime. **Yield: 3-4q/ha dry fibre**	√	√	√
July	Ist	Water (drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
	IInd	Water (drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
August	Ist	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after stage back. weeding, cleaning, fertilizer application (30:15:15 NPK) with lime. **Yield: 2-3q/ha dry fibre**	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 50 days after previous cutting, weeding, cleaning, fertilizer application (30:15:15 NPK). **Yield: 3-4q/ha dry fibre**	√	√	√
	IInd	Water (irrigation and drainage) and pest management	Water (irrigation and drainage) and pest management (need based)	√	√	√
September	Ist	Water (irrigation and drainage) and pest management	Water (irrigation and drainage) and pest management	√	√	√

	IInd	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after previous cutting, weeding, cleaning, fertilizer application (30:15:15 NPK) with lime. **Yield: 3-4q/ha dry fibre**	Crop Harvesting, defoliation, decortication, fibre washing and drying at the age of 45-50 days after previous cutting, weeding, cleaning, fertilizer application (30:15:15 NPK). **Yield: 3-4q/ha dry fibre**	√	√	√
October	Ist					**Uprooting of rhizome**
December	Ist		**Plantlet collections**	√	√	√