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1. Introduction:

1.1 Jute is an important natural fibre crop in India next to cotton. In trade and industry, jute and mesta crop together known as raw jute as their uses are almost same. Raw jute plays an important role in the country's economy. Raw jute was originally considered as a source of raw material for packaging industries only. But it has now emerged as a versatile raw material for diverse applications, such as, textile industries, paper industries, building and automotive industries, use as soil saver, use as decorative and furnishing materials, etc. Raw jute being bio-degradable and annually renewable source, it is considered as an environment-friendly crop and it helps in the maintenance of the environment and ecological balance. Now-a-days, the people of the world are very much worried about the growing environmental pollution and ecological degradation and they are trying to find out a solution of this problem. In the process, they find out the virtue of the use of natural fibre like raw jute and as such there is a prospect of the crop in future. Jute as a natural fibre has some definite inherent advantages. Its silky lusture, high tensile strength, low exhaustibility, considerable heat resistance and long staple length are the qualities that cannot be matched by synthetic fibre. Further attraction of Jute lies in its easy availability, inexhaustible quantity at a comparatively cheaper rate. Moreover, it can easily be blended with other natural and man-made fibres.

1.2 Jute and Mesta shares to the tune of nearly 0.35 and 0.03 per cent respectively to the total cropped area in the country. With its insignificant coverage, it plays a predominant role in the country's economy by generating employment, earning foreign exchange, solving many of the socio-economic problems, etc. In earlier years, Jute was considered as a Golden Fibre but thereafter it had to pass through different critical situation. The main problem came in the way with the introduction of synthetic fibre by the end of sixties/early seventies. After the development of diversified product of jute fibre and due to growing concern about the environment pollution, the importance of jute has again revived. Jute being a natural annual renewal source of raw material, bio-degradable, safe, non-toxic and environment friendly, offer excellent fibre as raw material for different textiles and other utility products, apart from as raw material in the packaging industry in this environmentally vulnerable world. Considering the various problems in the crop, various development programmes like IJDP, SJDP, JTM, NFSM-Commercial Crop (Jute) etc. were taken up by the Government for improving the production and productivity of the crop from time to time.

1.3 Considering the agro-climatic requirements of the crop, the cultivation of jute is mainly concentrated in the eastern and north eastern India and that of Mesta, almost throughout the country. Jute and Mesta is mainly rainfed crop baring about 20 per cent of jute which is raised under irrigated condition. As a result, the crop has to face various problems, particularly, for increasing the productivity of the crop. Besides, the crop is commonly known as small and marginal farmers' crop. At the time of partition of the country in 1947, the area under jute in India was only about 2.6 lakh ha with a production of about 16.7 lakh bales. But the country's requirement at that time was about 60 lakh bales. Thereafter, through various development efforts, the area and production has increased and at present, it is 97.62 and 3.87 lakh bale of

jute and mesta respectively (2021-22). As per the second advanced estimates of 2022-23 the production of jute and mesta are 96.59 and 3.89 lakh bales respectively. The productivity of jute has reached 27.93 q/ha and that of mesta 18.31 q/ha during 2021-22. However, prior to this period, the production even rose to about 111 lakh bale but there after due to reduction in area, the production has come down.

1.4 Even though jute agriculture is suffering from various problems, but it is meeting the requirements of raw materials to our industries. Virtually, there is no scope to increase the area under the crop to meet the additional requirement of fibre because there is a pressure on land for food crops and also the comparative return. Therefore, the additional requirement has to be made through increasing the productivity mainly. Considering the present day requirement and future projection, jute is not only to be considered in its quantitative perspective but also its qualitative aspects.

2. Crop Description:

2.1 Scientific Name:

Jute (*Corchorus sp.*)
Family: Sparrmanniaceae (*Heywood et al.* 2007; *Benor et al.* 2010)
Cultivated Species: *Corchorus capsularis* known as white jute.
Corchorus olitorius known as tossa/daisee jute.
Chromosome number 2n=14
White jute (*Corchorus capsularis*) is predominately self-pollinated and tossa jute (*Corchorus olitorius*) is a partially cross pollinated species.

Mesta (*Hibiscus sp.*)
Family: Malvaceae
Cultivated Species: *Hibiscus cannabinus* (2n= 36)
Hibiscus sabdariffa var. altissima (2n= 72)
Both Hibiscus cannabinus and H. sabdariffa are predominately self-pollinated crops.

2.2 Origin:

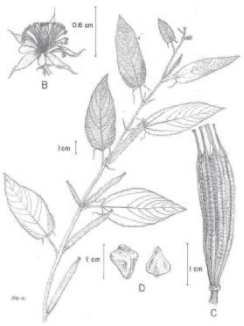
2.2.1 Raw Jute comprises of Jute and Mesta. Two species of jute viz., *Corchorus capsularis* known as white jute and *Corchorus olitorius* known as tossa/daisee jute belonging to the family Sparrmanniaceae and are cultivated for fibre purpose. *C. olitorius* is widely cultivated, and has originated from Africa (primary center of origin) with India or Indo-Myanmar region as its secondary centre of origin. This species has been reported from Africa, Asia and Northern Australia. The other cultivated species *C. capsularis* is found in Indo-Myanmar and South China region, but not in Africa and Australia. It has originated from Indo-Myanmar region including South China. In India, nine species of *Corchorus* (7 wild and 2 cultivated) have been reported so far.

2.2.2 Two species of mesta viz., *Hibiscus sabdariffa* var. altissima and *Hibiscus cannabinus* belonging to the family Malvaceae are cultivated for fibre purpose. *Hibiscus cannabinus* is in the genus Hibiscus and is probably native to southern Asia, though its exact natural origin is unknown. The *sabdariffa* (HS) mesta is commonly known as Roselle. However, in different places it is also known as Java jute, Thailand jute, Pusa hemp, Hemp, Chansi, Tengra pat, Lalambadi, Chukair, Yarra-gogu, Palechi, Puboibija etc. The *cannabinus* (HC) mesta is commonly known as Mesta or it is also called Kenaf. However, in general both the species are

generally termed as Mesta in India. It is also known as Bimli, Decan hemp, Gogu, Channa, Ambari, Gongkusa, Sunkura, Sheria, etc.

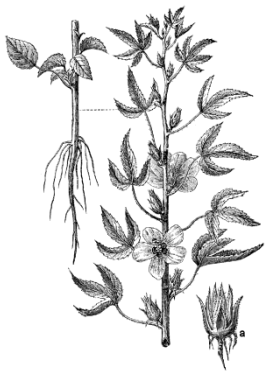
2.3 Morphology:

2.3.1 Jute is an herbaceous annual plant, stems glabrous. Leaves 6-10 cm long, 3.5-5 cm broad, elliptic-lanceolate, apically acute or acuminate, glabrous, serrate, the lower serrations on each side prolonged into a filiform appendage over 6 mm long, rounded at the base, 3-5 nerved; petioles 2-2.5 cm long, slightly pubescent, especially towards the apex; stipules subulate, 6-10 mm long. Flowers pale yellow; bracts lanceolate; peduncle shorter than the petiole; pedicles 1-3, very short, sepals 3 mm long, oblong, apiculate. Petals 5 mm long, oblong spathulate. Style short; stigma microscopically papillose. Capsules 3-6.5 cm long, linear, cylindric erect, beaked, glabrous, 10-ribbed, 5-valved; valves with transverse partitions between the seeds. Seeds trigonous, black. The plant has tap root system with numerous lateral branches. It is hardy in nature and can grow well both on high and low lands and is able to tolerate waterlog conditions to some extent. Although both the species of jute (*C. capsularis* and *olitorius*) are alike in general appearance, there are considerable differences between them which are mentioned in the table below.



White Jute (*Corchorus capsularis L.*)	**Tossa Jute (*Corchorus olitorius L.*)**
Shorter than *C. olitorius* plant, plant 5-12 feet tall and withstand water logging in later stages.	Shorter than *C. capsularies* plant, plant 5-15 feet tall and cannot normally withstand water logging.
The colour of the stem varies from full green to dark-red through various intermediate shades.	The colour of the stem is light red or deep red.
Leaves are bitter in taste, simple, alternate, lanceolate, margin of the lamina is serrated. Petiole 4 to 8 cm varies in colour from green to dark- red in different varieties. 	The leaf has a shiny upper surface and a rough under surface and is almost testless when chewed. Petiole 4 to 9 cm may be Green or light red and leaf base with a pair of filiform. 
Pod is rounded and 1 to 1.5 cm in diameter. Wrinkled, rarely smooth. 	Pod is elongated 6 to 10 cm long. 0.3 to 0.8 cm in diameter ridged length-wise. 
Seeds are small, chocolate brown in colour, 4- 5 faced. 	Smaller than those of capsularies, bluish green to steel-grey or even black in colour. 
Fibre in white in colour.	Fibre is golden in colour.
Both upland and lowland culture.	Mostly upland culture.

2.3.2 Mesta is an annual or biennial herbaceous plant (rarely a short-lived perennial) growing to 1.5-3.5 m tall with a woody base. The stems are 1–2 cm diameter, often but not always branched. The leaves are 10–15 cm long, variable in shape, with leaves near the base of the stems being deeply lobed with 3-7 lobes, while leaves near the top of the stem are shallowly lobed or unlobed lanceolate. The flowers are 8–15 cm diameter, white, yellow, or purple; when white or yellow, the centre is still dark purple. The fruit is a capsule, 2 cm diameter, containing several seeds. The fibres in kenaf are found in the bast (bark) and core (wood). The bast constitutes 40% of the plant. These fibres are long (2 - 6 mm) and slender. The cell wall is thick (6.3 µm). The core is about 60 % of the plant and has thick (ø 38 µm) but short (0.5 mm) and thin walled (3µm) fibres. Since the paper pulp is produced from the whole stem, the fibre distribution is bimodal. The pulp quality is similar to hardwood. Mesta species *Hibiscus sabdariffa* var. altissima and *Hibiscus cannabinus* are cultivated in India which is alike in general appearance; the considerable differences between them are mentioned in the table below



Rosella (*Hibiscus sabdariffa* var. altissima)	**Kenaf** (*Hibiscus cannabinus*)
Duration 150-160 days	Duration 120-130 days
Flower colour Light red to red 	Flower colour red or creamy yellow. 
Capsule colour - Red 	Capsule colour - Green 
Seed shaped - Subreinifarm. 	Seed shaped - irregular 
Fibre Nature - Rough and tough	Fibre Nature - Smooth and fine
Fibre Yield - 1500-1800	Fibre Yield - 1700-2500
Climate - Warm & Humid, Tolerant to drought and prone to high moisture.	Climate - Cool & Dry, Tolerant to high moisture and prone to drought.

2.4 Nutritional Value:

2.4.1 Jute leaves are being used as vegetables in Africa, Middle East, and Southeast Asia for a long time. Besides, it is also used as herbal medicine to control or prevent dysentery, worm and constipation etc. Jute leaves are being used as health-food in Japan. Jute leave is rich in vitamins, carotenoids, calcium, potassium and dietary fibers.

2.4.2 Mesta leaves are used for preparing pickles and curries. The mesta seed contain about 16 to 20 % oil which can be used for culinary purposes and for manufacturing soaps. Kenaf seeds yield a vegetable oil that is edible with no toxins. Kenaf oil is high in omega

polyunsaturated fatty acids (PUFAs) which are now known to help in keeping humans healthy. Kenaf seed oil contains a high percentage of linoleic acid (Omega-6) a polyunsaturated fatty acid (PUFA). Linoleic acid (C18:2) is the dominant PUFA, followed by oleic acid (C18:1). Alpha-linolenic acid (C18:3) is present in 2 to 4 percent. The PUFAs are essential fatty acids for normal growth and health. Furthermore, they are important for reducing cholesterol and heart diseases.

2.5 Important zones for Jute cultivation in India:

Jute cultivation is confined to the eastern and north eastern States coming under humid and sub humid regions. These areas represent diverse soil climatic conditions. Considering agro- climatic conditions of the region, the jute growing belt of India has been grouped into nine zones by Central Research Institute for Jute & Allied Fibres (CRIJAF) to facilitate the farmers and research workers as well of these diverse agro-climatic zones as under. These nine zones are given as follows:

i) Zone-I: Murshidabad, Malda (part), Nadia, North 24 Parganas, Howrah, Hooghly, Burdwan (part), Birbhum (part) of West Bengal. This region is marked by moderate to late rainfall. The soils are loamy and sandy loam, medium to low in N content and medium to high in P and K.

ii) Zone-II: Jalpaiguri, Coochbehar, Siliguri sub-division, Malda (northern part). This area receives early and very heavy rainfall. Soil is acidic and contain medium to high N and generally deficient in P, K and Mg.

iii) Zone-III: Goalpara, Kamrup, Darrang and expanding areas of north bank of Brahmaputra of Assam. This area receives early and very heavy rainfall. Soil is acidic and contain medium to high N and generally deficient in P, K and Mg.

iv) Zone-IV: Garo Hills of Meghalaya, South Kamrup, Nagaon and expanding areas in Sibsagar south of Brahmaputra of Assam. This area receives early and heavy to moderate rains. This is red soils region with different degrees of laterization and new alluvial clay-loam soils, especially in eastern plains. Soils are mostly acidic, generally high in N and medium to poor in P, K and Mg.

v) Zone-V: Cachar of Assam and Tripura. The region is marked by high and early rains, Soils are mostly acidic, generally high in N and medium to poor in P, K and Mg.

vi) Zone-VI: It comprises of West Dinajpur of West Bengal and Purnea and Saharsa of Bihar with medium to heavy rainfall. Soil fertility status is medium to low.

vii) Zone-VII: Balasore and Cuttack of Odisha. Transported yellow and red soils of deltaic region are marked with late and medium rainfall and medium to low soil nutrient content.

viii) Zone-VIII: Low lying basin of Midnapur of West Bengal with annual inundation. Soil is buried laterite with transported alluvial soil. The soil is acidic and low in N, P and K content.

ix) Zone-IX: It covers Lakhimpur, Kheri, Sitapur and Bahraich districts of Uttar Pradesh in Tarai region with very late and poor rains. Generally, the soil is acidic, and poor in P and K and medium in N content.

Jute cultivation is mainly concentrated in the eastern and north eastern India while that of mesta cultivation is spread almost throughout the country. The crop can be grown in low, medium and high land situation, both moisture stress and water stagnating condition. White Jute can be grown comparatively in low land situation while that of Tossa Jute prefers medium and high land situation. Mesta is grown in almost all over the country. It being a hardy crop and can tolerate moisture stress; its cultivation is spread in different agro-climatic situations unlike jute which is concentrated only in eastern and north eastern States. In a major part of Jute area, particularly in North Bengal, Bihar and North-Eastern States, the soil is acidic in nature. However, the Jute crop is growing in these areas in existing situation adjusting the crop sequence.

3. Climatic Requirement:

3.1 Soil, Climatic requirement for cultivation of Jute/Mesta:

Jute is a crop of humid tropical climates. It thrives well in areas with well distributed rainfall of 2,500 mm spread over vegetative growth period of the crop with no cloudiness. Locations with a mean rainfall of <1,000 mm, incessant rainfall and water logging are not suitable for its cultivation. For better growth, a mean maximum and minimum temperature of 34^{o}C and 15^{o}C and a mean relative humidity of 65% are required. Temperatures below 15^{o}C and above 43^{o}C during growth are not suitable for jute crop. *C. olitorius* can not withstand water logging, however, *C. capsularis* can withstand water logging, but its fibre quality is impaired with prolonged water stagnation. At a temperature below 10^{o}C, no germination occurs in both the species.

3.2 Warm and humid climate are best suited to both the species of mesta i.e. *canabinus* and *sabdariffa. Canabinus* mesta is of short duration and suitable for higher rainfall areas and has got less drought tolerance capacity. *Sabdariffa* mesta is of longer duration and got better drought tolerance capacity. The crop can grow in temperature range of 20^{o} C to 40^{o} C but optimum temperature for its growth is 30^{o} C to 34^{o} C. The crop can grow in high rainfall areas provided good drainage is there. On the other hand it can grow in low rainfall areas to the tune of even 500 mm rainfall per annum. However, a rainfall of about 125 to 150 mm per month distributed well is required during the growth period. Alternate rain and sunshine is good for better growth.

3.3 Soil: New grey alluvial soil with good depth receiving silt from annual floods/inundation is the nature's best gift for jute crop. The jute crop can be grown in a wide variety of soils ranging from sandy loam to clay loam. However, sandy soils and clay soils are not very suitable for jute crop. Jute requires a soil which can be ploughed easily, readily pulverized. The suitable pH of the soil for the jute crop ranges from 6.2-7, the optimum being 6.4. The soil should have a good depth and moisture retention capacity should be moderate to high.

3.4 Jute cultivation in changing climatic scenario:

3.4.1 Jute is predominantly grown as a rainfed crop (>80%) by marginal and small farmers of India. Now a days, very often jute farming suffers from deficit rainfall. Drought is emerging as

a most important issue, which deserves adequate attention to sustain the jute farming under the changing climatic scenario. Hence, concerted research efforts are required to mitigate the drought stress through strengthening of breeding programmes for developing drought tolerant varieties and manipulation of agronomical practices etc. It is a well-known fact that jute is a short day plant and the critical day length has been worked out to be 12.5 hours. The reproductive phase would be induced if the day length goes below 12.5 hours. This is the most unwanted phenomenon as far as bast fibre crops are concerned. Although, at present the day length in the jute growing belts of the country and West Bengal in particular, is well above the critical limit during the cropping season, there may be every chance that the duration of the sunshine hours may be getting reduced gradually over the next few decades. Therefore, development of photo-insensitive varieties of tossa jute should be given utmost priority in the research fields otherwise jute farming will be in oblivion due to vagaries of climatic condition.

3.4.2 Water logging due to flood is yet another important phenomenon that cannot be ignored to sustain the jute farming in the years to come. Tossa jute is more sensitive to water logging during early phase of its vegetative growth. Therefore, necessary efforts need to be taken to collect germplasm that are resistant / tolerant to water logging. This may ensure higher productivity in the flood prone areas of jute growing belts and Assam in particular.

3.4.3 The scientific community across the world is striving hard to combat the ill effects of climate change due to greenhouse gases like CO_2. Jute and kenaf have tremendous potential to sequester atmospheric CO_2. The carbon sequestering capacity of jute and kenaf is several times higher than that of tree crops. Jute can sequester as high as 15 tonnes of CO_2 in 100 days. Therefore, jute and kenaf farming deserves appreciation and support from the scientific community and policy makers across the globe. In this context, carbon trading needs to be promoted and this will ensure additional income to the resource-poor farmers. In the era of environmental concern, in the near future the farm income through carbon trading may exceed the profit obtained from the sale of fibres.

4. Cropping system:

Jute is one of the most suitable crop to fit in crop rotation. Since the harvesting duration of the crop is variable and accordingly it can be fitted in different crop rotations. Besides, shedding of jute leaves improves the soil fertility. After the harvest of the jute crop the field remains clean, almost free of weeds. These are added advantage of jute to fit in a crop rotation. The recommended/common practices of crop rotations with jute are indicated hereunder;

Irrigated condition:

Jute-paddy-potato
Jute-paddy-gram
Jute-paddy-mustard
Jute-paddy-wheat

Rainfed condition:

Jute-paddy-pulses
Jute-gram
Jute-mustard
Jute-paddy

This apart some intercropping with jute can also be done like, Jute with Green gram, Black gram etc.

Some of the recommended/generally followed crop rotations with mesta are indicated hereunder;

Mesta - Groundnut
Mesta – Sesame
Mesta – Sunflower
Mesta – Maize

5. Crop Production Practices:

5.1 Time of sowing:

Sowing time of jute may differ from area to area on the basis of the receipt of pre-monsoon showers, availability of residual moisture and variety. Sowing of *capsularis* jute can be done from end February and continued upto end April. The *olitorius* varieties like JRO-632 and JRO-66 cannot be sown before mid-April. Sowing of other *olitorius* varieties can be taken up after mid-March and may be continued upto end May depending upon the receipt of rains.

The recommended sowing for mesta crop is May-June. HC mesta being more susceptible to drought, it is usually sown under irrigated condition and also at early period. In India mesta is mainly a rainfed crop, coverage under HS mesta is maximum. However, HC mesta is also grown under rainfed condition in some areas, particularly is eastern and north-eastern states. Sowing should be done when there is sufficient moisture in the soil. A minimum of 21 per cent soil moisture content is required for germination.

5.2 Different Methods of sowing:

Sowing of jute can be done either by broadcast method or by line sowing method. Presently, 5 to 10 % of the area is hardly covered under line sowing in India. It has been established by the scientists that by adopting line sowing yield can be increased by 15 to 20 % over broadcast method. To ensure even distribution of seed, they are mixed with 3-4 times well powdered soil or sand or ash and broadcast cross-wise and after germination the excess plants are thinned out to maintain spacing of 10 cm (plant to plant). For line sowing, the land is prepared well and sowing is done with row to row spacing of: Capsularis – 30 cm, Olitorius – 20 to 25 cm and plant to plant spacing is maintained at 5 to 7 cm and this is done by mechanical means i.e. seed drill. A single row seed drill can cover about 0.1 to 0.15 ha per day. However, recently a multi row (4 row) seed drill has been developed and it can cover 0.8 to 1 ha per day. The depth of sowing is maintained at 2.5 to 3 cm. line sowing not only increases the yield but also reduces the cost of cultivation particularly by reducing the cost of intercultural operations which is main item of expenditure in jute cultivation.

Mesta is usually sown by broadcasting method. But as criteria of improved production technology, it is advocated to sow the crop in line. Line sowing can be undertaken with the help of seed drill. Line sowing has got certain advantages over broadcasting method such as i) Plant growth is uniform since uniform spacing is maintained, ii) Intercultural operation like

weeding, hoeing, etc. become easier and cheaper, iii) Application of pesticides and top dressing of fertilizer is easier, iv) Yield is higher by about 15-20%, v) Requirement of seed is less etc.

5.3 Land preparation:

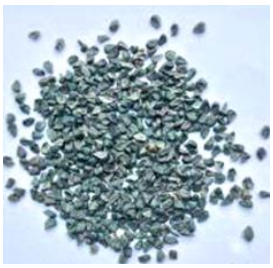
Jute seeds being small require very fine tilth. The land can be prepared by ploughing and cross-harrowing 3-5 times followed by planking. In acidic soils (pH <6.0), incorporation of 1-1.5 t/ha of lime, 30-40 days before sowing is necessary for better crop performance. Soil moisture between 21-45% is considered ideal for proper germination.

Mesta being a rainfed crop, land preparation is usually done with the receipt of pre-monsoon showers.

5.4 Seeding technologies:

Depending upon the species of jute and method of sowing, the seed rate of the two species recommended is under:

Species	Seed rate in kg/ha	
	Broadcasting	**Line sowing**
C. capsularis	10	7
C. olitorius	7	5



The seeds are sown in row 20 to 25 cm (*olitorius*) and 30 cm (*capsularis*) apart. The plants within the row should be thinned manually at two stages. First thinning is done at about 20 days after sowing (DAS), when the plants are of 5-10 cm height. At this stage, plants are thinned to a distance of about 5 cm. In second and final thinning 35 DAS, when plants are of 12-15 cm height, and are thinned to a distance of about 10 cm. However for line sown crop, the plant to plant distance is maintained at 5 to 7 cm apart.

For mesta, the recommended row to row spacing for mesta is 25 to 30 cm and plant to plant spacing is 7 to 10 cm. if the crop is sown by broadcasting method then the plant to plant spacing is maintained at about 12-15 cm by thinning. For maintaining optimum plant population the seed rate for the two species varies. However, the recommended seed rate is higher than the actual requirement for maintaining the desired plant population. This is done because of getting uniform plant population. After emergence, the excess plants are thinned out to get desired spacing. The seed rate of the two species in two method of sowings are as under:

Species	Seed rate in kg/ha	
	Broadcasting	**Line sowing**
H. cannabinus	15-17	13-15
H. sabdariffa	13-15	11-13

Before sowing of seeds, it is always preferable to treat the seeds particularly to avoid the infection of the diseases to the crop. Seed treatment can be done with Bavistin at the rate of 2 gm per kg of seed or with copper oxychloride @ 5 gm/kg of seed

5.5 Fertilizer management:

In general, the nutrient requirement of *capsularis* is more than that of *olitorius*. In soils with low organic carbon content, FYM application @ 5-10 t/ha, a month prior to crop sowing is recommended. The leaves fall from the standing crop and also root stubbles left in the soil after harvest results in recycling of handsome amount of nutrients besides organic matter in intensive cropping systems. Depending on soil fertility status, recommendations for use of fertilizers are:

Fertilizer	*C. olitorius*	*C. capsularis*
N	40 - 80 kg/ha	60 - 80 kg/ha
P	20 - 40 kg/ha	30 - 40 kg/ha
K	20 - 40 kg/ha	30 - 40 kg/ha

In heavy soils with low to moderate rainfall, all nutrients are applied as basal. In light soils and high rainfall situations, N is applied in 2 equal splits, ½ basal and ½ top dressing, i.e. preferably after weeding and thinning operations. Seed inoculation with *Azotobacter chroococum* and *Azospirillum brasilense* has been found promising to supplement part of N fertilizer. In acidic soils, P gets fixed; hence, their placement is better. K is usually applied as basal, but in leaching prone soils, split application is ideal.

In acid soils and regions with high rainfall, calcium and magnesium deficiency is common. Liming of soil @ 2-5 t/ha, once in 4 years or Dolomite application (40 kg/ha) is found promising as it supplies both calcium and magnesium.

In a medium fertile soil, the recommended dose of fertilizer for mesta is N-40 kg/ha, P_2O_5 – 20 kg/ha and K_2O -20 kg/ha. Since, mesta is raised mainly under rainfed condition, the recommended dose of N in such cases is 25 kg/ha and it is mainly recommended for Andhra Pradesh.

5.6 Water management:

Jute requires about 50 cm water for its growth and development. In India about 20 % jute area is irrigated and the remaining area is rainfed. If the rainfall is not sufficient, the water requirement has to be supplemented through irrigation. For germination of jute seed, about 21 % soil moisture is required. At sowing time, if the soil moisture is not sufficient, then one pre-sowing irrigation is to be given. After sowing, usually one or two irrigations at an interval of about 20 days is required at the initial stages of growth. Thereafter monsoon rains supplement the irrigation. Jute is sensitive to both drought and water logging. At germination and knee-high stages, adequate soil moisture must be ensured by irrigation. During rainy season, the crop experiences water logging that adversely affects fibre quality. Provision of quick drainage in uplands will be beneficial to the crop. However, in lowlands, it may not be feasible.

In India, mesta is mainly raised as a rainfed crop. Since the pattern of rainfall during the sowing and growth period is highly erratic, desired yield is not obtained in mesta crop. For obtaining good yield, along with other inputs, the water requirement of the crop is to be fulfilled. The water requirement of mesta is about 50 cm. if the rainfall is uniformly distributed. But in most of the mesta areas, rainfall is highly uncertain, in that case it is desirable to give one or two irrigation to mesta crop at an interval of 15 to 20 days.

5.7 Weed management:

Jute crop suffers from heavy weed infestation in the initial 5-6 weeks after sowing. Two-three hand weedings or mechanical hoeings are required to arrest weed menace. The first 2 manual weedings are combined with thinning operations at 20 and 35 DAS. The third weeding should be done 55-60 DAS based on the weed infestation. Weeding can be done with the application of herbicide. Butachlor 50% EC or Pretilachlor 50% EC (pre-emergence, applied during sowing) @ 0.9-1.0 kg ai/ha combined with one hand weeding at 35DAS may effectively control the weeds. Recommended post-emergence herbicides for weed control include Quizalofop ethyl 5% @ 40-60 g ai/ha and should be applied 20 days after sowing. Propaquizafop 10% EC @ 50-75 g ai/ha can also be applied at 4 leaf stage.

Mesta is very susceptible to weed competition at early stage of growth. The growth rate of mesta is slower at this stage and over powered by weeds. The crop requires about two to three weeding/thinning operations depending upon the weed infestations. While two weedings are practiced the first one is done about three weeks after sowing and the second one is done at about five weeks after sowing. In row-cropping wheel hoe is used for weeding operations and thinning is done manually. Weeding may also be done with the application of herbicides. Application of Basalin (Fluchloralin) @ 2 lit/hec. as pre-sowing (3 days before sowing) will kill almost all the weeds except sedges. However, application of Basalin as above followed by one manual weeding will give good result.

5.8 Plant protection:

5.8.1 Insect pests of Jute and their control measures:

A. Indigo caterpillar (*Spodoptera litura* Fabricus): This is a pest of seedlings of jute. The young caterpillars are gregarious and feed on the epidermal tissues by webbing up the leaves or by joining two or more adjacent leaves. After they grow, they disappear and feed on leaves by making small holes in lamina or by margin and defoliate the plants. The crop sown early in the month of March or early April suffers much while late sown one generally escapes damage. Both the species of jute are affected. Weeding out the affected seedlings during thinning and spraying the infested crop with Cartap hydrochloride 75% SG 1 ml/lit or Lambda cyhalothrin @ 1 ml/lit or Novaluron 10 EC @ 1 ml/lit control the pest.

B. Thrips (*Ayyaria chactophera* Carni): The pests are minute in size, black in colour and swift in movement. *Olitorius* jute get infested with this pest at seedling stage. The pest generally avoid light, remain in the fold of apical buds and draw nourishment from them. During feeding they macerate the leaf tissues in between veins, and when infested buds unfold the pest moves upto the next bud and thus macerate all buds in regular succession. The macerated tissues soon die and become prominent as white streaks in unfolded leaves. The pest is more common when the weather is warm and humid and dry

spell intermittently prevails. Spraying with Fenazaquin 10 % EC @ 1.5-2.0 ml/lit, control the pest.

C. Burrowing or Field cricket (*Brachytrypes achatinus* Stoll): They are seldom detected during day. The cricket causes extensive damage to seedlings. The pest lives generally in burrows and becomes active during night. The insects with their strong pair of mandibles cut the jute seedlings at ground level and drag away the cut-ends in burrows built in the field. The pest is more prevalent in loam and sandy loam tracts of Assam and sub-Himalayan West Bengal. In the standing crop damage can be checked by poison baiting made of 10 kg of wheat or rice bran with 500g gur or molasses and 300 g Malathion 5% dust. Alternatively Chloropyriphos 20 EC of 0.02% strength may also be used.

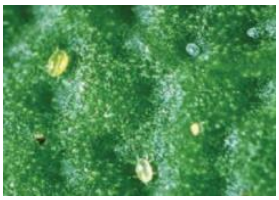
D. Jute stem-weevil (*Apion corchori* Marshall): Their presence is detected by their feeding habit. The adult weevil feeds on top leaves by making minute holes on the leaf lamina. Later on the female weevil bores a hole on the shoot apex of the seedling to lay eggs. The developing grub tunnels to some distance into the stem and damage the tissues. As the plant grows, the site of injury shift to the nodal point where a knot persists even after retting. Such knotty fibre constitutes a defect in fibre quality. Jute stem-weevil causes substantial damage to *capsularis* jute. Uprooting of the damaged plants and spraying Cartap hydrochloride 75% SG 1 ml/lit three times at 15 days interval control the pest.

E. Red mite (*Oligonychus coffea* Noitner): Both nymph and adult suck the sap of the older leaves from the ventral surface and gradually the infestation spreads to all the leaves. The leaves soon become leathery, turn yellow and drop-off prematurely. The red mite affects *capsularis* jute. Intermittent showers followed by dry spell with high humidity and poor interculture favours its infestation. Drenching ventral side of leaves with Dicofol (Kalthane 18 EC @ 850 ml/ha) 0.04% or Acetamiprid @ 1 gm/lit thrice at 15 days interval control the pest.

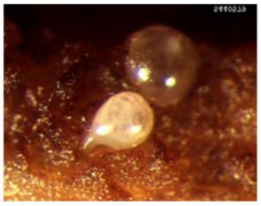
F. Semilooper (*Anomis sabulifera* Guen): Both *capsularis* and *Olitorius* jute are prone to its attack. The semilooper mostly feeds on tender crown leaves (apical leaves) of both *capsularis* and *Olitorius* jute. The growth of the damaged plants is checked and plants induce to branching. They feed on leaves by making holes of irregular size and also by bitting of margin. In entire jute season, normally three waves of caterpillar attack are encountered with from end June to mid-August, the second attack causes severe damage to the crop. It is common and most notorious of all the jute pests and widely distributed all over the jute growing tract. Providing perches for the predatory birds in the infested jute fields and spraying Fenvalerate 20% EC @1 ml/lit or Cypermethrin 25% EC @ 1-1.2 ml/lit on apical portion of the plants control the pest.

G. Hairy caterpillar (*Diacrisia oblique* Walker) – The caterpillars feed on the leaves of the plants. The young ones eat away the leaf tissues leaving only the outer membrane and skeleton thereof. The older caterpillars devour the entire leaf. The pest is very destructive and in severe attacks the plants are entire defoliate leaving only bare stem standing in the field. It is serious pest in heavy rainfall areas of Assam, Bihar, Tripura and sub-Himalayan West Bengal while in other States it is sporadic in nature. Both *capsularis* and *Olitorius* jute are susceptible to this pest. Destroying the young gregarious larvae by plucking the leaves and putting them in bucket of kerosinised water and spraying *Lambda* Cyhalothrin 5% EC @ 2 ml/lit, control the pest.

H. Yellow mite (*Hemitarsonemus latus* Banks) – It is highly destructive pest of both the species. Both adults and nymphs suck the juice of the lamina from dorsal side. The affected leaves present oily look but later turn to deep dull green with coppery brown shades. The laminae fold on the ventral face along the mid-rib and also along the secondary veins to give a crumpled appearance and finally the leaf curves along the mid-rib and downwards. The leaves infested heavily drop off prematurely. Growth of the plants gets checked with shortening of internodes. Warm and humid climate is conducive for development and spread of the pest. Dusting with lime-sulphur (3:1) @ 20 kg/ha and drenching thoroughly the ventral surface of the top leaves with Fenazaquin 10% EC @ 1.5-2 ml/lit or Fenitrothion 0.10% twice at interval of 15 days or Imidacloprid @ 2-3 ml/10 lit twice at interval of 15 days will control the pest.



I. Nematodes (*Meloidogyne incognita*) – The infestation is more in sandy loam and loamy soil where repeated jute cultivation is practiced. Nematodes affected the root and as a result gall or nodules are formed. In association with soil fungi, they affect the plants. As a result leaves first get yellow and gradually the plants wither away. Heavy gall formation is early stages of growth leads to arrest of growth of the crop. During crop season the infestation starts. Applying Carbofuran 3 kg a.i./ha or Cartap hydrochloride 4 G @ 20-25 kg/ha may control the pest.



5.8.2 Diseases of Jute and their control measures:

A. Seedling blight: It is caused by *Macrophomona phaseoli* (Tassi) Goid Fungi. The sowing of infected seed or presence of pathogen in the soil may cause this disease to both *capsulari* and *olitorious* jute at the seedling stage. The seedlings initially develop black lesions cotyledons which rot and wither; the tender stem then dries and turns brown. In humid condition it may turn black and rot. The incidences are in Hooghly, 24-Parganas, Malda, West Dinajpur in West Bengal; Purnea in Bihar; Cuttack in Odisha and Tripura. Treatment of seeds with copper fungicides before sowing, applying farm yard manure or compost in sufficient quantity and lime to soil where pH is low would control the incidence. Combined pre-sowing seed treatment with both insecticides and fungicides with good compatibility (using specialized formulation products, like, carbendazim 50 WP @ 2g/kg + imidacloprid @ 4g/kg) gave more promising results against early insect pests and diseases.

B. Stem rot: The disease is caused by the same pathogen as in seedling blight, M. *phaseoli.* Both types of jute are susceptible. Lesions appear mainly along the apex and, margin of the leaves and ultimately the whole leaf is infected. The pathogen travels through the petiole and reaches the node, where it starts stem rot. High humidity and temperature above 33^{o} C favour infection and its spread. The disease is prevalent in Assam Valley; Purnea in Bihar; Cuttack in Odisha, Hooghly and sub-Himalayan West Bengal in particular, besides all jute tracts in general. Applying soil ameliorant like lime in acidic soil; potash between 25 to 50 kg K_2O/ha.; Providing good drainage and improving the porosity of soil through application of organic matter, and spraying Copper oxychloride (50%) concentration or 0.10% of Bavistin at first infection and seed treatment with *Trichoderma viride* @ 10 g/kg seed are recommended as control measures.

C. Root-rot: This is also caused by the same pathogen *M. phaseoli* and both spices of jute are susceptible. The fungus infects the tap root directly. The infected plant show wilting as the first recognizable symptom without any symptoms on the shoot. Finally, the infected plants turns brown to deep brown and become rusty brown, and these plants look dry and withers completely. The disease is noticed all over the growing areas. Lime application to soil having lower pH, potash to soil in high dose, following crop rotation, providing proper drainage and spraying Carbendazim 12% + Mancozeb 63% WP at an interval of 20-25 days 3 times, may be adopted as control measures.

D. Collar rot: The collar rot is also caused by *M. phaseolina* both the species of jute. The collar region i.e., 10-15 cm of the stem at the bottom is affected. Cankerous spots on stem lead to breakage and ultimately death of the plant. The disease is prevalent all over the jute growing tract where soil is slightly clayey. Applying soil ameliorant like lime in acidic soil; potash between 25 to 50 kg K_2O/ha; and ensuring proper drainage and application of organic matter to improve the porosity of soil would check its incidence. Spraying Copper oxycholoride (50% Cu) at 0.75% concentration or Carbendazim 12% + Mancozeb 63% WP at an interval of 20-25 days 3 times is also recommended.

E. Hooghly wilt in *olitorious*: This disease is of annual occurrence on a wide scale in *olitorius* jute in the districts of Howrah, Hooghly, and Bardhaman in West Bengal where jute is followed by potato in the same field. The disease is known as 'Hooghly wilt'. The primary pathogen is *M. phaseoli,* while the secondary pathogens include *Fusarium solani* (Mart) and *Pseudomonas solanaceaum.* Soft brown or amber patches develop all over the stem which rapidly turn black and green colour of the stem fades quickly wilting occurs suddenly and rapidly. The stem withers and rots leading to death. Jute should not be followed by potato in the same field every year. Replacement of potato by 'aman' paddy or jute by 'aus' paddy or Black gram replacing potato every third year should be practiced. Application of potash at the rate of 30 kg K_2O/ha reduce the incidence. Good drainage should be ensured. Capsularis jute is resistant to this disease and may be grown instead of olitorius.

F. Anthracnose of *capsularis*: The causal organism is *Colletotricum corchorum* Ikata and Tanaka. High humidity (above 84%) and temperature above 33^{O}C favour infection. In the beginning, tiny & moist brownish black spores appear all over the stem. Later on they coalesce together forming cankerous tissues. The stem may break from the infected point due to wind and die. The pods are also attacked by the fungus and shrivel. The disease is prevalent in Assam Valley, Surma Valley and Sub-Himalayan West Bengal. Treating the seeds with fungicides before sowing; growing resistant variety like JRC-212 and spraying Copper oxychloride (50 % Cu) at 0.75% 2-3 times after 7 days interval are recommended as control measures.

G. Anthracnose of *olitorius*: The disease caused by the fungus *C. gleosporiods* Penz. The disease is serious when nitrogen is applied beyond 60 kg/ha. When plants are more than 80 days old numerous lenticular small spots appear all over the stem. In mild form these spores remain superficial and do not affect the crop substantially. In severe cases the necrosis goes deeper and spots coalesce to from cankers and the crop is damaged heavily. This disease is more prevalent in Assam. Application of nitrogen should be restricted between 20-40 kg/ha. Treating the field with lime where soil pH is below 6.2, addition of potash at the rate of 20 kg K2O/ha and spraying Copper oxychloride (50% Cu) at 0.75% initial phase of infection on the stem are some of the control measures.

H. Soft rot: This disease is found on both the species of jute. The disease is caused by *Selerotium rolfsii* west. The fungus is soil borne. The disease initiates infection in late July onwards when the plants become older. Soft, brown, wet patches appear on the basal region of the plant above the ground level. Epidermal layer peels off exposing the fibres turning rusty brown. Eventually plant breaks off from the point of infection. Concentric ring of light and dark brown bands on the stem indicate the presence of soft rot. The fungus thrives on fallen jute leaves or plant residues of previous harvest. The disease is prevalent in Assam and sub-Himalayan West Bengal. Deep ploughing and clean cultivation along with spraying Copper oxychloride (50% Cu) at 0.75% at basal region of the plant and the ground control the disease.

I. Die-back or black-band: Mature plants of both the species are susceptible to the disease caused by *Diplodia corchori* Syd. The apex of the main stem or branches begins to wither and dry up progressively from tip downwards turning brown to black. Ultimately, the plant withers, leaves drop off. Lack of requisite moisture in soil and low fertility favour the disease. It is most prevalent in the terai and red soil areas. Spraying Copper oxychloride (50% Cu) at 0.5% after fresh flush of flowers and seed treatment with Carbendazim 50 WP @ 2 g/kg of seed is recommended for control.

5.8.3 Insect pests of Mesta and their control measures:

A. Jassids (*Amrasca biguttula biguttula* Ishida): Jassid is one of the important sucking insects of mesta. It attacks both the species of mesta but the intensity of attack is more severe in *sabdariffa* mesta. August/September but decline from October. Both adults and nymphs injure the plant by sucking plant sap and injecting toxin saliva into the leaf tissue. The edges of the affected leaves first turn

pale green, later becomes yellowish green and finally red. In case of severe attack, the leaves curves downward and become crinkled. The plant growth becomes stunted and yield declines. Early sowing prevents the attack of Jassid. Jassid tolerant varieties like AMV-3 and AMV-4 is to be grown. Light trap may be used to control this pest. Seed treatment with carbofuran 3G @ 30 g/kg of seed prevent the attack upto 30 days age. On the standing crop if there is attack of this pest, Methyl Demiton (Metasystox 25 EC) 0.05% @ one litre (in 500 litre of water) per hectare or Dimethoate 0.05% @ 800 ml (in 500 litre of water) per hectare may be applied. The pest may also be controlled by biological method. The spider predator viz., *Chiracanthium mealnostoma* or *Thornisus katrajghatus* or *Oxyopes javanus* may be conserved in the field and this will suppress the attack of Jassids.

B. Mealy bug (*Maconellicoccous hirsutus* Green): Mealy bug is a predominant pest of *sabdariffa* mesta. Its attack is mostly confined to junctions of the plant. Both nymphs and adult female cause injury to the plant by thrusting their long filamentous styletes. The attacked region swells and internodes become shorter and deep green colour is developed. The vertical growth of internode is arrested. Due to severe attack the growing tip is damaged and secondary branches develop. These secondary branches again got infested and resulted in "bunchy tops", the characteristic symptom of this pest. At the time of extraction, the fibre snaps at the affected region resulted loss of fibre and ultimately reduction in yield. Crop rotation may be adopted to prevent attack in future. The bunchy top portion may be cut to prevent the spread of the pest. Chemically, the pest may be controlled by spray of Dimethoate (Rogor) 30 EC @ 0.05% (750 ml in 500 litre of water per hectare) or Metasystox 25 EC @ 0.05% (1 litre in 500 litre of water per hectare). Biological control measure may also be adapted. Four natural predator *viz*., *Hyperaspis maindroni*, *Spalgis epius*, *Chrysopa seclestes* and *Eublema silieula* were identified to feed both eggs and nymphs of mealy bug.

C. Semilooper (*Cosmofera erosa* Green): Both the species of mesta are equally susceptible to semi-looper. The pest usually appears in the months of September/October. The pest starts attacking the plant from apical leaves and gradually extends downwards. They start feeding from leaf margin and finally the whole leaf will be eaten away leaving only the midribs. In severe attack the growing points are also eaten away and thus plants become stunted and after branching is induced, it resulted adverse effect on the yield. The pest is nocturnal in habit and remains hidden during day time. Mechanically, the pest may be controlled by the collection and destruction of the caterpillars. Spraying Fenvalerate 20% EC @1 ml/lit or Cypermethrin 25% EC @ 1-1.2 ml/lit, control the pest.

D. Spiral borer (*Agrilus Acutus* Thumb): Spiral borer is found to attack mainly Cannabinus mesta. It is most prevalent in high rainfall areas. The larva after hatching burrows its way beneath the cambium layer and starts feeding upon the woody tissues, making spiral around the stem beneath the bark and inner fibre layers are damaged. Infected regions swells up to form an elongated gall. Gall becomes week and breaks due to impact of strong wind. Seeds should be treated with Malathion 5% or Sevin 5% @ 10 gm/kg of seed. Spraying Fenvalerate 20 % EC @1 ml/lit or Cypermethrin 25% EC @ 1-1.2 ml/lit, control the pest.

5.8.4 Diseases of Mesta and their control measures:

A. Foot and stem rot (*Phytohthora parasitica* Muk): This is primarily a soil born disease and mainly occurs under cloudy, high humid and low temperature condition. Usually, it is observed after heavy rains. Water logging conditions favours the spread of the disease. It is most prevalent in *sabdariffa* mesta: Plants of all ages are affected which in-turn affects both yield and quality of fibre. It is mostly found in September/October. Initially, withering of the terminal portion of the plant and pale colour of leaf is observed. After about 10 to 15 days of attack blackening of tissues at the base of the plant (foot region) is observed which gradually spread upto 60 cm height. The whole plant gradually wilted. During fibre extraction, the fibre breaks at the point of infection and fibre is discoloured. Water should not be allowed to stand in the field. Crop rotation should be followed. Roughing of the affected plants may be done. Resistant variety like AMV-3 may be grown. Seed treatment should be done with Dithane M-45 @ 3gm/kg of seed. Soil drenching may be done around the diseased plant with Dithane M-45 @ 2 gm/litre of water.


B. Leaf rot (*Phyllostica* sp.**):** The disease is occurred mainly in the month of August / September. Small concentrated ring like structures appear on the leaves and gradually increases in size and gradually damaged the leaf. Dithane M-45 @ 0.2% (2 gm/litre of water) may be applied in severe attack.

C. Tip rot (*Phoma sabdariffa***):** It is usually found in *sabdariffa* mesta. The disease appears in young plants aged about 30 to 40 days. The young plants droop and gradually die. The stem turns white.Application of Blitox 0.3% (3 gm/litre of water) or Dithane M-45 @ 0.2% (2 gm/litre of water) will reduce the incidence of the disease.

D. Collar rot (*Sclerotium rolfsii* Sacc): Both the species of mesta is attacked by this disease. When the plant is attacked by this disease, deep lesions are observed on the stem at the ground level. Virtually, no control measure for this disease has been developed so far. However, water logging in the field should be avoided to prevent the attack of this disease.

E. Root rot (*Pythium perniciosum* Serbino): *Sabdariffa* mesta is usually attacked by this disease. Seedings and young plants are attacked by this disease. The root decays, the plants wilt and subsequently die. Water logging should be avoided. Before sowing, soil should be treated with Blitox or Copper oxycloride @ 205 kg/ha. On standing crop, Copper oxycloride at 0.05 to 0.75% may be sprayed on soil to control the attack.

F. Anthracnose (*Colletotricum polacci*): Mainly *cannabinus* mesta is susceptible to this disease. Initially terminal bud is attacked. Stipules and young leaves develop necrotic spots and withers. Stem infection appears as black lesions which later form cavities. Gradually defoliation occurs. Resistant variety like AMV-3 is to be grown. Seed treatment should be done with thiram @ 1.25 mg/kg of seed. Prophylactic spray with Copper oxycloride at 0.075 % may also be done.

G. Seedling rot (*Macrophomina phaseoli* Maubl): *Cannabinus* mesta is mainly susceptible to this disease. This disease is observed mainly under warm and high humid condition. The seedling initially develops black lesions on the cotyledons which rot and wither. Lesions appear along the apex and margin of the leaves and the whole leaf is infected on the growing plants. The pathogen travels through petiole and reaches the node and stem rot starts. Soil acidity should be corrected. Proper drainage should be maintained and potassium fertilizer should be applied, Copper oxycloride at 0.075 to 0.10% may be sprayed.

5.9 Harvesting and post-harvest operations:

5.9.1 Harvesting:

Jute may be harvested at any time between 90 to 150 days of crop age. Early harvest gives better quality fibre but low yield while late harvest gives higher yield but coarser fibre. To compromise between quality and quantity, the harvesting is recommended at the age of 110 to 120 days. The other consideration for early harvest is to accommodate rice transplanting in accordance with cropping pattern chosen. Harvesting is done by cutting plants at a close to the ground level. The harvested plants are left in the field for 2 to 3 days for shedding the leaves.

Next, the plants are tied into bundles of 20 to 25 cm diameters and the tops are chopped off in the field. Bundles are also made immediately after harvest and the bundles are kept standing in the field to shed the leaves. During the period when the harvested plants are left in the field, the tissues shrink and cell rupture. This facilitates the entry of micro-organism into the stems while retting.

Mesta is a bast fibre crop and the output is the vegetative part. Accordingly, the stage of harvest is an important factor from the point of both quantity and quality of fibre. If the plants are harvested earlier to this, fibre yield will be low. If the harvesting is delayed or it is done at the maturity of the crop, the yield may be more but produces coarser fibre. Over mature plant requires more time for retting and extraction also become difficult. As per earlier concept, to compromise between quantity and quality, the best time of harvesting is small pod stage for *cannabinus* mesta while for *sabdariffa* mesta it is at 50 percent flowering. However, considering the present requirement and latest development of varieties and technologies and also considering yield and quality and sowing time, harvesting is now advocated at the age of about 140 days. Harvesting is done by cutting the plants close to the ground with sickle or ‘hasua. After harvesting, it is better to sort out the plants according to the thickness. The plants are then tied into bundles of convenient size preferably at 20 to 25 cm in diameter. The tied bundles are kept standing in the field for two to three days for shedding the leaves. The tender top portion of the plants may also be chopped off and left in the field. During the period of leaf shedding, the plants dried, the bark shrinks and ruptures, facilitating the entry of microorganisms which hasten the process of retting. Thereafter, the plant bundles are taken to the retting spot.

5.9.2 Retting:

Retting is one of the important operations governing the quality of fibre as prevailed at present. The bundles are kept standing in 30 cm deep water for two to three days and later placed side by side in retting water, usually in 2-3 layers and tied together. They are covered with water-hyacinth or any other weed that does not release tannin and iron. The float is then weighed down with seasoned logs or with concrete blocks or are kept emerged (at least 10 cm below the surface of water) with bamboo-crating. Clods of earth used as a covering material or as weighing agent produce dark fibre of low value. Retting is best done in slow moving large volume of clean water. The optimum temperature is around 34^{o}C. If fibre comes out easily from the wood on pressure from the thumb and fingers, retting is considered complete. Adequate retting facilities are not available everywhere. It is, therefore, necessary to develop a technology through which retting could be possible in a small volume of water and also in a short span of time. Some of the technologies like ribbon retting has already been developed and demonstrated for jute crop but being a labour intensive technology, it has not yet been popularized. Similar technology with cost effective in nature needs to be developed for mesta crops also.

5.9.3 Extraction of fibre:

Two methods of fibre extraction are practiced – single reed method and beat-break-jerk method.

In single reed method, four or five reeds are taken out and stripping started from the bottom; the fibre of each of the reeds is slipped out free from the stick up to 8-10 cm, then gripped and pulled out slowly from the rest of the stick. Extracted strips of the bundles are washed in clean water.

In beat-break-jerk method, a handful retted stems in left hand are gently beaten at the base with a mallet, then the woody core is broken and the extractor twist the bundles at the middle, grips the fibre where the bundle is broken and shakes the bundles vigorously to and fro in water. The broken sticks slip out and water wrung out of the fibre. The fibre is then washed in clean water, rung and eventually spread to dry, preferably in shade or mild sun. The beat-break-jerk method often leaves the broken sticks and make fibre somewhat entangled resulting in sticky fibre.

5.9.4 Grading:

Previously Grading of fibre was done based on six parameters namely, strength, defect, root content, colour, fineness and density. As per previous BIS specification there were eight grade classification of jute, i.e., W1/TD1 to W8/TD8 (W indicates white jute and TD indicates Tossa/daisee jute). From

December, 2020 the classification of Jute grading has been reduced by BIS from 8 to 5 grades. The WHITE jute is classified into 5 grades, namely, W-1, W-2, W-3, W-4, and W-5; TOSSA/ DAISEE jute is classified into 5 grades, namely, TD-l, TD-2, TD-3, TD-4, and TD-5. The new grade specification is based on five parameters viz., strength, defect, root content, colour and fineness.

5.10 Use and recommendation of farm implements and machines used for different operations:

The farm implements used for different operations in the cultivation of jute and mesta are mentioned hereunder.

A. Multi row Seed Drill:

This implement is developed by CRIJAF. Manually operated multi-row (4 and 5 rows) seeder has been developed to sow jute seed in line. Seeder is operated manually and sowing capacity is about 5-6 hrs/hectare. Seed requirement is 3-4 kg/hectare while sown with this multi row seed drill. Line sown crop favours better inter cultural operations especially weeding. The yield of fibre is comparatively higher.

B. Jute Weeder:

This implement is developed by ICAR-CRIJAF. Manually operated (Push and Pull type) weeder suitable to operate in between rows of jute crop was developed and it is easier to operate manually. It is light in weight (about 6 kg) and the angle of wooden handle can be adjusted to hold firmly as per the need (height) of the operator. Weeding capacity of the weeder is about 0.045 hectare/hour, which is about 5 to 10 times more than the weeding done with the help of *khurpi* manually. This weeder is also useful in other line sown crops.

C. Nail Weeder:

Nail weeder developed by ICAR-CRIJAF helps to weed out young composite weed flora including germinating ones from line sown crop since 3 - 4 days of crop sowing. It is used at 5 days interval (5-30 days of crop age) in between lines and controlled about 80 - 85 % weeds. It required 7-10 labours/ha per operation against 30-40 labourers/ha in broadcast sowing. Mechanical intercultural operations in line sown crop reduce labour and cost of weeding and thinning by more than 50 %. It can also be used to make row crop of the broadcast crop. This weeder is also useful in other line sown crops.

D. Single wheel jute weeder:

Single wheel jute weeder has also been developed by ICAR-CRIJAF, Barrackpore. It is easy to operate due to small cycle wheel (compact) as its ground wheel and suitable for shallow weeding up to the depth of 5.0 cm. It is used during 15-30 days of crop age and controls 80-85 % weeds in the inter-row space. As far as physiological aspect is concerned, it is light in weight i.e. 6.0 kg and its handle height and angle of operation can be adjusted as per operator requirement.

E. Manual Ribboner:

Manual ribboner has been developed by the research institutes/organizations for removing the ribbons from the plant. But the ribboning operation is yet to be made cost effective.

F. Jute Fibre Extractor:

Manually operated machine, called 'CRIJAF Jute Extractor', has been developed at ICAR-CRIJAF, Barrackpore for extraction of ribbon from freshly harvested jute and mesta plants without breaking the sticks. It is light in weight (about 50 kg) and feasible to operate in field condition by a man/women. Freshly harvested jute plants (5-6 nos.) are fed by the tip end to 10-15 cm length in to the machine and after activating ribbon separation unit by pressing foot, the canes are pulled back manually. Green ribbon remains in the hand of the operator while unbroken stick is ejected forward.

The water requirement for ribbon retting was reduced by about 50 % as compared to whole plant retting. The quality of fibre is improved by eliminating root content in fibre, which is also stronger. The machine has not yet been popularized as the ribboning operation is labour intensive.

G. Bast Fibre Extractor:

Power operated portable machine was developed by ICAR-CRIJAF, Barrackpore to extract green ribbon from jute, mesta, sunnhemp and ramie plants by breaking the stick into small pieces. The machine works on the principle of beating the canes progressively down its length and scrapping when the operator pulls out the canes. It needs two workers for operation, one for feeding the canes and its ribbon separation in the machine and the other for helping in relay of the canes and removing wastes. It performs well with the plants harvested on or before maturity. The machine salvages ribbon from thin plants (basal diameter less than 0.5 cm), which is normally discarded under conventional method. Such thin plants constitute about 15% by weight of total harvested biomass, which is added to the total fibre yield.

6. Varietal Development:

6.1 The varieties of jute released for cultivation in India is presented below:

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
Corchorus olitorius **(Tossa jute)**					
1	JRO 632 (Baisakhi tossa)	1952/1974	30-32	Suitable for late sowing, induces premature flowering if sown before mid-April, pods shattering type.	Medium and upland

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
***Corchorus olitorius* (Tossa jute) contd…..**					
2	JRO 878 (Chaitali tossa)	1974	30-32	Suitable for mid-March to end- April sowing, pods non-shattering, better fibre fineness and strength.	Medium and upland
3	JRO 7835 (Basudev)	1974	32-34	Pods are non-shattering type, suitable for early sowing (mid-March to end-April), withstand waterlogging to some extent at later stage of growth.	Medium and upland; not suitable for low lying and high rainfall areas
4	JRO 524 (Navin)	1977	32-40	Pods are non-shattering, suitable for early sowing, optimum sowing time mid-March to mid- April; less susceptible to yellow mite and is resistant to root rot diseases, better retting quality, most widely cultivated jute variety (cover 80% of jute area) .	Medium and upland.
5	TJ-40 (Mahadev)	1983	30-35	Pods are shattering type, better fibre quality, optimum sowing time is mid- April to end- April.	Suitable for Odisha.
6	JRO 3690 (Savitri)	1985	30-33	Pods are shattering type, better fibre quality, suitable for late sowing optimum sowing time is April.	Medium and uplands of jute growing states.
7	KOM-62 (Revati)	1992	30-35	Pods are non- shattering type, optimum sowing time mid- March to late- April.	Suitable for Odisha.
8	JRO 66 (Golden Jubilee tossa)	1997	35-40	Pods are non-shattering type, fibre quality TD_2 grade, ideal for mid- April to early May sowing.	Entire tossa jute belt.
9	JRO 8432 (Shakti tossa)	1999	35-40	Suitable for mid-March sowing, premature flowering resistant, non-shattering pod.	Medium and upland of entire jute belt.
10	JRO 128(Surya)	2002	32-38	Pods are non-shattering type, optimum sowing time is mid-March to end of April. Very good fibre quality which may be suitable for making value added products	Entire *olitorius* jute growing belt.

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
***Corchorus olitorius* (Tossa jute) contd…..**					
11	S-19 (Subala)	2005	30-35	Suitable for early sowing in mid- March, resistant to premature flowering, tolerant to major pests, fibre quality is TD2	Medium and upland of West Bengal, Bihar, Assam and Odisha
12	JRO-204 (Suren)	2007	36-38	Suitable for early sowing , optimum sowing time is 1st week of March, resistance to premature flowering	Medium and upland of West Bengal, Bihar, Assam and Odisha
13	AAU-OJ-1 (Tarun)	2007	36	Suitable time of sowing mid- March, non-shattering type pod, resistance to premature flowering, better biotic resistance against stem rot, root rot, anthracnose and yellow mite.	Suitable for Assam.
14	JBO-2003-H (Ira)	2008	38	Suitable time of sowing is mid- March, resistant to premature flowering, better fibre quality, better biotic resistance to stem rot, root rot, anthracnose and yellow mite.	Assam, West Bengal, Bihar and Odisha.
15	CO-58 (Sourav)	2010	34	Suitable time of sowing is mid- March, pods are non-shattering type, resistance to premature flowering, better fibre quality, resistance to major pest and diseases.	Tossa jute growing belt of the country.
16	JBO-1 (Sudhangshu)	2010	30-35	Suitable time of sowing is mid- March to end- April, pods are non-shattering type, low lignin content, resistance to premature flowering, better fibre quality, resistance to major pest and diseases.	Tossa jute growing belt of country.

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
***Corchorus olitorius* (Tossa jute) contd…..**					
17	JROM 1 (Pradip)	2013	37-40	Suitable time of sowing is mid-March to end April, Stem: Cylindrical, non-branching; Leaf colour: Green, laceolate shape; Flower: Petal colour; Yellow; Fruit: Pods green cylindrical, non-shattering.	Tossa jute growing belt of the country.
18	JROG 1 (Rithika)	2015	37-39	Suitable time of sowing is mid- March to end- April, non-shattering pod, resistance to premature flowering, resistance to root rot and stem rot disease, fibre quality is good, tolerance of abiotic stresses.	Tossa jute growing belt of the country.
19	JRO-2407 (Samapati)	2016	35-40	Suitable for early March sowing, 100-120 days fibre crop, good fibre strength, resistance to major diseases and pests.	Tossa jute growing belt of country.
20	KRO 4 (Gouranga)	2017	29-31	Suitable for mid-March to mid-May sowing. Tolerant to stem rot disease and insects like semilooper, apion, BHC and yellow mite.	West Bengal, Assam, Bihar and Odisha.
21	BCCO 6 (Kisan Pat)	2017	28-35	Coppery red stem variety with better fibre tenacity (21.18 g/tex) and fineness (2.81 tex), sowing in 2nd fortnight of April to May.	Tossa jute growing belt of country.
22	NJ 7010 (Rani)	2018	34-36	Mid-march sowing, premature flowering resistant: present, time of 50% flowering; late; stem tall, cylindrical with light green pigmentation; pod dehiscence: absent, leaf ovate-lanceolate, light green, entire with slightly serrated margin, seed brown coloured with 1000 seed weight 2.35 g. Least susceptible to pest & disease.	West Bengal, Assam, Bihar, Odisha.

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
***Corchorus olitorius* (Tossa jute) contd…..**					
23	JROMU 1	2020	40-42	Suitable for 3rd week of march to 2nd week of April, Premature flowering resistant, Tolerant to apion, semilooper, BHC, yellow mite and for stem rot disease.	West Bengal, Assam, Bihar and Odisha.
***C. capsularis* (White jute)**					
1	JRC-321 (Sonali)	1954/1974	28.23	Premature flowering resistant, sowing could be done in late February to Mid-March, fibre is of finer quality	Suitable for entire *capsularis* jute belt
2	JRC-212 (Sabuj Sona)	1954/1974	27.39	Premature flowering resistant, sowing could be done in late February to Mid-March	Suitable for entire *capsularis* jute belt
3	JRC 7447 (Shyamali)	1971/1974	28-30	Pods are non-shattering type, capable of utilizing higher dose of N_2 fertilizer, suitable for mid-March to mid-April sowing.	Suitable for medium and upland of entire *capsularis* jute belt.
4	JRC 4444 (Baldev)	1980	30-32	Pods are non-shattering type, optimum sowing time early- March to mid-April.	Suitable for Odisha.
5	UPC 94 (Reshma)	1983	25-27	Pods are non-shattering type, suitable for late February to late March sowing.	Suitable for medium and upland of entire *capsularis* jute belt.
6	Hybrid C (Padma)	1983	25-28	Pods non-shattering type, suitable for late February to late March sowing.	*Capsularis* jute belt, for low-lying flood prone areas of North Bengal, Assam and Bihar.
7	KC-1 (Joydev)	1992	26-33	Pods non-shattering type, suitable for early-March to mid-April sowing.	Suitable for Odisha
8	KTC-1 (Rajendra Sada Pat-I)	1994	25-27	Pods non-shattering type, suitable for mid-April sowing in Bihar region.	Suitable for Bihar.

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
***C. capsularis* (White jute) contd…..**					
9	JRC 698 (Shrabanti White)	1999	30-35	Pods non-shattering type, suitable for mid-March to mid-April sowing, fibre quality W_2 grade having fineness with fairly good fibre tenacity.	Suitable for low-lying flood prone areas of North Bengal, Assam and Bihar.
10	Bidhan Pat-3	2000	25-27	Pods non-shattering type, photo-period insensitive optimum sowing time between early March to early July and harvested by 110 days after sowing suitable for paper pulp industry.	Low lying flood prone areas of jute growing belt.
11	Bidhan Pat-1	2001	13-14	Pods non-shattering type, photo-period insensitive optimum sowing time between early March to early August can be harvested in 60-65 days.	Flood prone areas jute growing belt.
12	Bidhan Pat-2	2001	20-23	Pods non-shattering type, photo-period insensitive optimum sowing time between early March to early July, can be harvesting in 90-110 days.	Flood prone areas of jute growing belt.
13	JRC-80 (Mitali)	2005	30-35	Suitable for mid-March to early April sowing in both high and low land, can withstand drought at early stage of growth and water logging at later stage of growth.	North Bengal, Assam and U.P.
14	JRC-532(Sashi)	2009	30-35	Pod non-shattering type, drought resistant at early stage of growth and tolerate water logging and mature in 110 days after sowing.	North Bengal, Assam, Bihar, Odisha, U.P.
15	JRC-517 (Sidhartha)	2009	32-35	Pod non-shattering type, drought resistant at early stage of growth and tolerate water logging and mature in 120 days after sowing.	North Bengal, Assam, Bihar, Odisha, U.P.
16	RRPS-27-C-3 (Monalisa)	2009	34	Suitable for mid-March sowing, pod non-shattering type, resistant to premature flowering, better fibre quality, resistance to major pest and diseases	West Bengal, Assam, Bihar and Odisha

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
***C. capsularis* (White jute) contd…..**					
17	NDC 2008 (Ankit)	2009	27	Suitable for mid-February to mid-March, better fibre quality, tolerant to drought and water logging, tolerant to major pest and diseases.	Bihar, Odisha, Assam, W.B. , U.P.
18	JBC-5 (Arpita)	2010	28-30	Suitable for mid-March, pod non- shattering type, resistance to premature flowering, better fibre quality, resistance to major pest and diseases	White jute growing belt of the country.
19	JRCM 2 (Partha)	2013	27-28	Suitable for mid-March to last week of April sowing, Stem: Cylindrical, green with light red pigmentation; Fruit: Pods green, capsule type in shame, non-dehiscence.	White jute growing belt of the country.
20	KJC-7 (Shrestha)	2016	28-30	Ideal time for sowingin early March to early April, 110-120 days fibre crop.	White jute growing belt of the country.
21	JRC 9057 (Ishani)	2016	30-35	Green stem with light red pigmented variety suitable for March to April sowing. Very fine (1.31 tex) fibre quality and tolerant to stem rot and semilooper.	West Bengal, Assam, Bihar and Odisha.
22	AAUCJ 2 (Kkhyati)	2017	27-30	Green stem high yielding variety with better tolerance to semi looper and yellow mites and stem rot of jute.	Assam and white jute growing belt of the country.
23	BCCC 1 (Shweta)	2018	32-34	Tolerant to stem rot, semilooper and BHC, leaf vein red in colour, green leaf lamina, lanceolate leaf, premature flowering resistance, large chocolate brown seeds.	West Bengal, Assam, Bihar and Odisha.
24	BCCC 2 (Bidhan Pat – 5)	2019	35-37	Tolerant to apion, semilooper and BHC, leaf vein green in colour, green leaf lamina, ovate-lanceolate leaf, premature flowering resistance, chocolate brown seeds.	West Bengal state for sowing in 1st week of March to 3rd week of April.

6.2 The various varieties of mesta released for cultivation in India is presented below:

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
Kenaf (*Hibiscus cannabinus*)					
1	HC-583	1963	25	Most popular variety, tolerant to root rot disease.	Mesta growing area of W.B.
2	AMC-108	1982	20-25	Resistant to foot and stem rot diseases, tolerant to jassids and spiral borer	Southern India, Bihar, Odisha.
3	MT 150 (Nirmal)	2005	30	Superior paper pulp quality for newsprint.	Entire mesta growing belt
4	JBM-2004-D (Sumit)	2009	27	Resistant to foot and stem rot and tolerant to Spiral borer, mealy bug and good fibre quality and strength	North Bengal, Assam, Bihar, Odisha.
5	JRM-3 (Sneha)	2010	25-38	Suitable for mid-April to mid-May, better fibre quality, resistant to major pests and diseases	Mesta growing belt of the country.
6	JRM-5 (Shrestha)	2010	27.5	Suitable for mid-April to mid-May, better fibre quality, resistant to major pests and diseases	Mesta growing belt of the country.
7	JBM 81 (Shakti)	2013	25.50	Suitable time of sowing mid-April to mid-May, Pod slightly cylindrical and non-shattering; seed colour: black	Mesta growing belt of the country.
8	JBM 71 (Shanti)	2013	27.49	Suitable time of sowing mid-April to mid-May, Petal colour yellow and stigma colour: red, Pod cylindrical and non-shattering; seed colour: black	Mesta growing belt of the country.
9	JRKM 9 1 (Satyen)	2016	24.26	Suitable for mid-April to last week of May sowing, , tolerant to major diseases (foot and stem rot) and major pests (spiral borer and mealy bug), better fibre tenacity.	Mesta growing belt of the country.
10	JBMP 2 (Central Kenaf)	2016	28.42	Suitable sowing time is mid-April to last week of May, tolerant to foot and stem rot and major pests (spiral borer and mealy bug.	Suitable for mid and highland rainfed situation.

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
Kenaf (*Hibiscus cannabinus*) contd…..					
11	JBMP-3 (Priya)	2018	26.2	Mid April to last week of May	Major mesta growing states
12	JBMP-4 9U(Utkarsh)	2019	28.0	Mid April to last week of May.	Major mesta growing states
13	Central Kenaf JRHC-3	2020	28.6	Mid April to last week of May.	Major mesta growing states.
Roselle (*Hibiscus sabdariffa*)					
1	HS-4288	1967	20-30	Stem has bristles, tolerant to major pests and diseases.	W.Bengal, Bihar, Odisha, Assam, Tripura
2	HS-7910 (Ujjal)	1977	20-30	Stem has less bristles, resistant to major pests and tolerant to *Phytopthera pasrasitica*	W.Bengal., Bihar, Odisha, Assam, Tripura
3	AMV-1	1966	20	Stem has less bristles, highly susceptible to pests and diseases	A.Pradesh., Odisha, Tamilnadu, W.Bengal
4	AMV-2	1982	20	Stem has less bristles, highly susceptible to pests and diseases	A.Pradesh., Odisha, Tamilnadu., W.Bengal
5	AMV-3 (Surya)	1989	20	Stem has less bristles, resistant to foot and stem rot disease	A.Pradesh., Odisha, Tamilnadu, W.Bengal
6	AMV-4 (Kalinga)	1991	20	Stem has less bristles, moderately resistant to jassids and foot and stem rot diseases	A.Pradesh., Odisha, Tamilnadu, W.Bengal
7	AMV-5 (Durga)	2006	25	Good fibre quality, higher fibre yield, tolerant to pests and diseases under field conditions	A.Pradesh., Odisha, Tamilnadu, W.Bengal
8	GR-27 (Madhuri)	2007	27-30	Green stem with red patches only in nodes, tolerant to pests and diseases.	A. Pradesh., Odisha, Tamilnadu, W.Bengal
9	AMV-7 (Janardhan)	2011	25-30	Suitable for mid-May to mid-June sowing, maturity 130-135 days, tolerant to moisture stress, resistant to major pests and diseases	Mesta growing belt of the country.

Sl. No.	Name of the Variety	Year of release	Potential yield (q/ha)	Significant attributes	Area recommended
Roselle (*Hibiscus sabdariffa*) contd…..					
10	CRIJAF R 5 (Roselle Ratna)	2016	25-30	Suitable for mid-April to mid-May sowing, resistant to foot and stem rot diseases and major pests, has a better fibre fineness (2.69 tex) and fibre tenacity (18.88 g/tex).	Mesta growing belt of the country.
11	JRR-17 (Ayush)	2018	26.35	Mid May to Mid-June sowing.	Major mesta growing states
12	AMV-8	2019	26.59	Mid May to Mid-June sowing, Red pigmented stem variety.	Andhra Pradesh, other southern states
13	AMV-9	2019	27.4	Mid May to Mid-June sowing.	Andhra Pradesh, Odisha and other southern states.
14	JRHS-1	2019	26.3	Mid April to Mid-May.	Major mesta growing states.

6.3 State-wise recommended/popular varieties of Jute and Mesta:

State	Variety	
	Jute	**Mesta**
Andhra Pradesh	-	***Sabdariffa***: AMV-5 (Durga), GR-27 (Madhuri) and JRM-5(Shrestha), AMV-7 (Janardhan), CRIJAF R 5 (Roselle Ratna), JRR-17(Ayush), AMV-9, JRHS-1. ***Cannabinus:***MT-150 (Nirmal), JBM-81 (Shakti), JBM-71 (Shanti), JRKM-9-1 (Satyen).
Assam	***Olitorius:*** JRO-524 (Navin), JRO-8432 (Shakti), S-19 (Subala), JRO-204 (Suren), AAUOJ-1 (Tarun),JBO-2003H (Ira), CO-58 (Sourav), JBO-1 (Sudhangshu), JROM-1 (Pradip), JROG-1 (Rithika), JRO-2407 (Samapti), KRO-4 (Gouranga),NJ 7010 (Rani), JROMU-1. ***Capsularis:***JRC-698 (Shrabanti),JRC-80 (Mitali), JRC-517 (Sidhartha), JRC-532 (Sashi), RRPS-27-C-3 (Monalisa), JBC-5 (Arpita), JRC-9057 (Ishani), AAUCJ 2 (Kkhyati).	***Sabdariffa***: HS 7910 (Ujjal), GR-27 (Madhuri) and JRM-5(Shrestha), CRIJAF R 5 (Roselle Ratna), JRR-17(Ayush), JRHS-1. ***Cannabinus:***HC 583, MT-150 (Nirmal), JBM-81 (Shakti), JBM-71 (Shanti), JRKM-9-1 (Satyen).

State	Variety	
	Jute	**Mesta**
Bihar	***Olitorius:*** JRO-524 (Navin), JRO-8432 (Shakti), S-19 (Subala), JRO-204 (Suren), JBO-2003H (Ira), CO-58 (Sourav), JBO-1 (Sudhangshu), JROM-1 (Pradip), JROG-1 (Rithika), JRO-2407 (Samapti), KRO-4 (Gouranga),NJ 7010 (Rani), JROMU-1. ***Capsularis:*** KTC-1 (Rajendra Pat 1), JRC-698 (Shrabanti),JRC-80 (Mitali), JRC-517 (Sidhartha), JRC-532 (Sashi), RRPS-27-C-3 (Monalisa), JBC-5 (Arpita), JRC-9057 (Ishani).	***Sabdariffa***: HS 7910 (Ujjal), GR-27 (Madhuri) and JRM-5(Shrestha), CRIJAF R 5 (Roselle Ratna), JRR-17(Ayush), JRHS-1. ***Cannabinus:***HC 583, MT-150 (Nirmal), JBM-81 (Shakti), JBM-71 (Shanti), JRKM-9-1 (Satyen).
Meghalaya	***Olitorius*:** JRO-524 (Navin), JRO-8432 (Shakti), JRO-204 (Suren), AAUOJ-1 (Tarun), CO-58 (Sourav), JBO-1 (Sudhangshu), JROM-1 (Pradip), JROG-1 (Rithika), JRO-2407 (Samapti), KRO-4 (Gouranga), JROMU-1. ***Capsularis:*** JRC-698 (Shrabanti), RRPS-27-C-3 (Monalisa), JBC-5 (Arpita), JRC-9057 (Ishani), AAUCJ 2 (Kkhyati).	***Sabdariffa***: HS 7910 (Ujjal), GR-27 (Madhuri) and JRM-5(Shrestha), CRIJAF R 5 (Roselle Ratna), JRR-17(Ayush), JRHS-1. ***Cannabinus:***HC 583, MT-150 (Nirmal), JBM-81 (Shakti), JBM-71 (Shanti), JRKM-9-1 (Satyen).
Odisha	***Olitorius*:** JRO-524 (Navin), JRO-8432 (Shakti), S-19 (Subala), JRO-204 (Suren), JBO-2003H (Ira), CO-58 (Sourav), JBO-1 (Sudhangshu), JROM-1 (Pradip), JROG-1 (Rithika), JRO-2407 (Samapti), KRO-4 (Gouranga), NJ 7010 (Rani), JROMU-1. ***Capsularis:*** JRC-698 (Shrabanti),JRC-80 (Mitali), JRC-517 (Sidhartha), JRC-532 (Sashi), RRPS-27-C-3 (Monalisa), JBC-5 (Arpita), KJC-7 (Shrestha), JRC-9057 (Ishani).	***Sabdariffa***: AMV-5 (Durga), GR-27 (Madhuri) and JRM-5(Shrestha), AMV-7 (Janardhan), CRIJAF R 5 (Roselle Ratna), JRR-17(Ayush), AMV-9, JRHS-1. ***Cannabinus:*** MT-150 (Nirmal), JBM-81 (Shakti), JBM-71 (Shanti), JRKM-9-1 (Satyen).
Tripura	***Olitorius*:**JRO-524 (Navin), JRO-8432 (Shakti), JRO-204 (Suren), AAUOJ-1 (Tarun), CO-58 (Sourav), JBO-1 (Sudhangshu), JROM-1 (Pradip), JROG-1 (Rithika), JRO-2407 (Samapti), KRO-4 (Gouranga), JROMU-1. ***Capsularis:*** JRC-698 (Shrabanti), RRPS-27-C-3 (Monalisa), JBC-5 (Arpita), JRC-9057 (Ishani), AAUCJ 2 (Kkhyati).	***Sabdariffa***: HS 7910 (Ujjal), GR-27 (Madhuri) and JRM-5(Shrestha), CRIJAF R 5 (Roselle Ratna), JRR-17(Ayush), JRHS-1. ***Cannabinus:*** HC 583, MT-150 (Nirmal), JBM-81 (Shakti), JBM-71 (Shanti), JRKM-9-1 (Satyen).
Uttar Pradesh	***Olitorius*:** JRO-524 (Navin), JRO-8432 (Shakti), JRO-204 (Suren), CO-58 (Sourav), JBO-1 (Sudhangshu), JROM-1 (Pradip), JROG-1 (Rithika), JRO-2407 (Samapti), KRO-4 (Gouranga), JROMU-1. ***Capsularis:*** JRC-698 (Shrabanti),JRC-80 (Mitali), (RRPS-27-C-3 (Monalisa), NDC-208 (Ankit), JBC-5 (Arpita), JRC-9057 (Ishani).	-

State	Variety	
	Jute	**Mesta**
West Bengal	***Olitorius*:** JRO-524 (Navin), JRO-8432 (Shakti), S-19 (Subala),JRO-204 (Suren), JBO-2003H (Ira), CO-58 (Sourav), JBO-1 (Sudhangshu), JROM-1 (Pradip), JROG-1 (Rithika), JRO-2407 (Samapti), KRO-4 (Gouranga),BCCO-6 (Kisan Pat), NJ-7010 (Rani), JROMU-1. ***Capsularis:*** JRC-698 (Shrabanti),JRC-80 (Mitali), JRC-517 (Sidhartha), JRC-532 (Sashi), RRPS-27-C-3 (Monalisa), JBC-5 (Arpita), JRC-9057 (Ishani), BCCC-1 (Shweta), BCCC-2 (Bidhan Pat-5).	***Sabdariffa***: HS 7910 (Ujjal), GR-27 (Madhuri) and JRM-5(Shrestha), CRIJAF R 5 (Roselle Ratna), JRR-17(Ayush), JRHS-1. ***Cannabinus:*** HC 583, MT-150 (Nirmal), JBM-81 (Shakti), JBM-71 (Shanti), JRKM-9-1 (Satyen).

7. Seed scenario:

7.1 Seed is one of the most key components governing the productivity of the crop. Jute being a bast fibre crop, both seed and fibre of good quality cannot be obtained from the same plant and the quality of fibre greatly deteriorates if the crop is left standing until seed maturity. Hence, the crop is to be grown separately for fibre purpose as well as for seed purpose. Considering the agro-climatic requirements of jute crop, the cultivation is mainly concentrated in the eastern and north-eastern states, viz., West Bengal, Bihar, Assam, Odisha, Meghalaya, Tripura, etc. but the production of jute seeds is mainly taken up in the states of Maharashtra, Andhra Pradesh, Telengana, Karnataka, etc. Since the seed is produced in far off places of Jute growing State, it has been observed that very often good quality particularly the certified seeds do not reach to the Jute growing areas timely particularly in North Bengal, Assam, Bihar etc. well in time. Since the seed is produced in other State, it has also been observed that there is lot of escalation in price of seed and also availability problem appears. Accordingly, consolidated efforts are necessary for production of seed and making availability of good quality seed to the growers of the state well in time and also with reasonable price.

7.2 On the basis of the coverage under the crop, the present level of requirement of jute seed in the country is near about40 thousand quintals and that of mesta is about 6.5 thousand quintals. Both public and private sector organizations engaged in handling of production and marketing of jute seed in India The major public sector organization like National Seed Corporation (NSC), Maharashtra State Seed Corporation (MSSC), Andhra Pradesh State Seed Development (APSSDC) and Karnataka State Seed Corporation (KSSC), etc. are engaged in production and marketing of jute seed. Major seed production areas are Guntur and Prakasham in Andhra Pradesh, Akola and Amravati in Maharashtra and Bellary and Raichur of Karnataka. Presently nearly 30-40% of the seed requirement is supplied by the public sector and rest of the seed is supplied by the private sector. Previously, the coverage under certified seed used to vary between 30 to 35 %. But for the last few years, it has been observed that that the country's production of certified seed gone up. Though numbers of new varieties have been released but most of the organizations are not taking up the seed production of these new varieties except the National Seeds Corporation. Considering the price escalation factor, timely availability and new varieties, the jute growing states should come forward to take up seed production programme in the jute growing states. The organization-wise and year-wise production of certified jute seed from 2017-18 to 2022-23 has been shown at **Annexure- X.**

8. Organization Associated in Jute Sector:

Number of organizations are associated in jute sector and these organizations have their respective activities for jute sector. Some of the important organization and its functions are highlighted hereunder.

8.1 Directorate of Jute Development: The Directorate of Jute Development (DJD)is a subordinate Office of the Department of Agriculture & Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India. The Directorate of Jute Development (DJD) had its origin in April, 1966 from the erstwhile Indian Central Jute Committee. Since then it had been working as a constituent unit of the Crops Division of the Ministry of Agriculture & Farmers Welfare (Department of Agriculture and Farmers Welfare) as a Subordinate Office with its Headquarters in Kolkata. The main objective of the DJD was to bring about a quantitative and qualitative improvement in the production of both jute and mesta in the Country. To achieve the objectives, the Directorate had to plan, coordinate and supervise the development and marketing programme of jute and allied fibre crops at the national level. Subsequently, in the year 1995, the Government of India decided to reorganize the Crops Development Directorates having uniform staffing pattern with a total staff strength of 31. The reorganization was implemented in June, 1996. There are altogether eight Crops Development Directorates. In the wake of reorganization of the Directorates, they have been assigned bi-focal responsibilities, (a) for the respective specified nodal crops of the country as a whole and (b) for all major crops in the states assigned to each of them. The Directorate of Jute Development has been assigned nine states and one U.T., namely, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, West Bengal and Andaman & Nicobar Islands. The Directorate of Jute Development, therefore, has to perform activities for the overall development of the nodal crops in the country, i.e., jute/mesta and allied fibre crops and also to perform the monitoring and related activities of other crops in the assigned states.

8.2 ICAR-Central Research Institute for Jute & Allied Fibres (CRIJAF): The Central Research Institute for Jute & Allied Fibres (CRIJAF) formerly known as Jute Agricultural Research Institute (JARI) started functioning after the partition of India in 1947. The institute is located at Nilganj, Barrackpore, near Kolkata. The CRIJAF deals with jute, mesta and other allied fibre crops like sunhemp, sisal, ramie, flax, etc. and conduct research on varietal and technology development including other allied aspects. In the meantime number of variety has been developed and production technology has also been developed.

8.3 ICAR-National Institute of Natural Fiber Engineering and Technology (NINFET): The Indian Central Jute Committee constituted by the Government of India on the recommendation of the Royal Commission on agriculture in 1936 took necessary steps to set up Jute Technological Research Laboratories in Calcutta with a view to improve the quality of jute fibre and technology for manufacturing jute products. The institute started functioning in 1939. The administrative control of the institute later on went under Indian Council of Agricultural Research. Few years back, the institute was renamed as National Institute of Research on Jute & Allied Fibre Technology (NIRJAFT). Late on it was again re-named as National Institute of Natural Fiber Engineering and Technology (NINFET)The institute carried out research on Physics, Chemistry, Biology, Technology and Engineering aspects of jute and allied fibre crops. Number of jute products, equipments, diversified product have been developed and standardized by the institute.

8.4 Office of the Jute Commissioner: The Office of the Jute Commissioner is an organization under the Ministry of Textiles, Government of India and is located in Kolkata. Its

main function is to advice the Government and the jute industry and trade on all matters relating to the development of the jute industries and to implement the Government policies. It is the nodal agency for all jute control orders and licensing policies under the Ministry of Textile.

8.5 National Jute Board (NJB): The National Jute Board (NJB) has been constituted as per National Jute Board Act,2008 (12 of 2009), effective on and from 1st April, 2010 and erstwhile Jute Manufacture Development Council (JMDC) and National Centre for Jute Diversification (NCJD) have been merged into National Jute Board (NJB). It is a corporate body with its office in Kolkata under the Ministry of Textiles. The NJB has been established for the development of manufacture and marketing of jute and jute products and for matters connected therewith.

8.6 Jute Corporation of India Ltd (JCI): The Jute Corporation of India Ltd (JCI) was set up in 1971 as an official agency of the Government of India with the aim to provide minimum support price (MSP) to the jute cultivators and also work as a helping hand in raw jute sector. The Head Office of JCI is located in Kolkata and having regional offices in different jute growing states. It is having departmental purchase centre spread over major jute growing areas. The organization undertakes the procurement of raw jute operation with MSP particularly when the market price goes below the MSP.

8.7 Indian Jute Industries Research Association (IJIRA): Indian Jute Industries Research Association (IJIRA) was established in 1937, the first cooperative R & D organization rendering Indian jute industries and Government agencies who are promoting Indian jute in export and domestic market. The institute is engaged in fundamental and applies research on jute and its products.

8.8 National Jute Manufactures Corporation Ltd. (NJMC): The National Jute Manufactures Corporation Ltd. (NJMC) is an apex body for management of all nationalized jute mills and is located in Kolkata.

8.9 Jute Products Development & Export Promotion Council (JPDEPC): Jute Products Development & Export Promotion Council (JPDEPC) has been created, at the initiative of the Government of India in the Ministry of Textiles, an Industry-led body, with the principal purpose of giving added push to the initiatives required for taking export of Jute goods to a sustainable higher level and is located in Kolkata.

8.10 Indian Jute Mills Association (IJMA): The Indian Jute Mills Association (IJMA) was formed in 1887 and is the representative body of the Indian jute industries and located in Kolkata.

8.11 Department of Jute and Fibre Technology (DJFT): The Department of Jute and Fibre Technology (DJFT), a Technology Department of the University of Calcutta formerly known as Institute of Jute Technology (IJT), is situated in Kolkata Campus of the University of Calcutta (commonly known as Ballygunge Science College Campus). The main objective of this Institute is to cater education and training to fulfill the HRD needs of jute and allied fibre sector for development of qualified technical manpower and training of mill-personnel for the Indian Jute Mills.

8.12 Jute Balers Association (JBA): The Jute Balers Association (JBA) is the recognized body for trading of raw jute and is located in Kolkata.

9. Estimates of Area, Production and Yield:

9.1 State-wise position of area and production of Jute and Mesta:

9.1.1 In India jute is grown mainly in eight states, viz., West Bengal, Bihar, Assam, Meghalaya, Nagaland, Odisha, Tripura and also in Uttar Pradesh. State-wise normal (five years average of 2018-19 to 2022-23) area, production and yield of Jute have been depicted at **Annexure-I.** Presently, the normal area under jute in the country is around 6.33 lakh ha with a production of about 93.30 lakh bales. West Bengal contributes the maximum area to the tune of about 80.3% and 83.2% of total national area and production, respectively. In the case of Jute area, Assam shared about 9.9% followed by Bihar 8.2%. As regards Jute production, the share of Assam was 8.1% and that of Bihar was 7.6%. The other states contributed less in area and production of jute.

9.1.2 Mesta is grown in the following States of India namely Andhra Pradesh, Assam, Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Odisha, Tamil Nadu, Tripura and West Bengal. The State-wise normal (five years average of 2018-19 to 2022-23) area, production and yield of Mesta have been presented at **Annexure-I.** Presently, the normal area under Mesta in the country is about 0.40 lakh ha with a production of about 3.89 lakh bale. Bihar being the major Mesta growing state shared 32.6 % and 39.2 % of total area and production, respectively. The acreage under Mesta in the states i.e. West Bengal, Meghalaya, Odisha, and Assam was 30.1%, 11.1%, 7.8%, and 7.7%, respectively. The share of production of Mesta in the states i.e. West Bengal, Meghalaya, Assam and Andhra Pradesh was 37.1%, 6.8%, 5.1%, and 4.3%, respectively. Mesta is grown in considerable area in Maharashtra and Nagaland but their production is less.

9.1.3 The State-wise average Area, production and yield of Jute, Mesta and Raw Jute during 2018-19 to 2022-23 has been shown at **Annexure-II, Annexure-III**, and **Annexure-IV,** respectively.

It has been observed that there is gradual decrease in area coverage of jute and a wavy trend of coverage of mesta from 2018-19 to 2022-23. The productivity of jute and mesta is showing increasing trend. The decrease of jute area is due to diversion of area to other competitive and remunerative short duration crops like maize, sesame, vegetables etc. mainly in West Bengal, Assam and Bihar, the major jute growing states. The decrease of mesta area is also due to diversion of area to other remunerative crops including horticultural crops mainly in Andhra Pradesh, Bihar and Odisha.

9.2 Trend in Area, Production and Yield of Jute/Mesta in India:

9.2.1 It has been observed that from a level of about 2.6 lakh ha in 1947-48, the area under jute during the 9th Plan period rose to about 8.6 lakh ha. Simultaneously, the production of jute from a level of 16.7 lakh bales in 1947-48 rose to nearly 104.83 lakh bales during the 12th Plan period. It is, however, observed that the production of jute is gradually decreasing during last few years (average production 93.73 lakh bales during 2018-19 to 2022-23).

It is, however, observed that the area under jute is gradually decreasing from 9th plan period (8.6 lakh ha) to 12th plan period (7.4 lakh ha) and even following the same decreasing trend in last six years (average jute area 6.42 lakh ha during 2017-18 to 2022-23).

Year to year, however, there was some fluctuation in area and production under the crop but the productivity of jute is gradually increasing since inception. Presently the yield of jute reached about 26 q/ha (Last six years average) from a level of 11q/ha during 1947-48.

9.2.2 From a level of about 1.98 lakh ha area under mesta during the First Plan (1951-1956), it has now come down to 0.68 lakh ha during the 12th Plan (2012-17) and even lower during last six years (0.43 lakh ha). However, with introduction of development programmes like Area Expansion Programme, IJDP etc., the coverage under mesta even rose to a level of about 3.8 lakh ha during the period of 1978-80. The production under mesta, from a level of about 8.53 lakh bales during the 1st Plan has gone up to about 18.76 lakh bales during the 1978-80 but subsequently the production decreased to a level of 5.64 lakh bales during 12 plan and even lower during last six year period (3.98 lakh bales). The yield of mesta, however, did not showed increase much up to 7th Plan. The main increase in yield of mesta was noticed after the 7th Plan and it has reached about 17 q/ha in recent years. However, there was wide fluctuation in area and production of jute and mesta in different states and both are showing declining trend in most of the states. The trend in area, production and yield of jute and mesta has been shown at **Annexure – V.**

9.3. State wise and District wise Productivity analysis of Jute with reference to National Productivity in India

9.3.1 National Level productivity:

All India Area, Production and Productivity of jute crop in last 5 years is indicated in Table 1 below:

Parameters	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**Average**
Area ('000 Hectares)	665.3	628.4	621.9	629.3	919.1	632.8
Production ('000 bale)	9496.7	9445.8	8952.6	9762.1	8989.1	9329.2
Productivity (kg/ha)	2569	2706	2591	2792	2614	2654

9.3.2 Comparative productivity of jute in different state and national productivity:

The average (five years average of 2018-19 to 2022-23) productivity of jute in different state and national average productivity is shown below in Table -2

Sl. No.	**State**	**Average Productivity**	**National Average Productivity kg/ha**	**Productivity Gap**	**% increase/ decrease over national productivity**
1	Assam	2166	2654	-488	-18.38
2	Bihar	2442	2654	-212	-7.96
3	Meghalaya	1817	2654	-837	-31.53
4	Nagaland	1908	2654	-746	-28.10
5	Odisha	2418	2654	-236	-8.89
6	Tripura	1343	2654	-1311	-49.39
7	West Bengal	2751	2654	97	3.65

***Source: DES, GoI.**

It has been observed that except West Bengal, the productivity of jute in all other states are less than the national productivity. West Bengal is having the highest productivity followed by Bihar and Odisha. The productivity in all other states are much lower than the national productivity. The maximum yield gap is in the state of Tripura.

9.3.3. State wise number of districts based on productivity groups and productivity of jute above the National Average during 2017-18 to 2021-22:

It has been observed that out of 88 districts the productivity of 70 districts are below the national average productivity. All the districts of Meghalaya, Nagaland, Odisha, Tripura and four districts of West Bengal fall under very low (below 1500 kg/ha) to medium (upto 2500 Kg/ha) productivity group. Three district of Assam, four districts of Bihar and fifteen districts of West Bengal fall under high (above 2500 kg /ha) productivity group. The district-wise area, production and productivity of different jute and mesta growing States for the last five years (from 2017-18 to 2021-22) are given in Annexure-. The state-wise position of area and production of jute has described as under.

State: Assam

Assam is the third largest jute producing state in India. The state has an average (average of 2017-18 to 2021-22) area of 0.649 lakh ha. with a production of 7.824 lakh bales. The productivity of the state is 2171 kg/ha which is below than the national average (2654 kg/ha). The major jute growing districts in the state are Nagaon, Morigaon, Bongaigaon, Barpeta and Darrang.

District wise average productivity (2017-18 to 2021-22) has been shown below. The district wise analysis of productivity reflects that the Nagaon has higher productivity. Twenty one districts fall under medium productivity group (2000-2500 kg/ha). Six districts fall under the low productivity group (1500-2000 kg/ha). Baksa district having the lowest productivity.

Productivity in kg/ha

State	Group - I (Very Low) ≤ 1500	Group -II (Low productivity) 1500-2000	Group -III (Medium) Productivity) 2000-2500	Group -IV (High Productivity) ≥ 2500
Assam	Kamrup (R), Biswanath, Baksa	Goalpara, Kokrajhar, Nalbari, Sonitpur, Chirang, South Salmara, Mancachar	Barpeta, Bongaigaon, Cachar, Charaideo, Darrang, Dhemaji, Dibrugarh, Dima Hasao, Golaghat, Hailakandi, Jorhat, Karbi-Anglong, Kamrup (M), Karimganj, Lakhimpur, Majuli, Morigaon, Sibsagar, Tinsukia, Udalguri, W. Karbi-Anglong	Nagaon, Dhubri, Hojai
Total	**3**	**6**	**21**	**3**

State: Bihar

Bihar is the second largest jute producing state in India. Jute is grown in seven districts of the state concentrated in the north eastern part of the state bordering West Bengal. The major jute growing districts in the state are Purnea, Kisanganj, Araria, Katihar, Madhepura. The state has an average area of 0.592 lakh ha. with a production of 8.034 lakh bales. The productivity of the state is 2442 kg/ha which is below than the national average (2654 kg/ha).

District wise average productivity (2017-18 to 2021-22) has been shown below. All the seven jute growing districts are under national productivity level (2654 kg/ha). Three districts fall under high productivity group (≥ 2500 kg/ha). Three districts fall under medium productivity group (2000-2500 kg/ha). One district fall under the low productivity group (1500-2000 kg/ha). Kishanganj district having the lowest productivity whereas Madhepura district has the highest productivity.

Productivity in kg/ha

State	Group - I (Very Low) ≤ 1500	Group -II (Low) 1500-2000	Group -III (Medium)Productivity 2000-2500)	Group -IV (High) Productivity ≥ 2500
Bihar	-	Kishanganj	Araria, Katihar, Saharsa	Purnea, Supaul, Madhepura
Total	**0**	**1**	**3**	**3**

State: Meghalaya

Jute is grown in the state in small area and it is mainly cultivated in the Garo hills districts of the state bordering Assam and Bangladesh.

District wise average productivity (2017-18 to 2021-22) has been shown below. All the five jute growing districts are under national productivity level (2654 kg/ha). Two districts are under low productivity (1500-2000 kg/ha) group. Other two districts fall under Medium Productivity group (2000-2500 kg/ha). South Garo Hills district has the lowest productivity level and East Garo Hill district has the highest productivity in the state.

Productivity in kg/ha

State	Group - I (Very Low) ≤ 1500	Group -II (Low) 1500-2000	Group -III (Medium)Productivity 2000-2500)	Group -IV (High) Productivity ≥ 2500
Meghalaya	South Garo Hills	South West Garo Hills, West Garo Hills	North Garo Hills, East Garo Hills	
Total	**1**	**2**	**2**	**0**

State: Nagaland

Jute is grown in the state in small area. Jute is mainly cultivated in Wokha, Mon, Dimapur, Mokokchung, Peren districts of Nagaland.

District wise average productivity (2017-18 to 2021-22) has been shown below. All the four jute growing districts are under national productivity level (2654 kg/ha) and having productivity level of low (1500-2000 kg/ha). Wokha district has the lowest productivity of whereas Dimapur district has highest productivity of in the state.

Productivity in kg/ha

State	Group - I (Very Low) ≤ 1500	Group -II (Low) 1500-2000	Group -III (Medium)Productivity 2000-2500)	Group -IV (High) Productivity ≥ 2500
Nagaland		Wokha, Mokokchung, Mon, Dimapur, Peren		
Total	**0**	**5**	**0**	**0**

State: Odisha

Jute is grown in Odisha in small area and in scattered manner. Jute is mainly cultivated in Balasore, Bhadrak, Cuttack, Jajpur, Jagatsinghpur, Kendrapara, Mayurbhanj, Puri, Nuapada and Keonjhar districts of Odisha.

District wise average productivity (2017-18 to 2021-22) has been shown below. All the nine jute growing districts are under national productivity level (2654 kg/ha) and fall under Medium Productivity group (2000-2500 kg/ha). Only one district Nuapada Fall under very low productivity group (≤ 1500 kg/ha**).** Nuapada district having the lowest productivity whereas Bhadrak district having highest productivity in the state.

Productivity in kg/ha

State	Group - I (Very Low) ≤ 1500	Group -II (Low) 1500-2000	Group -III (Medium)Productivity 2000-2500)	Group -IV (High) Productivity ≥ 2500
Odisha	Nuapada		Balasore, Bhadrak, Cuttack, Jagatsingpur, Jajpur, Kendrapara, Keonjhar, Mayurbhanj, Puri	
Total	**1**	**0**	**9**	**0**

State: Tripura

Jute is grown in the state in small area. Jute is mainly cultivated in Dhalai, Unakoti, Gomati, Khowai, Sipahijala, Tripura North, Tripura South and Tripura West districts of Tripura.

District wise average productivity (2017-18 to 2021-22) has been shown below. All the eight districts are under national productivity level (2654 kg/ha). One district South Tripura have very low productivity (upto 1500 kg/ha) and other seven districts are under low productivity (1500-2000 kg/ha) group. Dhalai has maximum productivity. South district has the lowest productivity in the state.

Productivity in kg/ha

State	Group - I (Very Low) ≤ 1500	Group -II (Low) 1500-2000	Group -III (Medium)Productivity 2000-2500)	Group -IV (High) Productivity ≥ 2500
Tripura	South Dist.	North Dist, Dhalai, Khowai, West Dist, Sepahijala, Gomati, Unakoti		
Total	**1**	**7**	**0**	**0**

State: West Bengal

West Bengal is the largest producer of Jute in the country sharing nearly 80 % of the country's jute production. The state has an average (average of 2017-18 to 2021-22) area of 5.10 lakh ha with a production of 77.49 lakh bales. The productivity of the state is 2734 kg/ha which is above than the national average (2654 kg/ha).

District wise average productivity (2017-18 to 2021-22) has been shown below. Jute is being cultivated in nineteen districts of the state. Among them, the five districts are under national productivity level. Four districts i.e. Jalpaiguri, Alipurduar, Coochbehar, Murshidabad having medium productivity (2000-2500 kg/ha), Other fifteen districts are having more productivity than national average productivity (above 2654 kg/ha). Darjeeling district having the lowest productivity of whereas 24 parganas -South district has the highest productivity in the state.

Productivity in kg/ha

State	Group - I (Very Low) ≤ 1500	Group -II (Low) 1500-2000	Group -III (Medium) Productivity 2000-2500)	Group -IV (High) Productivity ≥ 2500
West Bengal			Darjeeling, Alipurduar, Coochbehar, Murshidabad	Dinajpur (S), Dinajpur (N), Malda, Nadia, 24 Parganas (N), 24 Parganas (S), Howrah, Hooghly, Purba Bardhaman, Paschim Bardhaman, Birbhum, Bankura, Midnapur (W), Midnapur (E), Jalpaiguri
Total	**0**	**0**	**4**	**15**

9.3.4. State-wise yield potential recorded under FLDs (NFSM-CC-Jute) vis-à-vis State Average Yield and Yield Gap Analysis.

The gap in yield recorded in the Frontline Demonstrations (FLDs) implemented by the States under (NFSM-CC-Jute) as compared to the average yield of the major jute growing states of last 3 years (2019-2022) is shown at **Table-3** hereunder. It has been observed that among the major jute growing States, the higher yield gap was recorded in Assam (953 kg/ha) and Bihar (422 kg/ha). The yield gap between FLD plots and farmer's practice for the state of Odisha and West Bengal are very less.

Table-3: State Wise Yield Gap recorded in Frontline Demonstrations (FLDs) as compared to existing yield of major jute growing states of last 3 years (2019-2022).

SL. No.	State	Crop	Yield in FLD Plot (kg/ha) *	State Yield Average (kg/ha) *	Yield Gap (kg/ha)	% increase/Decrease over state average
1.	Assam	Jute	3041	2088	953	45.64
2.	Bihar	Jute	2567	2145	422	19.67
3.	Odisha	Jute	2453	2242	211	9.41
4.	West Bengal	Jute	2871	2717	154	5.67

*** Reports received from the States**

9.4 Area, Production and Yield of major crop growing countries:

9.4.1 Jute and Mesta (Kenaf) collectively known as Raw Jute are grown in many countries of the world and mainly concentrated in South-East Asian Countries and some African Countries. The major Jute/Mesta growing Countries are India, Bangladesh, Nepal, China, Zimbabwe and South Sudan.

9.4.2 The Country-wise normal and yearly area, production and yield of Jute (five years average of 2018-19 to 2022-23) have been presented at Annexures-VI and VII. India is the major Jute/Mesta growing country sharing 48.26% and 51.16% of World Jute area and production, respectively. Bangladesh ranked 1st position as regard area, growing mainly Jute with 51.49% of world acreage and ranked 2nd in production sharing 47.83% of world production. The share of Nepal in area and production of jute in world declined and at present it shared 0.53% of area and 0.31% of production. The average yield of Jute in the world is about 24 q/ha while it was about 38q/ha. in China followed by India (26 q/ha) and Bangladesh (23 q/ha).

9.4.3 Gap of yield with other countries: The gap of yield in other countries as compared to India with regard to jute and jute like fibres (five years average of 2018-19 to 2022-23) is given at **Annexure-VIII**. The yield of jute was higher in China (3866 Kg/ha) than India (2599 Kg/ha) and slightly lower in Bangladesh (2277 Kg/ha).The countries having higher yield of jute than the world's average productivity (2452 Kg/ha) countries was in China, India, Egypt and Bhutan.

10. Crop Products, Demand/Supply and Export/Import:

10.1 Industrial use of Raw Jute: Raw jute as a natural fibre has some definite inherent advantages. Its silky lusture, high tensile strength, low extensibility, considerable heat and fire resistance and long staple length are the qualities that make it suitable for industrial use. Raw jute is mainly used in the industry in the manufacture of packaging materials. The major jute products are twine, yarn, hessian, sacking, carpet backing clothes, etc. These items cater to the packaging requirements of the sectors like food-grains, sugar, cement, fertilizer, cotton packaging, salt, postal canvass, vegetables, etc. This apart the jute is used as a source of fuel in the rural areas. Besides, the jute stick is also used as fencing, as wall of the kutcha houses, used in betel vine, etc.

10.2 Diversified Use: In view of the competition of the Jute Sector in manufacturing traditional products and also the suitability of raw jute fibre for the manufacture of various other utility products, initiatives have been taken to use raw jute for manufacture of various diversified products. These are : i) Jute-geo-Textiles; ii) all jute pile carpets, iii) paper and paper pulp; iv) decorative fabrics including wall cover, window curtains, etc; v) garments or apparel cloth either from pure jute or in blend with other textile fibres; vi) blanket, bed linen made of jute yarns blended with wool or synthetic fibres; vii) coloured/printed shopping bags; viii) rigid packaging for tea and apples; ix) soft luggage; x) handicrafts; xi) shoe and shoe upper; xii) non-oven products including automobile panels; xiii) jute composites; xiv) particle board from jute sticks for partition wall, table tops, false ceiling, etc. The demand and use of these diversified products are gradually increasing.

10.3 State-wise processing units: At present, there are about 104 composite Jute Mills in the Country. The State-wise position is West Bengal-75, Andhra Pradesh-14, Bihar-4, Uttar Pradesh-3, Assam-2, Odisha-3, Chhattisgarh-2 and Tripura-1. Besides, numbers of small scale units have also been established throughout the Country mainly for the production of diversified products and other utility item from raw jute.

10.4 Demand and supply scenario of raw jute: The Supply and distribution position of Raw Jute (2015-16 to 2022-23) are indicated hereunder:

(In Lakh bales; 1 bale = 180 Kg)

Sl. No	Year (April /March)	Carry over	Produ-ction	Import	Total Supply	Domestic Consumption	Export	Mill Consumption	Total Demand	Carry Over
1.	2015-16	14.00	65.00	6.00	85.00	9.00	--	70.00	79.00	6.00
2.	2016-17	6.00	92.00	4.00	102.00	10.00	--	70.00	80.00	22.00
3.	2017-18	22.00	76.00	3.40	101.40	10.00	--	69.00	79.00	22.40
4.	2018-19	22.40	72.00	3.00	97.40	10.00	--	69.00	79.00	18.40
5.	2019-20	18.40	68.00	4.00	90.40	10.00	--	54.00	64.00	26.40
6.	2020-21	18.00	60.00	2.00	80.00	8.00	5.00	62.00	75.00	5.00
7.	2021-22	5.00	90.00	4.00	99.00	12.00	2.00	66.00	80.00	19.00
8.	2022-23	19.00	95.00	3.00	117.00	12.00	2.00	70.00	84.00	33.00

Source: Office of the Jute Commissioner, Govt. of India

10.5 Production of Jute Goods: Item-wise production of jute goods (2015-16 to 2023-24 - July, 2023) is indicated hereunder:

(Qty: In'000' M.T)

(April / March)	Hessian	Sacking	CBC	Others	Total
2015-16	196.5	891.9	0.0	128.9	1217.3
2016-17	178.6	871.6	0.0	92.3	1142.5
2017-18	173.3	902.7	0.0	102.1	1178.1
2018-19	147.6	912.3	0.0	101.3	1161.2
2019-20	127.5	923.5	0.0	114.1	1165.1
2020-21	118.4	739.2	0.0	105.1	962.7
2021-22	119.4	865.1	0.0	95.5	1080.0
2022-23	117.6	1041.0	0.0	88.0	1246.6
2023-24 (upto July, 2023)	31.5	372.8	0.0	25.8	430.1

Source: Office of the Jute Commissioner, Govt. of India

10.6 Domestic Consumption of Jute Goods: Item-wise domestic consumption of jute goods (2015-16 to 2023-24 - July, 2023) is indicated hereunder:

(Qty: In '000' MT)

(April / March)	Hessian	Sacking	CBC	Others	Total
2015-16	164.2	890.2	0	90.2	1144.6
2016-17	140.9	855.9	0	78.9	1075.7
2017-18	141.9	894.3	0	76.5	1112.7
2018-19	130.3	900.8	0.0	82.5	1113.6
2019-20	113.8	907.9	0.0	95.0	1116.7
2020-21	96.0	738.2	0.0	84.1	918.3
2021-22	93.1	834.5	0.0	72.5	1000.1
2022-23	89.2	1012.9	0.0	68.5	1170.6
2023-24 (upto July, 2023)	26.1	348.5	0.0	19.9	394.5

Source: Office of the Jute Commissioner, Govt. of India

10.7 Export of Jute Goods

The item-wise export of jute products (2015-16 to 2022-23) are indicated hereunder**:**

(Qty: In 000' M.T; Value: Rs in Crores)

(April / March)		Hessian	Sacking	Yarn	CBC	Soil Saver	JDP	Others	Total
2015-16	Qty	77.7	38.3	16.9	0.01	2.2	0	3.1	140.66
	Value	827.3	307.5	118.6	0.4	17.06	562.4	59.1	1892.3
2016-17	Qty	78.6	46.6	9.3	0.01	1.25	0	2.57	140.68
	Value	930.2	411.8	72.8	0.3	9.1	590.9	59.1	2074.2
2017-18	Qty	86.80	44.77	16.98	0.01	0.92	0	3.33	152.79
	Value	917.2	407.2	130.2	0.7	7.9	631.5	63.8	2158.6
2018-19	Qty	64.11	37.09	13.61	0.01	0.8	0	6.07	121.68
	Value	802.7	432.9	109.4	0.3	7.3	815.5	105.2	2273.3

(April / March)		Hessian	Sacking	Yarn	CBC	Soil Saver	JDP	Others	Total
2019-20	Qty	56.3	38.9	14.1	--	--	--	4.4	113.7
	Value	758.42	489.49	117.91	--	--	963.44	94.58	2423.84
2020-21	Qty	56.4	31.0	11.6	--	--	--	3.8	102.8
	Value	805.73	438.48	131.54	--	--	1260.79	103.92	2740.46
2021-22	Qty	90.6	51.5	10.5	--	--	--	8.9	161.5
	Value	1112.9	640.58	144.45	--	--	1743.95	143.98	3785.86
2022-23	Qty	48.70	30.27	5.24	--	--	19.18	3.90	107.29
	Value	648.99	394.97	64.53	--	--	928.22	88.17	2124.87

Source: Office of the Jute Commissioner, Govt. of India

It has been observed that the quantity of jute products exported varies from 102.8 to 161.6 thousand ton and the value of export varies from Rs. 1892.3 Crore to 3785.86 Crore. The maximum exporting item in last few years is hessian. Besides, the export of Jute Diversified Products (JDPs) increased from 562.4 crore to 1743.95 crores during 2015-16 to 2021-22. However, during 2022-23, the value of export has come down to Rs. 2124.87.

10.8 Import of Jute:

The import of raw jute and jute goods (2015-16 to 2022-23) are indicated hereunder

(Qty: In 000' M.T; Value: Rs. in Crore)

Year	Raw Jute		Jute Goods					
			Hessian		Sacking		Yarn	
	Q	V	Q	V	Q	V	Q	V
1	2	3	4	5	6	7	8	9
2015-16	91.36	367.97	24.97	181.4	76.74	475.91	83.26	509.81
2016-17	138.87	704.22	6.0	57.56	43.82	307.42	79.14	502.42
2017-18	68.19	289.15	11.9	122.37	45.37	413.72	50.05	310.93
2018-19	57.28	235.93	18.08	184.4	54.11	432.65	49.2	292.13
2019-20	77.18	350.39	19.97	237.83	75.73	666.32	59.29	404.78
2020-21	28.88	179.28	19.2	267.11	45.89	428.98	38.15	338.47
2021-22	62.52	449.41	36.14	363.44	41.56	502.62	42.38	416.69
2022-23	74.84	535.92	10.52	106.3	9.64	121.91	14.64	142.59

Year	Jute Goods						Total Import	
	JDPs		Others		Total			
	Q	V	Q	V	Q	V	Q	V
1	10	11	12	13	14	15	16	17
2015-16	0	90	7.65	402.21	192.62	1659.3	283.98	2027.3
2016-17	0	100.2	9.53	330.31	138.49	1297.9	277.36	2002.1
2017-18	0	94.31	7.49	186.32	114.81	1127.7	183.0	1416.8
2018-19	0	123.37	5.85	156.05	127.24	1188.6	184.52	1424.5
2019-20	0	117.16	7.59	421.11	162.58	1847.2	239.76	2197.6
2020-21	0	60.66	7.93	762.02	111.17	1857.2	140.05	2036.5
2021-22	0	40.65	219.43	1058.14	339.51	2381.5	402.03	2831.0
2022-23	0	18.25	72.85	409.34	107.65	781.97	182.49	1317.9

Source: Office of the Jute Commissioner, Govt. of India

11. Economic Importance of Jute Cultivation:

11.1 Supply of raw material to industry: The requirement of the jute industries is being meeting through cultivation of jute in the country.

11.2 Foreign exchange earnings: By exporting jute goods, about Rs. 2700 crore (last five years average) foreign exchange is earned at this moment.

11.3 Employment Generation: Raw jute being a labour intensive crop, cultivation of raw jute creates huge employment opportunities in the rural areas. It has been estimated that jute and mesta cultivation can generate about 20 crore working man-days annually. Huge number of farm families derived their sustenance by cultivating jute and mesta in the country. This apart, about 2.5 lakh people are employed in the jute industry and huge number of people are engaged in jute based ancillary sector.

11.4 Source of Fuel: In the jute/mesta growing rural areas, jute and mesta stick are the main source of fuel. In view of shortage of wood and coal, jute/mesta cultivation occupies an important position as a source of fuel in rural areas.

11.5 Soil Fertility Improvement and Crop Rotation: After harvesting the jute/mesta crop, the leaves are allowed to shed in the fields which is decomposed in the soil and serves as a source of manure resulting in the increase of soil fertility. In the jute field, jute is followed by rice in many of the areas. At the time of harvesting, the jute field remains almost free of weeds and result in less weed competition for the following crops.

11.6 Environment Friendliness: In view of the recent trend in regard to the concern of the people for environment, raw jute has gained lot of importance in this regard. Raw jute is a natural and renewable source of raw materials and bio-degradable. Considering the above aspects, raw jute is considered as an environment friendly crop.

12. Crop Development Programme:

The Government of India has approved Crop Development Programme on Jute for enhancing the production and productivity under National Food Security Mission- Commercial Crops (Jute) w.e.f. 2014-15. Under this Scheme thrust has been given on transfer of technology through frontline demonstrations and training in order to extend benefits to the farmers. From, 2015-16, in view of increased devolution to the States on account of implementation of recommendations of 14th Finance Commission, NFSM is being implemented on sharing basis between Government of India and States on 60:40 basis for general category states & 90:10 basis for North East & hilly states. However, the Central Agencies are funded 100% by GOI.

12.1 Aim and Objectives:

The main objective of NFSM-CC (Jute) is to increase the productivity and to improve the quality of fiber.

12.2 Area of operation:

For jute, the NFSM-CC (Jute) is being implemented in eight States viz. Assam, Bihar, Meghalaya, Nagaland, Odisha, Tripura, Uttar Pradesh and West Bengal. The mesta programme

is being implemented in the States of Andhra Pradesh, Meghalaya, Odisha and Tripura. The programme is being implemented in the identified districts of the aforesaid States.

12.3 Implementing Agencies:

A. State Programme:

The State programme is being implemented by the State Department of Agriculture of nine States, namely Assam, Andhra Pradesh, Bihar, Meghalaya, Nagaland, Odisha, Tripura, Uttar Pradesh and West Bengal.

B. Direct Funded Components (DFC):

The DFC is being implemented through two ICAR institutions (CRIJAF & NINFET), NSC, Directorate of Jute Development, etc.

12.4 Funding Pattern

NFSM is being implemented on sharing basis between Government of India and States on 60:40 basis for general category states & 90:10 basis for North East & hilly states. However, the Central Agencies are funded 100% by GOI.

12.5 Interventions of the Programme:

The programme interventions of NFSM-CC (Jute) are being implemented by the State/UT, Government agencies, ICAR Institutes, SAU, DAC (Directorate of Jute Development), etc. as specially focused scheme. The main components of the scheme are: 1. Production of Foundation Seed, Production of certified Seeds, 2. FLDs on alternate Retting technologies, 3. FLDs on Production technologies / Intercropping, 4. National level training (25 Participants for 3 days), 5. State level training (20 participants for 2 days), 6. Distribution of Certified seeds, 7. Distribution of nail weeder, 8. Distribution of microbial consortium such as CRIJAF SONA, 8. Local Initiatives (as per state specific needs) and 9. Contingencies & Electronic Print Media, Component wise pattern of financial assistance has been shown at **Annexure-X.**

12.6 Allocation, Released and Expenditure under NFSM-CC (Jute) during 2014-15 to 2021-22 (central share):

The NFSM-CC (Jute) is being implemented from 2014-15. The allocation, released and expenditure (central share) from 2014-15 to 2020-21 is at **Annexure-XI.**

13. Special initiatives taken for encouraging the cultivation of the crop:

13.1 Minimum Support Price (MSP):

The price policy of the govt. of India is to provide proper price support to the farmers for their produce. Keeping this objective in view, the Govt. of India every year announces the minimum support price for raw jute. It is an established fact that the support price recommendation will not become effective unless they are backed by the efficient market structure. In order to remove the structural weakness of jute marketing, the Govt. of India created the Jute Corporation of India (JCI) in 1971 which is committed to provide at least the

minimum price to the growers. The procurement of jute by JCI has been given at **Annexure-XII**. The minimum support prices as announced by the Government of India for the last six years have been shown in **Annexure-XIII**.

13.2 Marketing:

Raw jute is mainly a market oriented crop and as such nearly 90 per cent of the raw jute produce by the farmers are sold out and only about 10 per cent is retained by them for domestic and other purpose. The jute growers are mostly marginal and small category of farmers and are general, poor in economic status. As such, their holding capacity is low and also has poor bargaining capacity in marketing raw jute. The institutional procurement is very limited and as such the marketing of raw jute is mainly governed by the private trading where the control of price is not maintained properly in most of the years. Thereby very often the farmers are deprived of the remunerative prices. Since the price of the produce is uncertain the farmer are deprived of the remunerative prices. Since the price of the produce is uncertain the farmers are hesitant to invest more on the crop for undertaking improved production technology. As a result, even though the development programmes are in operation but the desired result is not always achieved. In view of this fact, it is necessary that the development of raw jute should be linked up with the marketing of the crop. As such, the concept of Technology Mission wherein all the aspects of jute sector could be coordinated for proper development of the crop is necessity. The price of the produce also depends on the demand and supply position of the crop and as such wide fluctuations in the price of raw jute is noticed from year to year. Numbers of channels are involved in jute marketing from the growers to the ultimate consumers, i.e. mill. These channels are middleman, village hut, primary market, secondary market, terminal market, etc. accordingly, market scenario of raw jute in India may be viewed giving proper cognizance to the fact that the economy of huge number of farm families cultivating jute and mesta is intractably linked with the marketing efficiency of the produce.

13.3 Important markets in India:

The important markets in different states of the country are indicated hereunder:

West Bengal	:	Beldanga, Bethuadahari, Toofanganj, Pundibari, Coochbehar Gangarampur, Balurghat Islampur, Jiaganj, Jangipur Katwa, Mathabhanga, Mekhliganj, Sheoraphuly, Champadanga Ghatal Haldibari, Kalna, Samsi, Baxirhat, Barasat
Bihar	:	Gulabbag, Punia, Salmari, Murliganj, Tribeniganj, Katihar, Supaul, Forbesganj, Araria, Kishanganj, Saharsa
Assam	:	Gauripur, Bohorihat, Dhing, Kharupetia
Andhra Pradesh	:	Vijayanagaram, Bobbili
Odisha	:	Kendrapara, Anandapur
Tripura	:	Agartala, Udaipur

13.4 Crop insurance:

Jute crop is covered under National Agriculture Insurance scheme (NAIS) in the major growing States of West Bengal, Assam and Odisha. Farmers growing jute under notified blocks are eligible for coverage under crop insurance scheme. This scheme is available for both loanee and non-loanee farmers. The Government is implementing Pradhan Manntri Fasal Biman Yojana (PMFBY) and jute crop is also covered under the yojna in notified blocks of Assam and West Bengal respectively.

14. General Issues and constraints in raw jute production:

14.1 Raw jute comprises jute and mesta. Two species of jute viz., *Corchorus capsularis* known as white jute and *Corchorus olitorius* known as tossa/daisee jute belonging to the family tiliaceae and two species of mesta viz., *Hibiscus sabdariffa* var. altissima and *Hibiscus cannabinus* belonging to the family malvaceae are cultivated for fibre purpose. The fibre is obtained from the bark of the aforesaid plants of jute/mesta and known as bast fibre or stem fibre. After the harvest of the crop, the fibre is obtained by retting of the plants and as such it requires huge volume of water for retting. The cultivation of these crops has been spread to a particular set of edapho-climatic condition utilizing the natural resources. Jute cultivation is mainly concentrated in the eastern and north eastern India while that of mesta cultivation is spread almost throughout the country. Various problems are coming in the way of the production of raw jute, some of them are highlighted hereunder:

14.1.1 Environmental Factor: Climate, particularly, rainfall is one of the important factors in raw jute production. Raw jute (jute and mesta) is mainly grown under rainfed condition baring about 20 per cent of jute area which is raised under irrigated condition. The sowing of jute is taken up during March to May. As such, the sowing as well as the initial growth of the crop is highly dependable on rainfall. Even the crop is sown with the onset of a nor-wester shower, it may have to witness a drought situation after the sowing of the crop. On the other hand, at the later stage of the crop growth, it may have to witness water stagnation particularly in the northern and north-eastern belt i.e. in North Bengal, Bihar and Assam where early and heavy rainfall occurs even from the month of May. Under the situation even if proper technology is adopted, desired production may not be obtained due to this aberrant weather situation. It is, therefore, necessary to develop some varieties, which have got drought tolerance as well as pre-mature flowering resistance character. On the other hand, if the sowing is delayed, varieties required for such situation should have resistance capacity to water logging or water stagnation condition. The sowing of mesta is taken up during the months of April to June. As the crop is grown under rainfed condition, sowing is entirely dependent upon the receipt of rainfall during this period. The rainfall during the sowing period is uncertain and erratic and as such, the sowing of the crop is very often delayed. On the other hand, the early sown crop also suffers moisture stress due to lack of rains in the subsequent period.

14.1.2 Crop Competition: Raw jute being cash crop, the coverage as well as the use of various inputs is highly dependent upon the prevailing price of the fibre. Accordingly, it has been observed that whenever the price is high, the farmers take more care and invest more on the crop, thereby getting higher productivity. Besides, the farmer also intends to cover more area under jute to some extent. On the other hand, in the low price situation, the farmers are reluctant to invest more on the crop and also intend to reduce the area.

14.1.3 Social Factor: Raw jute is mainly grown by small and marginal farmer. As such, their investment capacity is poor. Even though proper technology is available but, very often it is observed that with the poor status of the farmers, they are not in a position to invest more on adopting proper technology, particularly, for the use of proper doses of fertilizer and proper plant protection measures.

14.1.4 Seed: Jute seed is mainly produced in far of places of the jute growing areas, i.e. in Maharashtra, Andhra Pradesh, Telangana, etc. It is very often observed that good quality particularly the certified seed does not reach to the far end, i.e. in Assam, North Bengal, Meghalaya and Tripura well in time. Accordingly, whenever, there is a shower, to avail optimum soil moisture condition, farmer use whatever seed is available in the market, may not

be of good quality or may be of non-descriptive type. It is thus necessary that the jute growing states should take proper initiative for production and timely availability of jute seed in their state. In the case of mesta, though number of varieties has been developed, but availability of good quality seed is very less. Organized seed production of good quality seeds in mesta crop is very less. Accordingly, it is necessary to take up organized seed production of good quality seeds.

14.1.5 Variety and Technology Adoption: Presently, the most popular variety of jute is JRO-524 which has been developed more than 40 years back, However, some new varieties like JRO-8432, JRO-66, JRO-128, S-19, JRO-204, AAU-OJ-1, JBO- 2003H, CO-58, JBO-1, JROM-1, JROG-1, JRO-2407, BCCO-6, JROMU-1 of olitorius jute and JRC-698, JRC-80, JBC-5, JRC-517, JRC-532, JRC-9057 of capsularis jute have recently been released. However, recently, some new varieties, like JRO-204 is getting momentum. The potential yield of the jute varieties is 35 to 40 q/ha. But the actual achievement in the field is little more than 65% of the potential yield. Number of mesta varieties have been developed with a yield potentiality of 25 to 30 q/ha. But in actual practice, the yield achieved is much lower. The main varieties of mesta are HS-4288, HS-7910, AMV-1, AMV-2, AMV-3, AMV-4, AMV-5, GR-27, AMV-7 of sabdariffa sp., HC-583, AMC-108, MT-150, JRM-5, JRM-3. JBM-81, JRKM-9-1, JBMP-2 of cannabimus sp. Due to various problems like weather, lack of good quality seeds, lack of proper technology adoption, the productivity is still low. Suitable implements for line sowing are still lacking. Virtually, the crop is mainly sown by broadcasting method. However, a multi-row seed drill has been developed which is gradually being popularized but being its high cost it is difficult for the farmers to have some implements. For weed control, certain herbicides have been identified, weeder has been developed but these are yet to be popularized in a larger perspective.

14.1.6 Post Harvesting Operation including Retting and extraction: Retting is one of the important operations governing the quality of fibre as prevailed at present. Adequate retting facilities are not available everywhere. It is, therefore, necessary to develop a technology through which retting could be possible in a small volume of water and also in a short span of time. Some of the technologies like ribbon retting has already been developed and demonstrated for jute crop but being a labour-intensive technology, it has not yet been popularized. This apart, microbial consortium, in-situ retting technology has been developed for quality improvement and faster retting and number of demonstrations are being conducted on the same.

14.1.7 Marketing: Raw jute is mainly a market-oriented crop. Normally, the jute growers do not have the holding capacity of the fibre and the temporal disposal pattern shows that the growers usually dispose of their produce immediately after the harvest of the crop. The marketing of raw jute is mainly governed by the private traders as the institutional marketing covers not more than 10 per cent of the total produce. As such, the buyers show monopolistic attitude in respect of price of the fibre and the farmers are to depend on the mercy of the traders. To safeguard the interest of the farmers and to make an effective development programme, it is necessary to develop a proper marketing infrastructure for raw jute.

15. Important Websites:

15.1 Name of important national organizations:

The notable institutions in India promoting, providing every assistance, R&D in the field of jute and web address of some of them is indicated hereunder:

- Directorate of Jute Development- www.jute.dac.gov.in
- Centre Research Institute for Jute & Allied Fabrics (CRIJAF)- www.crijaf.icar.gov.in
- National Institute of Natural Fibre Engineering and Technology (NINFET) formerly National Institute of Research on Jute & Allied Fibre Technology (NIRJAFT)- www.nirjaft.res.in
- Office of the Jute Commissioner- www.jutecomm.gov.in
- National Jute Board- www.jute.com
- The Jute Corporation of India (JCI)- www.jutecorp.in
- Indian Jute Industries' Research Association (IJIRA)- www.ijira.org.in
- National Jute Manufactures Corporation Ltd. (MJMC)-www.njmc.org.in
- Jute Products Development & Export Promotion Council (JPDEPC)-www.jpdepc.org
- Indian Jute Mills Association (IJMA)-www.ijma.org
- Department of Jute and Fibre Technology (DJFT) formerly Institute of Jute Technology (IJT)- www.ijtindia.org
- Bureau of Indian Standards- www.bis.gov.in

15.2 Name and website of advisory service to farmers

- CRIJAF- www.crijaf.icar.gov.in
- BCKV- www.bckv.edu.in
- UBKV- www.ubkv.ac.in
- OUAT- www.ouat.nic.in
- AUU-www.aau.ac.in
- BAU-www.bausabour.ac.in

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Annexure - I

State-wise Normal (Average of 2018-19 to 2022-23) Area, Production and Yield of Jute, Mesta & Raw Jute in India																
A-Area in '000 ha, P-Production in '000 bale, Y- Yield in kg/ha																
Sl. No.	**State**	**Jute**					**Mesta**					**Raw Jute (Jute + Mesta)**				
		A		**P**		**Y**	**A**		**P**		**Y**	**A**		**P**		**Y**
		Actual	**% to all India**	**Actual**	**% to all India**		**Actual**	**% to all India**	**Actual**	**% to all India**		**Actual**	**% to all India**	**Actual**	**% to all India**	
1	Andhra Pradesh	0.0	0.0	0.0	0.0	0	1.6	4.0	16.9	4.3	1899	1.6	0.2	16.9	0.2	1899
2	Assam	62.5	9.9	751.8	8.1	2166	3.1	7.7	19.8	5.1	1147	65.6	9.7	771.7	7.9	2177
3	Bihar	52.2	8.2	707.4	7.6	2442	13.1	32.6	152.4	39.2	2088	65.3	9.7	859.8	8.8	2370
4	Madhya Pradesh	0.0	0.0	0.0	0.0	0	0.2	0.5	0.4	0.1	392	0.2	0.0	0.4	0.0	396
5	Meghalaya	6.0	1.0	60.7	0.7	1817	4.5	11.1	26.3	6.8	1060	10.5	1.6	87.0	0.9	1495
6	Nagaland	2.3	0.4	24.7	0.3	1908	1.5	3.6	9.2	2.4	1130	3.8	0.6	33.9	0.3	1610
7	Odisha	1.4	0.2	19.2	0.2	2418	3.2	7.8	15.7	4.0	896	4.6	0.7	34.9	0.4	1367
8	Tripura	0.5	0.1	3.7	0.0	1343	0.3	0.8	2.4	0.6	1304	0.8	0.1	6.1	0.1	1337
9	WB	507.9	80.3	7761.8	83.2	2751	12.2	30.1	144.4	37.1	2138	520.0	77.3	7906.2	81.4	2737
10	Others	0.0	0.0	0.0	0.0	0	0.7	1.8	1.4	0.4	352	0.7	0.1	1.4	0.0	353
Total		**632.8**	**100.0**	**9329.2**	**100.0**	**2654**	**40.3**	**100.0**	**389.0**	**100.0**	**1736**	**673.1**	**100.0**	**9718.3**	**100.0**	**2599**

Source: DES, GoI,

Others include Chhattisgarh, Uttar Pradesh, Jharkhand & Karnataka.

Annexure-II

State-wise estimates of area, production & yield of Jute from the year 2018-19 to 2022-23 and average

A-Area in '000 ha, P-Production in '000 bale, Y- Yield in kg/ha

State	2018-19			2019-20			2020-21			2021-22			2022-23			Average		
	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
Assam	65.8	761.7	2084	64.3	791.7	2218	62.9	773.8	2215	61.5	743.4	2175	58.0	688.6	2137	62.5	751.8	2166
Bihar	70.6	928.8	2367	48.4	646.8	2406	42.5	618.3	2620	51.1	713.4	2514	48.2	629.6	2352	52.2	707.4	2442
Meghalaya	6.7	68.5	1846	6.7	68.5	1847	6.7	68.5	1847	6.7	68.6	1847	3.4	29.4	1581	6.0	60.7	1817
Nagaland	3.1	32.6	1906	3.1	32.6	1906	2.5	26.1	1907	0.1	0.8	2083	3.0	31.5	1908	2.3	24.7	1908
Odisha	0.2	1.7	1557	0.2	1.8	2172	0.8	10.2	2404	3.5	49.0	2544	2.6	33.1	2333	1.4	19.2	2418
Tripura	0.7	5.8	1593	0.6	3.2	920	0.4	3.9	1583	0.4	3.9	1628	0.3	1.6	917	0.5	3.7	1343
West Bengal	518.3	7697.5	2673	505.2	7901.2	2815	506.2	7451.9	2650	506.0	8183.0	2911	503.7	7575.3	2707	507.9	7761.8	2751
Total	**665.3**	**9496.7**	**2569**	**628.4**	**9445.8**	**2706**	**621.9**	**8952.6**	**2591**	**629.3**	**9762.1**	**2792**	**619.1**	**8989.1**	**2614**	**632.8**	**9329.2**	**2654**

Source: DES, GoI

Annexure-III

State-wise estimates of area, production & yield of Mesta from the year 2018-19 to 2022-23 and average

A-Area in '000 ha, P-Production in '000 bale, Y- Yield in kg/ha

State	2018-19			2019-20			2020-21			2021-22			2022-23			Average		
	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
Andhra Pradesh	3.0	30.3	1820	2.0	21.3	1918	1.0	10.4	1879	1.0	11.0	1978	1.0	11.3	2039	1.6	16.88	1899
Assam	3.3	19.7	1079	3.2	20.0	1119	3.1	20.5	1180	2.9	18.1	1112	3.0	20.9	1253	3.1	19.83	1147
Bihar	14.5	155.7	1935	13.7	155.3	2041	12.9	169.2	2368	12.6	138.8	1982	12.1	143.2	2139	13.1	152.42	2088
Chhattisgarh	1.1	2.1	349	1.0	1.9	356	0.7	1.3	357	0.5	0.9	353	0.4	0.7	346	0.7	1.41	352
Madhya Pradesh	0.0	0.0	0	1.0	2.2	392	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.2	0.44	392
Meghalaya	4.5	26.4	1061	4.5	26.5	1063	4.5	26.5	1064	4.5	26.5	1064	4.4	25.7	1050	4.5	26.29	1060
Nagaland	1.9	11.8	1104	2.0	12.0	1104	2.0	12.1	1107	0.0	0.1	1080	1.5	10.0	1229	1.5	9.19	1130
Odisha	0.0	0.0	0	4.7	23.4	899	3.8	18.7	894	3.7	18.3	895	3.6	18.1	896	3.2	15.71	896
Tripura	0.5	4.1	1513	0.4	2.1	892	0.3	2.4	1573	0.3	2.6	1589	0.2	0.9	881	0.3	2.42	1304
West Bengal	10.8	72.8	1218	12.4	166.2	2407	12.5	140.9	2034	12.6	170.6	2447	12.6	171.7	2453	12.2	144.44	2138
Total	**39.5**	**323.0**	**1471**	**44.9**	**431.0**	**1728**	**40.6**	**401.9**	**1782**	**38.0**	**386.8**	**1831**	**38.7**	**402.5**	**1871**	**40.3**	**389.0**	**1736**

Source: DES, GoI

Annexure-IV

State-wise estimates of area, production & yield of Raw Jute (Jute + Mesta) from the year 2018-19 to 2022-23 and average

A-Area in '000 ha, P-Production in '000 bale, Y- Yield in kg/ha

State	2018-19			2019-20			2020-21			2021-22			2022-23			Average		
	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
Andhra Pradesh	3.0	30.3	1820	2.0	21.3	1918	1.0	10.4	1879	1.0	11.0	1978	1.0	11.3	2039	1.6	16.9	1899
Assam	69.1	781.4	2036	67.5	811.7	2165	66.0	794.2	2166	64.5	761.5	2127	61.0	709.5	2094	65.6	771.7	2117
Bihar	85.1	1084.5	2294	62.1	802.1	2325	55.3	787.5	2561	63.7	852.1	2409	60.2	772.8	2310	65.3	859.8	2370
Chhattisgarh	1.1	2.1	349	1.0	1.9	356	0.7	1.3	357	0.5	0.9	353	0.4	0.7	346	0.7	1.4	352
Madhya Pradesh	0.0	0.0	0	1.0	2.2	392	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.2	0.4	392
Meghalaya	11.2	94.9	1531	11.2	95.0	1532	11.2	95.0	1532	11.2	95.1	1532	7.8	55.1	1280	10.5	87.0	1495
Nagaland	5.0	44.5	1597	5.0	44.6	1594	4.4	38.1	1552	0.1	0.9	1958	4.4	41.5	1684	3.8	33.9	1608
Odisha	0.2	1.7	1557	4.8	25.2	938	4.5	28.9	1147	7.2	67.3	1695	6.2	51.2	1488	4.6	34.9	1370
Tripura	1.2	10.0	1559	1.1	5.3	909	0.7	6.2	1579	0.7	6.5	1613	0.5	2.5	904	0.8	6.1	1327
West Bengal	529.0	7770.2	2644	517.7	8067.4	2805	518.6	7592.8	2635	518.5	8353.6	2900	516.3	7747.0	2701	520.0	7906.2	2737
Total	**704.8**	**9819.7**	**2508**	**673.3**	**9876.8**	**2641**	**662.5**	**9354.4**	**2542**	**667.3**	**10148.9**	**2738**	**657.8**	**9391.6**	**2570**	**673.1**	**9718.3**	**2599**

Source: DES, GoI

Annexure-V

Trend in Area, Production and Yield of Jute and Mesta in India (Plan wise)

Plan	Area ('000 ha)			Production ('000 bale)			Yield (Kg/ha)		
	Jute	Mesta	Raw Jute	Jute	Mesta	Raw Jute	Jute	Mesta	Raw Jute
1947-48	263.9		263.9	1671.3		1671.3	1140		1140
Pre Plan (1947-51)	411.3		411.3	2545.0		2545.0	1114		1114
1st Plan (1951-56)	645.4	197.9	843.3	3928.8	853.3	4782.1	1096	776	1021
2nd Plan (1956-61)	704.2	308.2	1012.4	4441.0	1409.4	5850.4	1135	823	1040
3rd Plan (1961-66)	847.2	380.9	1228.1	5683.6	1648.9	7332.5	1208	779	1075
Plan Holiday (1966-69)	734.5	307.4	1041.9	4869.8	1133.0	6002.8	1193	663	1037
4th Plan (1969-74)	765.0	322.1	1087.1	5495.1	1220.7	6715.8	1293	682	1112
5th Plan (1974-78)	695.9	341.4	1037.3	4906.2	1593.7	6499.9	1269	840	1128
Annual Plan (1978-80)	859.4	381.5	1240.9	6270.9	1876.4	8147.3	1313	885	1182
6th Plan (1980-85)	818.7	311.7	1130.4	6419.5	1422.9	7842.4	1411	822	1249
7th Plan (1985-90)	802.8	266.1	1068.9	7562.7	1277.1	8839.8	1696	864	1489
Annual Plan (1990-92)	826.5	238.6	1065.1	8426.5	1330.1	9756.6	1835	1003	1649
8th Plan (1992-97)	766.6	196.9	963.5	8169.4	1116.7	9286.1	1918	1021	1735
9th Plan (1997-2002)	860.4	186.0	1046.4	9625.1	1099.0	10724.1	2014	1064	1845
10th Plan (2002-07)	808.2	149.0	957.2	10042.1	924.5	10966.6	2237	1117	2062
11th Plan (2007-12)	798.8	111.4	910.2	10397.0	719.5	11116.5	2343	1163	2198
12th Plan (2012-17)	743.4	67.8	811.2	10482.9	563.6	11046.5	2538	1496	2451
Average of 2017-23	641.6	43.0	684.6	9372.9	397.9	9770.8	2629	1667	2569

District-wise Estimates of Area, Production and Yield of Jute in Assam during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	BAKSA	0.52	0.49	0.52	0.46	0.47	2.80	3.51	3.16	3.40	3.74	980	1303	1104	1330	1428
2	BARPETA	5.64	5.72	5.67	5.50	5.01	81.59	68.98	69.52	64.31	63.30	2602	2172	2209	2104	2276
3	BISWANATH	-	-	-	1.03	0.95	-	-	-	8.43	7.35	-	-	-	1474	1396
4	BONGAIGAON	2.47	2.46	2.00	1.81	1.77	29.07	27.62	23.28	33.20	20.43	2117	2025	2092	3303	2075
5	CACHAR	0.03	0.03	0.03	0.03	0.04	0.41	0.37	0.41	0.36	0.42	2165	2081	2220	2216	2175
6	CHARAIDEO	-	-	-	0.00	0.01	-	-	-	0.05	0.06	-	-	-	2205	2160
7	CHIRANG	0.95	2.02	1.46	1.46	1.47	8.78	18.85	14.02	13.70	13.64	1663	1681	1725	1689	1668
8	DARRANG	4.02	3.99	3.99	3.60	3.09	47.27	56.41	65.95	46.31	41.91	2117	2546	2978	2316	2439
9	DHEMAJI	0.07	0.07	0.06	0.07	0.06	0.83	0.79	0.75	0.86	0.75	2165	2086	2219	2214	2177
10	DHUBRI	13.30	9.59	10.27	7.26	7.17	216.49	128.69	150.24	107.80	91.31	2929	2417	2634	2673	2293
11	DIBRUGARH	0.01	0.01	0.01	0.01	0.01	0.13	0.12	0.15	0.15	0.17	2160	2088	2220	2220	2173
12	DIMA HASAO	0.10	0.08	0.09	0.09	0.02	1.14	0.87	1.08	1.08	0.19	2166	2083	2217	2215	2171
13	GOALPARA	3.51	3.54	3.53	3.30	3.31	31.55	35.22	31.87	28.92	28.07	1619	1792	1624	1576	1525
14	GOLAGHAT	0.29	0.21	0.21	0.23	0.20	3.48	2.42	2.55	2.82	2.39	2165	2084	2218	2216	2175
15	HAILAKANDI	0.01	0.02	0.02	0.02	0.01	0.17	0.17	0.20	0.19	0.17	2160	2088	2216	2220	2173
16	HOJAI	-	-	-	0.44	0.44	-	-	-	5.04	7.12	-	-	-	2072	2934
17	JORHAT	0.05	0.02	0.02	0.01	0.01	0.54	0.19	0.21	0.14	0.13	2164	2093	2224	2209	2176
18	K. ANGLONG	1.41	1.37	1.33	0.69	0.69	16.90	15.83	16.33	8.49	8.31	2165	2084	2218	2215	2175
19	KAMRUP (M)	0.04	0.03	0.03	0.03	0.05	0.47	0.39	0.42	0.42	0.63	2165	2086	2218	2213	2174
20	KAMRUP (R)	4.62	4.47	4.43	4.42	5.84	29.82	39.17	23.33	41.00	54.51	1161	1577	948	1669	1679
21	KARIMGANJ	0.05	0.05	0.05	0.05	0.05	0.59	0.58	0.60	0.60	0.59	2164	2084	2219	2215	2175
22	KOKRAJHAR	3.62	3.25	2.92	2.67	2.20	39.27	29.90	23.36	22.14	17.82	1955	1656	1441	1492	1460
23	LAKHIMPUR	0.04	0.04	0.06	0.07	0.05	0.42	0.45	0.79	0.81	0.59	2165	2082	2219	2217	2175
24	MAJULI	-	-	-	0.01	0.02	-	-	-	0.06	0.24	-	-	-	2232	2178
25	MORIGAON	6.25	6.14	6.01	6.01	6.14	72.19	60.37	91.19	84.50	88.89	2079	1770	2731	2531	2608
26	NAGAON	10.42	9.96	9.77	9.30	9.28	132.80	151.67	151.23	161.56	151.34	2294	2742	2785	3126	2937
27	NALBARI	5.10	4.85	4.69	4.68	3.70	43.18	40.91	40.87	40.04	33.16	1524	1520	1570	1541	1613
28	SIVASAGAR	0.02	0.02	0.02	0.01	0.01	0.22	0.22	0.21	0.17	0.16	2160	2084	2213	2211	2174
29	SONITPUR	3.19	3.20	3.24	2.58	2.53	26.08	30.62	30.03	22.91	21.80	1470	1721	1670	1598	1549
30	S. S. - MANCACHAR	-	-	-	2.68	2.76	-	-	-	25.26	27.62	-	-	-	1700	1800
31	TINSUKIA	0.01	0.00	0.01	0.01	0.00	0.096	0.046	0.075	0.08	0.05	2160	2070	2250	2250	2160
32	UDALGURI	4.201	4.202	3.836	3.76	3.54	54.87	47.217	49.695	41.09	48.91	2351	2023	2332	1966	2489
33	W/ KARBI ANGLONG	-	-	-	0.64	0.63	-	-	-	7.86	7.65	-	-	-	2215	2175
	State Total	**69.93**	**65.79**	**64.25**	**62.92**	**61.52**	**841.15**	**761.57**	**791.51**	**773.76**	**743.40**	**2165**	**2084**	**2218**	**2213**	**2175**

Source: Directorate of Agriculture, Govt. of Assam

District-wise Estimates of Area, Production and Yield of Mesta in Assam during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	BAKSA	0.17	0.14	0.17	0.16	0.15	1.17	0.98	1.24	0.58	0.54	1280	1300	1351	674	665
2	BARPETA	0.14	0.15	0.15	0.14	0.13	1.14	1.22	1.20	1.11	1.11	1513	1500	1483	1480	1519
3	BISWANATH	-	-	-	0.00	0.01	-	-	-	0.02	0.04	-	-	-	1035	1050
4	BONGAIGAON	0.36	0.36	0.36	0.32	0.31	2.36	2.27	2.27	3.79	3.17	1178	1128	1132	2109	1857
5	CACHAR	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	840	900	960	960	990
6	CHIRANG	0.12	0.19	0.14	0.09	0.11	1.15	1.77	1.39	0.91	0.90	1733	1700	1787	1790	1471
7	DARRANG	0.11	0.11	0.11	0.11	0.11	0.64	0.64	0.80	0.57	0.59	1036	1038	1308	925	965
8	DHEMAJI	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	660	900	1080	1080	1080
9	DHUBRI	0.60	0.63	0.64	0.46	0.47	2.93	3.15	3.21	2.29	2.36	886	898	901	895	895
10	DIBRUGARH	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.06	0.04	0.05	945	945	1116	702	705
11	DIMA HASAO	0.01	0.01	0.01	0.01	0.01	0.04	0.05	0.04	0.04	0.03	788	802	800	800	797
12	GOALPARA	0.19	0.20	0.19	0.14	0.13	1.09	1.21	1.28	0.95	0.09	1055	1073	1200	1200	129
13	GOLAGHAT	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	990	900	900	900	900
14	HOJAI	-	-	-	0.00	0.00	-	-	-	0.01	0.01	-	-	-	2340	1440
15	JORHAT	0.01	0.01	0.01	0.01	0.01	0.03	0.04	0.05	0.03	0.03	1020	968	1000	990	990
16	K. ANGLONG	0.19	0.19	0.18	0.18	0.20	0.99	1.00	0.95	0.95	1.06	954	956	963	965	965
17	KAMRUP (M)	0.01	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.06	750	936	953	953	965
18	KAMRUP (R)	0.07	0.07	0.06	0.06	0.06	0.35	0.34	0.32	0.32	0.30	952	953	953	956	961
19	KARIMGANJ	0.00	0.00	0.00	0.00		0.00	0.00	0.01	0.00		720	738	900	720	
20	KOKRAJHAR	0.90	0.79	0.72	0.80	0.68	5.09	4.45	4.07	4.55	3.88	1016	1021	1021	1024	1023
21	LAKHIMPUR	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.08	0.15	0.11	660	990	1125	1260	1238
22	MAJULI	-	-	-	0.00	0.02	-	-	-	0.01	0.09	-	-	-	990	985
23	MORIGAON	0.15	0.07	0.05	0.05	0.02	0.35	0.18	0.16	0.14	0.14	420	498	550	553	1410
24	NAGAON	0.04	0.04	0.04	0.03	0.03	0.48	0.42	0.45	0.40	0.40	2142	1904	2058	2155	2155
25	NALBARI	0.02	0.02	0.01	0.01	0.01	0.05	0.05	0.06	0.11	0.09	648	600	772	1550	1620
26	SIVASAGAR	0.01	0.00	0.00	0.00	0.00	0.03	0.02	0.02	0.03	0.03	990	945	1080	1170	1170
27	SONITPUR	0.17	0.13	0.18	0.13	0.12	1.05	0.69	1.06	0.78	0.96	1145	926	1045	1045	1425
28	S. S. - MANCACHAR	-	-	-	0.15	0.15	-	-	-	0.77	0.79	-	-	-	918	918
29	TINSUKIA	0.00	0.00	-	0.00	0.00	0.01	0.01	-	0.00	0.00	900	900	-	720	720
30	UDALGURI	0.17	0.16	0.16	0.17	0.11	1.12	1.10	1.22	1.58	1.01	1210	1210	1351	1720	1610
31	W/ KARBI ANGLONG	-	-	-	0.05	0.05	-	-	-	0.26	0.24	-	-	-	964	964
State Total		**3.42**	**3.29**	**3.22**	**3.12**	**2.93**	**20.21**	**19.75**	**20.01**	**20.46**	**18.11**	**1064**	**1081**	**1118**	**1181**	**1113**

Source: Directorate of Agriculture, Govt. of Assam

District-wise Estimates of Area, Production and Yield of Jute in Bihar during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	PURNEA	12.27	11.20	1.31	1.32	1.29	238.83	198.18	27.46	28.04	20.85	3503	3185	3776	3815	2918
2	ARARIA	15.69	13.60	13.16	10.14	10.27	152.74	181.13	161.47	104.02	250.56	1752	2397	2208	1847	4391
3	KISHANGANJ	14.98	15.36	16.17	16.20	14.94	115.99	157.68	134.33	152.18	183.07	1394	1848	1495	1691	2206
4	KATIHAR	20.64	20.88	8.05	7.20	16.62	116.38	289.13	213.53	158.72	171.40	1015	2493	4774	3968	1856
5	SUPAUL	14.35	6.40	6.47	3.41	3.50	281.50	60.00	71.41	72.92	44.02	3530	1688	1988	3845	2267
6	MADHEPURA	5.54	3.20	3.23	4.17	4.42	204.22	42.48	38.72	101.83	42.71	6640	2392	2161	4399	1741
7	SAHARSA	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.02	0.03	0.03	4500	1980	1980	2520	1800
8	SAMASTIPUR	-	0.00	-	0.04	0.04	-	0.01	-	0.54	0.52	-	1980	-	2622	2513
State Total		**83.47**	**70.63**	**48.39**	**42.48**	**51.07**	**1109.70**	**928.64**	**646.93**	**618.28**	**713.15**	**2393**	**2366**	**2406**	**2620**	**2514**

Source: Directorate of Agriculture, Govt. of Bihar

District-wise Estimates of Area, Production and Yield of Mesta in Bihar during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	PURNEA	1.50	0.19	0.00	-	-	13.37	2.44	0.03	-	-	1601	2275	3000	-	-
2	BHAGALPUR	0.04	0.04	0.04	0.04	0.04	0.36	0.45	0.48	0.47	0.39	1477	1929	2048	2361	1972
3	KISHANGANJ	1.47	1.48	1.60	1.69	1.53	17.40	17.69	26.09	18.96	16.40	2129	2148	2930	2017	1932
4	KATIHAR	1.64	0.99	0.76	0.60	0.69	10.23	13.58	18.61	11.99	8.96	1126	2459	4385	3621	2346
5	SUPAUL	9.38	8.70	8.30	7.39	7.52	47.73	67.20	73.11	88.31	81.96	916	1390	1585	2151	1963
6	MADHEPURA	5.38	2.13	2.13	2.49	2.31	70.41	44.16	24.78	41.05	25.76	2354	3740	2096	2970	2005
7	SAHARSA	0.02	0.02	0.02	0.02	0.02	0.14	0.17	0.15	0.21	0.19	1444	1824	1688	2375	2000
8	SAMASTIPUR	0.60	0.24	0.19	0.18	0.18	4.89	2.56	3.53	2.36	2.01	1479	1937	3342	2369	1984
9	KHAGARIA	-	-	0.01	0.01	0.01	-	-	0.06	0.07	0.13	-	-	2000	2400	2000
10	MADHUBANI	0.01	0.01	0.01	-	0.01	0.08	0.11	0.17	-	0.13	1500	1900	3333	-	2000
11	NAWADA	0.00	0.00	-	-	-	0.02	0.02	-	-	-	1500	2000	-	-	-
12	PATNA	-	-	0.02	-	-	-	-	0.22	-	-	-	-	2053	-	-
13	SARAN	0.00	0.00	-	-	-	0.01	0.01	-	-	-	1000	2000	-	-	-
14	SIWAN	0.01	0.01	0.01	0.01	0.01	0.12	0.15	0.16	0.18	0.16	1500	1929	2071	2357	2000
15	VAISHALI	0.67	0.66	0.60	0.44	0.28	5.51	7.12	7.93	5.52	2.67	1479	1935	2368	2249	1696
16	BEGUSARAI	-	-	-	-	0.00	-	-	-	-	0.03	-	-	-	-	2000
State Total		**20.73**	**14.48**	**13.70**	**12.86**	**12.60**	**170.26**	**155.66**	**155.31**	**169.12**	**138.78**	**1479**	**1935**	**2041**	**2368**	**1982**

Source: Directorate of Agriculture, Govt. of Bihar

District-wise Estimates of Area, Production and Yield of Jute in Meghalaya during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	EAST GARO HILLS	0.05	0.05	0.05	0.05	0.05	0.56	0.57	0.59	0.59	0.60	2104	2105	2110	2110	2118
2	NORTH GARO HILLS	0.42	0.42	0.42	0.42	0.42	4.74	4.75	4.75	4.75	4.76	2054	2055	2055	2055	2055
3	WEST GARO HILLS	3.94	3.94	3.94	3.94	3.94	41.59	41.61	41.61	41.61	41.62	1900	1901	1901	1901	1901
4	SOUTH WEST GARO HILLS	1.75	1.75	1.75	1.75	1.76	18.86	18.88	18.88	18.88	18.89	1936	1937	1937	1937	1937
5	SOUTH GARO HILLS	0.52	0.52	0.52	0.52	0.52	2.72	2.73	2.74	2.74	2.75	946	947	949	949	949
State Total		**6.67**	**6.68**	**6.68**	**6.68**	**6.69**	**68.47**	**68.54**	**68.56**	**68.56**	**68.62**	**1847**	**1847**	**1847**	**1847**	**1848**

Source: Directorate of Agriculture, Govt. of Meghalaya

District-wise Estimates of Area, Production and Yield of Mesta in Meghalaya during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	EAST GARO HILLS	0.02	0.02	0.02	0.02	0.02	0.10	0.11	0.12	0.12	0.12	1224	1226	1228	1230	1230
2	NORTH GARO HILLS	0.05	0.05	0.05	0.05	0.05	0.33	0.34	0.35	0.36	0.36	1245	1245	1249	1253	1253
3	WEST GARO HILLS	2.22	2.22	2.22	2.22	2.22	12.73	12.74	12.76	12.76	12.76	1033	1034	1035	1035	1035
4	SOUTH WEST GARO HILLS	1.31	1.31	1.31	1.31	1.31	7.89	7.90	7.91	7.91	7.91	1088	1089	1090	1090	1090
5	SOUTH GARO HILLS	0.89	0.89	0.89	0.89	0.89	5.30	5.31	5.33	5.33	5.33	1078	1079	1081	1081	1081
State Total		**4.47**	**4.48**	**4.48**	**4.48**	**4.48**	**26.35**	**26.40**	**26.46**	**26.47**	**26.47**	**1061**	**1062**	**1063**	**1063**	**1063**

Source: Directorate of Agriculture, Govt. of Meghalaya

District-wise Estimates of Area, Production and Yield of Jute in Nagaland during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1.	MOKOKCHUNG	0.72	0.72	0.72	0.57	-	7.61	7.61	7.61	6.06	-	1903	1903	1903	1912	-
2.	MON	0.71	0.71	0.71	0.57	-	7.50	7.50	7.50	6.00	-	1901	1901	1901	1895	-
3.	DIMAPUR	1.04	1.04	1.04	0.83	0.03	11.06	11.06	11.06	8.83	0.44	1913	1913	1913	1916	2500
4.	WOKHA	0.61	0.61	0.61	0.49	0.03	6.44	6.44	6.44	5.17	0.32	1902	1902	1902	1898	1900
5.	PEREN	-	-	-	-	0.01	-	-	-	-	0.05	-	-	-	-	1800
State Total		**3.08**	**3.08**	**3.08**	**2.46**	**0.07**	**32.61**	**32.61**	**32.61**	**26.06**	**0.81**	**1906**	**1906**	**1906**	**1907**	**2179**

Source: Directorate of Agriculture, Govt. of Nagaland

District-wise Estimates of Area, Production and Yield of Mesta in Nagaland during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	KOHIMA	0.11	0.12	0.12	0.12	0.00	0.67	0.72	0.75	0.76	0.01	1091	1083	1107	1115	1000
2	PHEK	0.24	0.24	0.24	0.24	0.00	1.50	1.50	1.50	1.51	0.02	1125	1125	1107	1111	1500
3	MOKOKCHUNG	0.14	0.14	0.14	0.14	0.00	0.83	0.83	0.86	0.87	0.01	1071	1071	1092	1099	1000
4	TUENSANG	0.16	0.16	0.16	0.16	0.00	1.00	1.00	1.00	1.00	0.01	1125	1125	1111	1111	1000
5	NOKLAK	-	-	-	-	0.00	-	-	-	-	0.01	-	-	-	-	1000
6	MON	0.20	0.20	0.20	0.20		1.22	1.22	1.25	1.26		1100	1100	1108	1113	
7	DIMAPUR	0.27	0.27	0.27	0.27	0.00	1.67	1.67	1.69	1.69	0.01	1111	1111	1109	1113	1000
8	WOKHA	0.21	0.22	0.22	0.22	0.00	1.33	1.39	1.39	1.39	0.01	1143	1136	1116	1121	1000
9	ZUNHEBOTO	0.21	0.21	0.21	0.21	0.00	1.28	1.28	1.31	1.31	0.01	1095	1095	1103	1108	1000
10	PEREN	0.22	0.22	0.22	0.22	-	1.39	1.39	1.39	1.39	-	1136	1136	1116	1116	-
11	KIPHERI	0.06	0.07	0.07	0.07	-	0.33	0.39	0.41	0.42	-	1000	1000	1028	1056	-
12	LONGLENG	0.08	0.08	0.08	0.08	-	0.44	0.44	0.46	0.47	-	1000	1000	1025	1037	-
State Total		**1.90**	**1.93**	**1.96**	**1.96**	**0.01**	**11.67**	**11.83**	**12.00**	**12.06**	**0.06**	**1105**	**1104**	**1102**	**1107**	**1100**

Source: Directorate of Agriculture, Govt. of Nagaland

District-wise Estimates of Area, Production and Yield of Jute in Odisha during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1.	BALASORE	0.59	0.62	0.63	0.55	0.49	8.14	7.65	7.75	6.12	5.40	2483	2221	2214	2003	1984
2.	BHADRAK	0.18	0.13	0.10	0.14	0.32	2.38	1.59	1.20	1.83	4.26	2380	2202	2160	2353	2396
3.	CUTTACK	0.97	0.96	0.96	1.02	1.27	13.48	11.72	11.72	13.26	16.51	2501	2198	2198	2340	2340
4.	JAGATSINGHAPUR	0.06	0.05	0.04	0.06	0.08	0.70	0.65	0.50	0.71	0.93	2100	2340	2250	2130	2093
5.	JAJAPUR	0.54	0.37	0.12	0.39	0.64	7.57	4.56	1.48	4.84	7.84	2523	3683	6840	2234	2205
6.	KENDRAPARA	0.79	0.80	0.80	0.78	0.85	11.04	9.81	9.83	9.21	10.39	2515	2207	2212	2125	2200
7.	KENDUJHAR	1.20	1.03	0.98	1.01	1.54	16.78	12.57	12.06	12.09	18.40	2517	2197	2215	2155	2151
8.	MAYURBHANJ	0.01	0.02	0.02	-	0.01	0.11	0.25	0.26	-	0.12	1980	2250	2340	-	2160
9.	PURI	0.03	0.01	0.01	0.01	0.01	0.37	0.14	0.12	0.09	0.11	2220	2520	2160	1620	1980
10.	NUAPADA	-	-	-	-	0.01	-	-	-	-	0.08	-	-	-	-	1440
State Total		**4.37**	**3.99**	**3.66**	**3.96**	**5.22**	**60.57**	**48.94**	**44.92**	**48.15**	**64.04**	**2495**	**2208**	**2209**	**2189**	**2208**

Source: Directorate of Agriculture, Govt. of Odisha

District-wise Estimates of Area, Production and Yield of Mesta in Odisha during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1	ANGUL	0.24	0.13	0.02	0.02	0.01	1.17	0.67	0.10	0.10	0.05	878	928	900	900	900
2	BALANGIR	0.50	0.44	0.42	0.17	0.12	2.49	2.00	1.93	0.78	0.54	896	818	827	826	810
3	BALASORE	0.01	-	-	-	-	0.05	-	-	-	-	900	-	-	-	-
4	BARGARH	0.05	0.05	0.06	0.07	0.03	0.26	0.18	0.28	0.32	0.14	936	648	840	823	840
5	BOUDH	0.06	0.04	0.05	0.06	0.03	0.31	0.27	0.25	0.32	0.19	930	1215	900	960	1140
6	CUTTACK	0.08	0.06	0.06	0.06	0.05	0.41	0.28	0.29	0.28	0.23	923	840	870	840	828
7	DEOGARH	0.15	0.15	0.05	0.07	0.07	0.75	0.67	0.23	0.34	0.31	900	804	828	874	797
8	DHENKANAL	0.31	0.35	0.08	0.08	0.06	1.62	1.82	0.42	0.41	0.31	941	936	945	923	930
9	GAJAPATI	0.11	0.03	0.04	0.02	0.04	0.55	0.14	0.19	0.10	0.19	900	840	855	900	855
10	GANJAM	0.56	0.88	0.27	0.28	-	2.81	4.83	1.36	1.41	-	903	988	907	906	-
11	JAJAPUR	0.10	0.03	-	-	-	0.50	0.16	-	-	-	900	3000	-	-	-
12	JHARSUGUDA	0.03	0.04	0.03	0.04	0.11	0.15	0.20	0.10	0.19	0.47	900	900	600	855	769
13	KALAHANDI	0.18	0.11	0.14	0.21	0.15	0.91	0.60	0.77	1.04	0.74	910	982	990	891	888
14	KANDHAMAL	0.02	0.01	0.02	0.01	-	0.10	0.05	0.11	0.04	-	900	900	990	720	-
15	KENDUJHAR	1.49	1.37	0.98	0.97	0.78	7.26	6.87	5.28	5.18	4.24	877	903	970	961	978
16	KORAPUT	0.09	0.11	0.13	0.09	0.09	0.46	0.63	0.67	0.47	0.47	920	1031	928	940	940
17	MALKANGIRI	0.26	0.12	0.14	0.13	0.13	1.30	0.60	0.68	0.64	0.63	900	900	874	886	872
18	MAYURBHANJ	0.39	0.42	0.48	0.49	0.67	1.93	2.09	2.32	2.31	3.13	891	896	870	849	841
19	NABARANGPUR	0.05	0.07	0.08	0.11	0.11	0.25	0.34	0.39	0.54	0.52	900	874	878	884	851
20	NAYAGARH	0.56	0.70	0.70	0.06	0.14	2.77	3.31	3.45	0.27	0.64	890	851	887	810	823
21	NUAPADA	0.39	0.32	0.28	0.25	0.26	1.91	1.59	1.34	1.03	1.11	882	894	861	742	768
22	RAYAGADA	0.11	0.11	0.12	0.10	0.31	0.55	0.54	0.63	0.59	1.78	900	884	945	1062	1034
23	SAMBALPUR	0.01	0.01	0.01	0.01	0.01	0.05	0.04	0.04	0.05	0.04	900	720	720	900	720
24	SUBARNAPUR	0.08	0.10	0.10	0.08	0.09	0.40	0.50	0.44	0.34	0.42	900	900	792	765	840
25	SUNDARGARH	0.43	0.45	0.43	0.39	0.42	2.13	2.26	2.15	1.97	2.14	892	904	900	909	917
State Total		**6.26**	**6.10**	**4.69**	**3.77**	**3.68**	**31.09**	**30.64**	**23.42**	**18.72**	**18.29**	**894**	**904**	**899**	**894**	**895**

Source: Directorate of Agriculture, Govt. of Odisha

District-wise Estimates of Area, Production and Yield of Jute in Tripura during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1.	NORTH TRIPURA	0.12	0.11	0.10	0.06	0.08	1.05	0.98	0.91	0.48	0.72	1594	1596	1582	1540	1572
2.	UNAKOTI	0.02	0.13	0.07	0.06	0.04	0.15	1.07	0.58	0.44	0.29	1520	1545	1440	1440	1497
3.	DHALAI	0.09	0.09	0.13	0.09	0.08	0.88	0.93	1.45	0.91	0.86	1796	1972	2002	1832	1890
4.	KHOWAI	0.04	0.05	0.04	0.05	0.04	0.36	0.43	0.42	0.44	0.38	1634	1603	1742	1689	1651
5.	WEST TRIPURA	0.03	0.03	0.05	0.02	0.03	0.26	0.29	0.57	0.24	0.25	1504	1679	2003	1770	1814
6.	SEPHAHIJALA	0.02	0.01	0.02	0.01	0.02	0.17	0.07	0.12	0.08	0.15	1601	1586	1380	1580	1490
7.	GOMATI	0.11	0.12	0.11	0.06	0.07	1.10	1.00	0.91	0.52	0.57	1813	1538	1496	1546	1542
8.	SOUTH TRIPURA	0.13	0.13	0.10	0.10	0.08	1.03	1.06	0.78	0.76	0.67	1453	1460	1440	1440	1460
State Total		**0.55**	**0.66**	**0.62**	**0.44**	**0.43**	**5.00**	**5.84**	**5.73**	**3.87**	**3.89**	**1633**	**1602**	**1656**	**1596**	**1618**

Source: Directorate of Agriculture, Govt. of Tripura

District-wise Estimates of Area, Production and Yield of Mesta in Tripura during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1.	NORTH TRIPURA	0.08	0.06	0.06	0.01	0.01	0.72	0.49	0.47	0.09	0.08	1574	1407	1522	1620	1660
2.	UNAKOTI	0.03	0.04	0.00	0.02	0.02	0.27	0.36	0.04	0.14	0.13	1657	1546	1620	1620	1572
3.	DHALAI	0.14	0.13	0.13	0.07	0.09	1.42	1.22	1.29	0.65	0.88	1780	1634	1800	1765	1701
4.	KHOWAI	0.06	0.05	0.05	0.06	0.05	0.48	0.41	0.43	0.51	0.40	1577	1457	1643	1567	1581
5.	WEST TRIPURA	0.03	0.03	0.03	0.02	0.02	0.26	0.27	0.29	0.20	0.15	1521	1490	1535	1526	1520
6.	SEPHAHIJALA	0.02	0.01	0.01	0.01	0.01	0.17	0.06	0.06	0.05	0.05	1483	1270	1152	1350	1440
7.	GOMATI	0.09	0.07	0.08	0.04	0.05	0.92	0.62	0.72	0.37	0.45	1880	1563	1620	1620	1609
8.	SOUTH TRIPURA	0.09	0.09	0.07	0.05	0.06	0.72	0.69	0.54	0.37	0.42	1422	1361	1379	1370	1371
State Total		**0.54**	**0.49**	**0.43**	**0.27**	**0.29**	**4.96**	**4.12**	**3.84**	**2.36**	**2.56**	**1651**	**1503**	**1607**	**1584**	**1580**

Source: Directorate of Agriculture, Govt. of Tripura

District-wise Estimates of Area, Production and Yield of Jute in West Bengal during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1.	DARJEELING	3.05	3.10	2.55	2.80	2.72	34.58	34.68	35.12	35.64	38.70	2043	2012	2479	2290	2565
2.	JALPAIGURI	25.92	27.71	26.02	26.43	25.90	354.66	436.25	405.30	374.62	434.70	2463	2833	2803	2551	3021
3.	ALIPURDUAR	12.75	14.42	13.83	13.95	13.84	146.24	181.37	191.16	183.90	163.13	2065	2264	2487	2374	2122
4.	COOCHBEHAR	58.05	61.33	60.16	59.25	59.12	769.22	793.96	819.35	717.01	965.23	2385	2330	2452	2178	2939
5.	UTTAR DINAJPUR	36.88	19.45	26.72	26.29	27.18	492.52	261.17	385.83	362.19	434.31	2404	2417	2599	2480	2876
6.	DAKSHIN DINAJPUR	17.17	17.70	19.26	20.87	19.11	248.91	290.90	285.32	320.95	346.80	2609	2959	2667	2768	3267
7.	MALDA	25.08	25.72	22.87	22.91	28.91	391.03	417.90	375.42	354.99	458.07	2807	2925	2955	2789	2852
8.	MURSHIDASBAD	155.11	156.35	145.49	143.99	139.98	2096.41	2059.63	2198.81	1931.48	1847.91	2433	2371	2720	2415	2376
9.	NADIA	93.60	96.33	96.15	96.64	96.81	1465.84	1548.68	1491.67	1484.97	1665.11	2819	2894	2793	2766	3096
10.	NORTH 24-PARGANAS	54.91	59.64	59.60	59.47	59.37	917.64	1027.82	1038.28	1027.60	1165.57	3008	3102	3136	3110	3534
11.	SOUTH 24-PARGANAS	0.30	0.35	0.67	0.78	0.48	6.31	8.90	18.34	21.47	12.48	3849	4590	4898	4968	4730
12.	HOWRAH	3.87	4.25	4.22	4.51	4.48	52.22	62.92	92.12	94.58	85.66	2431	2668	3929	3778	3441
13.	HOOGHLY	12.68	15.97	12.45	12.90	12.91	233.11	352.27	264.50	268.23	276.67	3308	3971	3826	3744	3858
14.	PURBA BURDWAN	12.60	12.54	11.24	11.10	11.20	258.51	164.08	227.37	207.08	223.11	3693	2356	3643	3358	3587
15.	PASCHIM BURDWAN	-	-	-	-	0.01	-	-	-	-	0.15	-	-	-	-	3806
16.	BIRBHUM	0.17	0.02	0.27	0.26	0.15	3.13	0.27	5.63	5.26	3.18	3294	3288	3782	3614	3815
17.	BANKURA	0.05	0.00	0.04	0.02	0.02	0.70	0.03	0.65	0.31	0.36	2467	3060	2907	2918	3195
18.	PASCHIM MEDINIPUR	2.70	3.28	3.56	3.84	3.57	37.53	54.16	63.95	60.08	59.17	2503	2969	3238	2819	2981
19.	PURBA MEDINIPUR	0.19	0.12	0.14	0.16	0.24	3.11	2.49	2.59	1.31	3.79	2899	3678	3335	1478	2891
State Total		**515.08**	**518.26**	**505.23**	**506.16**	**505.99**	**7511.65**	**7697.49**	**7901.40**	**7451.67**	**8184.09**	**2625**	**2673**	**2815**	**2650**	**2911**

Source: Directorate of Agriculture, Govt. of West Bengal

District-wise Estimates of Area, Production and Yield of Mesta in West Bengal during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1.	DARJEELING	0.03	0.02	0.01	0.01	0.02	0.24	0.28	0.18	0.14	0.15	1613	2085	2353	2145	1836
2.	JALPAIGURI		0.05	0.03	0.03	0.03		0.63	0.45	0.35	0.34		2083	2356	2141	1833
3.	ALIPURDUAR	0.13	0.23	0.18	0.14	0.15	1.17	2.60	2.41	1.64	1.49	1616	2082	2358	2138	1831
4.	COOCHBEHAR	0.13	0.12	0.13	0.12	0.14	1.47	1.72	1.68	1.46	1.65	2071	2523	2358	2138	2137
5.	UTTAR DINAJPUR	0.95	1.22	1.11	1.18	1.18	7.39	10.86	14.67	14.53	10.62	1400	1608	2381	2214	1622
6.	DAKSHIN DINAJPUR	2.96	3.92	5.82	5.68	5.80	39.34	52.39	74.86	69.65	79.71	2391	2407	2316	2207	2473
7.	MALDA	0.85	1.04	0.75	0.77	0.76	8.68	13.06	9.86	9.50	9.11	1840	2252	2381	2214	2151
8.	MURSHIDASBAD	2.63	1.95	1.72	1.82	1.80	18.32	24.42	22.72	22.40	23.33	1256	2252	2381	2214	2327
9.	NADIA	0.61	0.42	0.38	0.39	0.37	9.63	5.11	5.31	4.60	5.60	2855	2193	2551	2139	2731
10.	NORTH 24-PARGANAS	1.67	1.26	1.61	1.75	1.71	20.18	15.37	28.30	21.09	34.07	2176	2192	3170	2169	3590
11.	HOOGHLY	-	-	0.11	0.11	0.10	-	-	1.38	1.32	1.27	-	-	2359	2139	2381
12.	PURBA BURDWAN	0.21	0.31	0.23	0.10	0.17	2.09	3.83	2.99	1.22	2.29	1825	2193	2358	2139	2382
13.	PASCHIM BURDWAN	-	-	-	-	0.01	-	-	-	-	0.07	-	-	-	-	2376
14.	BIRBHUM	-	-	0.01	0.01	0.01	-	-	0.16	0.14	0.19	-	-	2355	2145	2379
15.	BANKURA	-	-	0.05	0.03	0.02	-	-	0.20	0.11	0.05	-	-	735	760	540
16.	PURULIA	0.21	0.13	0.30	0.31	0.27	0.54	0.43	1.00	1.10	0.67	467	591	608	644	452
17.	JHARGRAM	-	0.07	0.01	0.02	0.02	-	0.28	0.06	0.06	0.05	-	710	733	768	540
18.	DARJEELING	0.03	0.02	0.01	0.01	0.02	0.24	0.28	0.18	0.14	0.15	1613	2085	2353	2145	1836
19.	JALPAIGURI	-	0.05	0.03	0.03	0.03	-	0.63	0.45	0.35	0.34	-	2083	2356	2141	1833
State Total		**10.36**	**10.75**	**12.43**	**12.47**	**12.55**	**109.04**	**130.96**	**166.21**	**149.30**	**170.64**	**1895**	**2193**	**2406**	**2155**	**2448**

Source: Directorate of Agriculture, Govt. of West Bengal

District-wise Estimates of Area, Production and Yield of Mesta in Andhra Pradesh during 2017-18 to 2021-22

A: Area in '000 ha, P: Production in '000 Bale, Y: Yield in Kg/ha

Sl. No.	Name of the Districts	Area					Production					Yield				
		2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22	2017-18	2018-19	2019-20	2020-21	2021-22
1.	SRIKAKULAM	1.70	0.95	0.48	0.15	0.16	10.77	8.58	4.31	1.37	1.76	1139	1620	1609	1685	1931
2.	VIZIANAGARAM	3.15	1.98	1.23	0.57	0.53	35.03	21.06	13.96	6.12	5.87	2003	1916	2039	1930	1992
3.	GUNTUR	-	-	-	0.01	-	-	-	-	0.08	-	-	-	-	1890	-
4.	KURNOOL	-	0.00	-	-	-	-	0.03	-	-	-	-	1800	-	-	-
State Total		**4.85**	**2.93**	**1.71**	**0.73**	**0.69**	**45.80**	**29.63**	**18.27**	**7.57**	**7.62**	**1700**	**1818**	**1918**	**1880**	**1977**

Source: Directorate of Agriculture, Govt. of Andhra Pradesh

Annexure-VI

Country wise Normal (Average of 2018-19 to 2022-2) Area, Production and Yield of Raw Jute in the World

Country	**Area ('000 ha)**		**Production ('000 bale)**		**Yield (kg/ha)**
	Actual	% to World	Actual	% to World	
1. Bangladesh	718.2	51.49	9086.4	47.83	2277
2. Bhutan	0.1	0.01	1.9	0.01	3990
3. Brazil	0.2	0.01	1.4	0.01	1251
4. China	5.0	0.36	107.1	0.56	3866
5. Egypt	0.9	0.06	12.6	0.07	2536
6. India*	**673.1**	**48.26**	**9718.3**	**51.16**	**2599**
7. Myanmar	0.01	0.00	0.1	0.00	979
8. Nepal	7.4	0.53	58.4	0.31	1425
9. South Sudan	1.5	0.11	20.2	0.11	2355
10. Zimbabwe	4.5	0.32	15.1	0.08	609
World	**1394.7**	**100.00**	**18997.6**	**100.00**	**2452**

Source: FAO Statistics; * DES, GoI.

Annexure-VII

Country-wise Area, Production and Yield of Raw Jute in the major producing countries of World during 2018-19 to 2022-23

A- Area in '000 ha; P- Production in '000 bale; Y- Yield in Kg/ha

Sl. No.	Country		2018-19	2019-20	2020-21	2021-22	2022-23	Average
1	Bangladesh	A	758.2	749.7	679.5	682.2	721.6	718.2
		P	8965.3	8891.5	9731.3	9344.1	8499.7	9086.4
		Y	2128	2135	2578	2466	2120	2277
2	Bhutan	A	0.09	0.09	0.09	0.09	0.09	0.09
		P	1.91	1.90	1.91	1.91	1.91	1.91
		Y	3996	3985	3987	3989	3991	3990
3	Brazil	A	0.03	0.01	0.93	0.02	0.02	0.20
		P	0.17	0.05	6.58	0.14	0.01	1.39
		Y	1000	1000	1280	1300	1400	1251
4	China	A	6.7	5.8	5.0	3.9	3.6	5.0
		P	138.1	121.8	107.2	87.2	81.1	107.1
		Y	3731	3767	3897	3995	4093	3866
5	Egypt	A	0.9	0.9	0.9	0.9	0.9	0.9
		P	12.6	12.6	12.6	12.6	12.7	12.6
		Y	2518	2528	2536	2546	2553	2536
6	**India***	**A**	**704.8**	**673.3**	**662.4**	**667.3**	**657.8**	**673.1**
		P	**9819.7**	**9876.8**	**9354.4**	**10148.9**	**9391.6**	**9718.3**
		Y	**2508**	**2641**	**2542**	**2738**	**2570**	**2599**
7	Myanmar	A	0.0	0.0	0.0	0.0	0.0	0.0
		P	0.1	0.1	0.1	0.1	0.1	0.1
		Y	756	1091	1111	1400	1098	979
8	Nepal	A	7.6	7.1	7.6	7.4	7.2	7.4
		P	62.0	58.8	56.5	58.1	56.8	58.4
		Y	1466	1490	1346	1408	1420	1425
9	South Sudan	A	1.5	1.5	1.5	1.6	1.6	1.5
		P	19.4	19.5	19.7	21.1	21.5	20.2
		Y	2333	2339	2358	2374	2368	2355
10	Zimbabwe	A	4.4	4.4	4.4	4.5	4.5	4.5
		P	14.9	15.1	15.1	15.2	15.3	15.1
		Y	608	610	610	610	610	609
	World Total	**A**	**1468.4**	**1439.5**	**1330.9**	**1363.3**	**1371.4**	**1394.7**
		P	**18927.9**	**18773.9**	**19513.8**	**19209.1**	**18563.4**	**18997.6**
		Y	**2320**	**2348**	**2639**	**2536**	**2436**	**2452**

Source : FAO Statistics; * DES, GoI

ANNEXURE-VIII

Country-wise Yield status in Raw Jute (Average yield from 2018-19 to 2022-23)

Yield in kg/ha

Country	Average Yield of Country (average of 2018-19 to 2022-23)	Average Yield of India (average of 2018-19 to 2022-23)	Increase(+)/ Decrease (-)
Bangladesh	2277	2599	-322
Bhutan	**3990**	**2599**	**1391**
Brazil	1251	2599	-1348
China	**3866**	**2599**	**1267**
Egypt	2536	2599	-63
India	**2599**	**2599**	**0**
Myanmar	979	2599	-1620
Nepal	1425	2599	-1174
South Sudan	2355	2599	-244
Zimbabwe	609	2599	-1990
World	2452	2599	-147

Annexure-IX

Year-wise and Agency-wise Production of Certified Jute Seed (from 2018-19 to 2022-23 and expected production during 2023-24)

(Quantity in Quintal)

Seed Agency	Year					
	2018-19	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24(Expected)**
NSC	17470.5	14313.9	18433.6	21344.0	25581.6	30810.9
MSSC	1594.4	392.5	375.0	923.2	564.1	3990.0
Others*	19380.1	19026.2	19298.5	22359.0	22032.0	26014.6
Total	**38445.0**	**33732.7**	**38107.1**	**44626.2**	**48177.7**	**60815.5**

* Including Private Sector

Annexure-X

Pattern of Financial Assistance on Various Components under National Food Security Mission CC-Jute (NFSM-CC-Jute)

Sl. No.	Component/Interventions	Unit	Pattern of assistance	Share of Central: State Govt.
1.	**Production of Foundation Jute Seeds**	**qtl**	Rs.12000/qtl.	90:10 for NE region 60:40 for other regions
2.	**Production of Certified Jute Seed/Quality Seed of Mesta**	**qtl**	Rs.5500/qtl.	90:10 for NE region 60:40 for other regions
3.	**FLD on alternate Retting Technology (0.25 ha each)**	**No**	Rs.20000/ FLD (Rs.17000 for inputs & Rs.3000 for contingency)	90:10 for NE region 60:40 for other regions
4.	**FLDs on Production Technology/ Intercropping**	ha	Rs.9000/ ha(Rs.8000 for inputs & Rs.1000 for contingency)	90:10 for NE region 60:40 for other regions
5.	**National Level Training (25 farmers for three days)**	**No**	Rs.80000/training	90:10 for NE region 60:40 for other regions
6.	**State Level Training (20 farmers for two days)**	**No**	Rs.40000/training	90:10 for NE region 60:40 for other regions
7.	**Distribution of Certified seed**	**kg**	Rs.100/kg or 50% of the cost, whichever is less	90:10 for NE region 60:40 for other regions
8.	**Distribution of nail weeder**	**No**	Rs.1000/machine or 50% of the cost, whichever is less	90:10 for NE region 60:40 for other regions
9.	**Microbial Consortium (CRIJAF-SONA)**	**kg**	Rs.25/kg or 50% of the cost, whichever is less	90:10 for NE region 60:40 for other regions
10.	**Local Initiatives**		As per state Specific needs	
11.	**Contingencies & Electronic print media**		Need based	DOJD, Kolkata

Annexure-XI

Allocation, Released and Expenditure (Central Share) NFSM-CC-Jute during 2014-15 to 2022-23

(Rs. In crores)

Year	Allocation	Released	Expenditure*
2014-15	6.75	4.95	4.07
2015-16	9.27	5.77	5.99
2016-17	13.40	5.37	6.81
2017-18	16.68	10.07	12.05
2018-19	19.34	16.25	15.98
2019-20	13.37	9.00	7.99
2020-21	12.85	6.29	6.97
2021-22	16.16	7.0	8.66
2022-23	18.44	9.61	13.16

* Expenditure as per State Reports and includes committed liabilities.

Annexure-XII

Procurement of raw jute by Jute Corporation of India (JCI) during 2015-16 to 2023-24

Crop Year	MSP Rate (Rs/Qtls.)	Procured Quantity (in Lakh Qtls.)			Procured Value (in Lakh Rs.)			No of Beneficiaries under MSP
		MSP	Commercial	Total	MSP	Commercial	Total	
2015-16	2700	0	0.09	0.09	0.91	456.72	457.63	0
2016-17	3200	1.04	3.06	4.1	2879.4	10399.95	13279.35	20880
2017-18	3500	6.1	0	6.1	18942.16	0	18942.16	122040
2018-19	3700	1.31	0	1.31	4458.41	0	4458.41	26170
2019-20	3950	1.46	0.31	1.77	5624.09	1363.9	6987.99	33014
2020-21	4225	0.07	1.54	1.61	328.67	8473.81	8802.48	1400
2021-22	4500	0.03	0.13	0.16	98.72	723.53	822.25	500
2022-23	4750	4.24	1.37	5.61	18802.23	7730.98	26533.21	84800
2023-24 (upto Oct., 2023)	5050	4.79	0.00	4.79	22660.47	0.00	22660.47	95900

Source: Jute Corporation of India Limited, Kolkata.

Annexure-XIII

Minimum Support Price (MSP) of different varieties and grades of Raw Jute and Mesta for all over India during 2018-19 to 2023-24

Year	Crops	Variety	Grades					
			TD-1/W-1/ M-1	TD-2/W-2/ M-2	TD-3/W-3/ M-3	TD-4/W-4/ M-4	TD-5/W-5/ M-5	M-6
2018-19	Jute	Tossa (TD)	4250	4100	3700	3200	2950	-
		White(W)	4250	4100	3700	3150	2900	-
	Mesta	Mesta(M)	3250	3150	3050	2925	2825	2725
		Bimli	3250	3150	3050	2925	2825	2725
2019-20	Jute	Tossa (TD)	4500	4350	3950	3450	3250	-
		White(W)	4500	4350	3950	3450	3250	-
	Mesta	Mesta(M)	3275	3175	3050	2950	2850	2750
		Bimli	3275	3175	3050	2950	2850	2750
2020-21	Jute	Tossa (TD)	4850	4650	4225	3675	3475	-
		White(W)	4850	4650	4225	3675	3475	-
	Mesta	Mesta(M)	3300	3200	3075	2975	2875	2775
		Bimli	3300	3200	3075	2975	2875	2775
2021-22	Jute	Tossa (TD)	5150	4950	4500	3950	3750	-
		White(W)	5150	4950	4500	3950	3750	-
	Mesta	Mesta(M)	3350	3250	3125	3025	2925	2825
		Bimli	3350	3250	3125	3025	2925	2825
2022-23	Jute	Tossa (TD)	5425	5225	4750	4225	4025	-
		White(W)	5425	5225	4750	4225	4025	-
	Mesta	Mesta(M)	3500	3400	3275	3175	3075	2975
		Bimli	3500	3400	3275	3175	3075	2975
2023-24	Jute	Tossa (TD)	5750	5550	5050	4500	4275	
		White(W)	5750	5550	5050	4500	4275	
	Mesta	Mesta(M)	3850	3700	3575	3475	3375	3275
		Bimli	3850	3700	3575	3475	3375	3275

Source: Office of the Jute Commissioner, GoI.

Activities performed by Directorate of Jute Development under the National Food Security Mission-Commercial Crop-Jute:

The Government of India is approving Crop Development Programme on Jute under National Food Security Mission- Commercial Crops (Jute) and the programme is being implemented by the State Department of Agriculture of in States namely Assam, Bihar, Meghalaya, Nagaland, Odisha, Tripura, Uttar Pradesh and West Bengal and also by the agencies like ICAR-CRIJAF, ICAR-NINFET, DJD following the interventions as per revamped guidelines of NFSM-CC (Jute). This Directorate has been working as Nodal Office of Ministry of Agriculture and Farmers Welfare, Govt. of India for monitoring of NFSM-CC (Jute) and regularly making field visits to the demonstration plots in the implementing State and make discussion with the beneficiary farmers and concerned State Government officials. The interventions of the programme NFSM-CC (Jute) allocated to this Directorate are Farmers training, Front Line Demonstration on improved/alternate Jute/Mesta retting technology and National Level Workshop on Jute. The Directorate is implementing its own programme on the interventions like farmers training on jute throughout the year and front line demonstration on improved/alternate jute/mesta retting technology during jute retting season in the jute growing states of the country involving numbers of jute growers, extension workers and stakeholders. While conducting the demonstration on improved/alternate retting technology of jute, farmers were given necessary trainings, inputs and technical guidance. National level workshops are also organized by Directorate of Jute Development involving all stakeholders in jute sector like scientists, farmers, research persons, students, extension works, policy makers, traders etc. to give emphasis on the current scenario of jute in the country, transfer of improved technology to farmer's field for enhancement of production and quality of jute fibre, to bridge the yield gap and bring all the stakeholders involved in different sectors of jute from production to industry under one umbrella and work collaboratively. A few glimpses of the various works done by this Directorate under NFSM-CC (Jute) during previous years are presented below in pictorial presentation.

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