



Mesta yellow vein mosaic:

This disease is caused by a begomovirus associated with the hyper activities of white fly due to the high temperature and humidity. Early sowing and frequent spraying of systemic insecticides i.e., imidacloprid

17.8 SL (0.25 ml/l) is recommended for effective management of this disease.

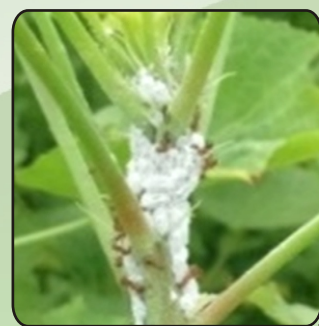
The major pests of kenaf are as follows:

Spiral borer (*Agrilus acutus*):

It is a serious pest of kenaf. It forms rings on the main stem and the stem breaks from that portion. Crop sown in mid-April to mid-May is more affected than late sown crop. Soil application of carbofuran @ 1 kg a.i./ha is effective in controlling the pest.



Kenaf variety MT 150 is less susceptible to spiral borer.



Mealy bug (*Phenacoccus solenopsis*):

Increase in temperature and prolong dry period favours the attack of mealy bug. The crawlers suck the sap from the growing shoot and causes stunted growth, knotty and weak fibre. Seed treatment with thiamethoxan

70 WS @ 5 g/kg seed followed

by spraying of prophenophos @ 0.1% can be effective in controlling mealy bug.

Flea beetle (*Nisotra orbiculata*):

Flea beetle attacks from seedling to harvest stage and causes heavy damage to the leaves but weak old seedlings are most susceptible to it. Early infestation may require re-sowing of the crop. Control measure is same as mealy bug.

Harvesting :

Time of harvesting is very important in bast fibre crops. If the crop is harvested prematurely, the quality of fibre is good but the fibre yield is poor. Late harvesting leads to higher fibre yield but deteriorates the quality of fibre. Maximum fibre yield while maintaining the quality is obtained when the crop is harvested on 130-145 days after sowing depending upon the sowing time and crop management practices.

Retting and fibre extraction :

After harvest bundling in convenient sizes is done. The bundles are kept in standing position in 50 to 60 cm deep water for nearly 3 or 4 days. Bundles are then laid down nearly 10 cm deep in the retting water with the help of some weights. The talk based microbial consortium "CRIJAF-SONA" developed by the ICAR-CRIJAF has been found to be very effective as it reduces the retting duration by 6-7 days and also improves the fibre quality by at least 2 grades. Usually 25 kg/ha powder is required which is spread over every layer of jack at the time of retting. The fibre extraction is done either by single plant extraction method or by beat-break-jerk method but the quality of fibre extracted by single plant extraction is comparatively better. The extracted fibre is washed properly and dried on bamboo frames for 3-4 day.

Yield :

The quality of fibre and its yield mainly depends upon the variety, quality of seed, time of sowing, crop management practices, time of harvesting, process of retting and fibre extraction techniques. By following the improved package of practices an average fibre yield of 22-25 q/ha can be achieved.

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SCIENTIFIC CULTIVATION OF KENAF FOR FIBRE PRODUCTION

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Kenaf (*Hibiscus cannabinus*) is an important fast-growing bast fibre crop cultivated in the Indian subcontinent and is known by various names such as Bimli, Deccan hemp, Gogu, Channa, Ambadi, Gongkura, Sunkura and Sunbeeja etc. in states of Andhra Pradesh, Odisha, West Bengal, Bihar, Assam and Tripura. Kenaf fibre is traditionally used as jute substitute for making ropes, sacks, canvas, hessians and carpets. Despite its new applications as paper pulping, board making, oil absorption, filtration media and animal feeds in many countries, pulping and paper making have drawn tremendous attention and look more and more promising for its cultivation.

Soil and climate :

Kenaf grows well in tropical and sub-tropical regions. The vegetative growth is favoured by long day conditions while flowering occurs when day length shortened to about 12 to 12.5 hours. Crop grows well on a variety of soils including new and old alluvium and light textured well drained soils having adequate organic matter results into better growth and fibre yield. The crop requires a rainfall of 500 to 700 mm during its growth period and the congenial temperature for crop growth is 25-30° C. Growth of kenaf is adversely affected by low temperature and prolonged water stagnation.

Land preparation :

The soil should be well drained, pulverised and free from weed. The land should be ploughed and cross ploughed twice or thrice depending upon the type of soil. This helps in pulverising the soil properly. The ploughed field is made free of weeds and stubbles and levelled properly. The pulverised and levelled soil helps in the proper operation of seed drills and facilitates germination of seeds.

Manures and fertilizers :

Application of balanced doses of organic and inorganic fertilizers is important for proper plant growth and sustainable soil health. Organic fertilizer in the form of compost @ 4-5 tons/ha is recommended for better growth which is to be applied during the land preparation for sowing. Fertilizer dose of N, P and K @ 60:30:30 kg/ha is recommended for higher fibre yield. Nitrogen is to be applied in three equal splits at basal, 3-4 weeks after sowing (WAS) and at 6-7 WAS. The entire amount of P and K is to be applied as basal.

Seed and sowing :

Kenaf is normally sown by broadcasting but line sowing is advocated which allows uniform plant growth and population with less quantity of seed, besides ease in intercultural operations. Seed rate of 15 to 17 kg/ha under broadcast and 13-15 kg/ha in line sowing is recommended. Row spacing of 25-30 cm and plant spacing of 5-7 cm should be maintained for ideal growth. Seed treatment with thiram or carbendazim @ 2-3 g/kg of seed is recommended to prevent the seed borne diseases. Generally, kenaf is sown in month of mid-April to mid-May.

Improved varieties :

A number of high yielding varieties of kenaf have been released in the country. Some of them are as follows:

HC 583 : It is the most popular variety, tolerant to root rot disease and is suitable for April sowing in the states of West Bengal, Assam and Odisha. The variety can give fibre yield of 25-30 q/ha with fibre tenacity >23 tex & fineness <3.2 g/tex.

AMC 108 : This variety is coppery-red in pigmentation and suitable for April-May sowing in the Southern region of the country. The variety is resistant to foot and stem rot diseases and tolerant to jassids and spiral borer. It takes 150 days to mature for fibre. The fibre yield is upto 25-30 q/ha and finer (2.8 tex) than HC 583.

MT 150 (Nirmal): This variety is released for entire mesta growing belt of the country, known for higher biomass production and is suitable for pulping. It yields upto 30 tonnes of green matter/ha. The average fibre yield is 30 q/ha.



JBM 2004 D (Sumit): It has been released recently and is suitable for North Bengal, Assam, Bihar and Odisha. It is resistant to stem rot disease and is tolerant to spiral borer, mealy bug with good fibre quality in terms of fibre strength (28.32 g/tex). Average fibre yield is 25 - 27 q/ha.

JBM 81 (Shakti): The variety is adapted to rainfed situation of mesta growing belt for mid-April to mid-May sowing. It has better fibre fineness (2.61 tex) and grade is M3. Average fibre yield is 25.50 q/ha.

Other improved varieties are JRM 3, JRM 5 and JMB 71 which are also suitable for cultivation in all mesta growing regions of the country.

Irrigation :

Generally mesta is grown as rainfed crop. The water requirement is about 500 mm. It is desirable to give one or two irrigations at an interval of 15 to 20 days before onset of shower which improves the growth of the crop.

Weed management :

Weeding is the most expensive operation and accounts for nearly 25-30% of the total cost of cultivation. Intercultural operations e.g. weeding and thinning at the initial crop stage minimize the weed flora in kenaf owing to its fast growing nature. Pre-emergence application of butachlor 50 EC or butachlor 5G @ 1.5 kg a.i. /ha followed by one hand weeding (15 DAE) or post-emergence application of quizalofop ethyl 5% EC @ 60g a.i./ha + sticker @ 1 ml/l at 15 DAE followed by one hand weeding at 25 DAE are effective in managing majority of the weed in kenaf.

Diseases and pest management

Some of the major diseases of kenaf are described below:

Anthraxnose: The disease is caused by *Colletotrichum hibisci* which develops patches on the stem and progressively affect other parts of the plant leading to defoliation and whole plant to die. Spraying of copper oxychloride (50 WP) @ 3 g/lit effectively control this disease.



Root rot/collar rot: It is caused by *Rhizoctonia bataticola* alone or in combination with *Fusarium oxysporum*. After the attack the plants start wilting and finally die. Seed treatment with organo-mercurial compounds or carbendazim 50 WP @ 3 g/kg helps in controlling it.

