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Cultivation of Unirrigated Cambodia Cotton in Madras State

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Introduction: Out of the total area of about 5,29,900 acres under Madras Americans in the state during 1956—'57, the rainfed Cambodia accounted for 2,51,500 acres. Cambodia cotton is cultivated under rainfed conditions mostly in the districts of Coimbatore, Salem, Tiruchirappalli and Madurai where early North East monsoon rains are received. The average yield of the Unirrigated Cambodia raised in the tract is about 40—80 lb. of lint per acre.

The success of the rainfed Cambodia crop is mainly dependent on the distribution of rainfall during crop growth and other seasonal conditions. Apart from the weather conditions, which are of course beyond our control, there are ways of getting a good crop adopting suitable cultivation practices which are discussed below.

Preparatory cultivation: This operation is important to the successful growth of the crop after sowing. Four to five ploughings are given right from April—May on wards to bring about good tilth of the soil. Frequent exposure of sub-soil facilitates the killing of grubs, pupae of pests and drying of roots of weeds by hot sun.

Manures and Manuring: Generally ryots do not manure the rainfed cotton crop. In some places, fields are manured with cattle manure at 10 cart loads per acre if there is transport facilities or with sheep penning (1000 sheep per acre). The unirrigated cotton crop responds well to about 40 lb of nitrogen per acre as an economic dose and of this, 20 lb. of nitrogen can be supplied easily by the application of 100 lb. of ammonium sulphate per acre. The remaining 20 lb. of nitrogen can be met by the application of organic manures like Farm yard manure, compost or sheep penning. The manure should be distributed in the field uniformly and covered with a plough before sowing. The working of Guntaka facilities the breaking of clods and levelling up the surface which forms the final stage of preparatory cultivation.

Seeds and Sowing: The ryots do not take pains in the selection of seeds and sowing methods. They invariably buy seeds of the unselected bulk which is a mixture of different types of inferior

quality cottons. Generally seeds are broadcasted and covered with country plough or dibbled behind country plough or hand dibbled using higher seed rate of 20 to 25 lb. per acre. In these methods the seeds are not evenly distributed both on the surface as well as inside the soil, which leads to uneven and poor stand. Dibbling behind plough is preferable to other two methods as there will be some space between rows atleast.

The above defects can be got over by the use of good pedigree seeds supplied by the Agricultural Department. The seeds are to be treated with Agrosan (1 oz. for 20 lb. of seeds) to check the primary infection of blackarm borne by the seeds. On receipt of soaking rains, lines are to be drawn at 2' apart with the aid of Gorru or country plough and seeds dibbled 9" apart in the lines. Two to four seeds per hole are to be sown in order to obtain a good stand in the beginning itself since the performance of plants from the gap filled seeds are poor. These are latter thinned to one plant per hole. About 10 to 15 lb. of seeds will be required for an acre. The advantages of giving proper spacing are (i) uniformly distributed population (ii) after cultivation and harvest easier and economical (iii) good aeration is provided and the shedding due to congestion is reduced and (iv) closer spacing results in higher yields.

After cultivation: About six weeks after sowing when the seedlings have put forth 4 to 5 leaves one hoeing and weeding is given with hand hoes or mummutti. Then leaving one healthy and vigourous seedling per hole, the weak and sick ones are pulled out which facilitates good development of plants. When the crop is about 45 to 50 days old, one inter cultivation with Guntaka or Junior hoe is given which is economic and quick and which aids in the removal of weeds, conserves soil moisture, facilitates good aeration of soil and stimulates growth. The weeds at the base of plants can be hand-weeded. Any deeper cultivation in flowering period or later will lead to the heavy shedding of flowers.

Plant Protection: Insect pests like surface weevil, jassids, grass hoppers, bud worm, leaf-eating caterpillars, boll worms leaf rollers, red cotton bugs and stem weevil and diseases like blackarm and Alternaria Sp. are generally found in cotton crop. Stem weevil and Boll-worms continously damage the crop and since they remain inside the plant parts are not easily controlled. The continous cloudy weather with dew and intermittent drizzle in October to December facilitates the multiplication of the pests and diseases. Spraying or

dusting is to be done in the morning hours and the lower surface of leaves should also be covered with pesticides to kill jassids, aphids, thrips and red spider. The pests occuring at various stages of crop growth and the control measures are given below in detail.

Crop stage	*Pesticide recommended*	*Dosage*	*Pests that are controlled or reduced*
Sowing to bud formation	Cotton dust	6 lb. per acre	Jassid, Aphid, bud worm, grass hoppers, leaf eating caterpillars etc.
Bud to flowering	Cotton dust or Endrin	6 to 10 lb. per acre (1 oz. in 6 gallons of water)	Jasid, leaf eating caterpillars, boll worm.
Boll period	Cotton dust or Folidol	10 lb. per acre (1 oz. in 12½ gal. of water)	Boll worm, red cotton bugs, caterpillars damaging bolls etc.

(Stem weevil can be controlled by the application of soil insecticide or by pulling out the affected plants and destroying the pest). The primary infection of blackarm is checked by treating seeds with Agrosan. It is very essential to guard the plants against pests and diseases so as to make them healthy and enable them to utilise entire food resources for production of bolls.

Harvest: The crop comes to harvest by February 1st week i. e. 110 to 120 days after sowing. *Ryots* collect kapas on alternate days and kapas from immature and unripe bolls are also collected along with good kapas.

Kapas are to be controlled in the morning hours so that they can be free from dried bracts and leaves and from well opened bolls. Hard, stained and immature kapas are to be collected separately.

Yield: The ryots obtain about 250 lb of kapas at the most with their usual methods from an acre. By adopting the above suggested improvements, about 500 lb of kapas per acre can be obtained. The cost of cultivation and profit per acre in both the methods are given below.

Particulars	*Local method*	*Improved method*	*Increase due to improved methods.*
	Rs.	Rs.	Rs.
Expenditure	65	111	46
Gross income	104	201	I04
Net profit	39	97	58

It can be seen from the above data that by spending about Rs. 46 over and above the local method of cultivation, the ryot can gain an additional amount of Rs. 58/- as profit.

If there are good summer showers in April, there is possibility of getting one more flush in June. One intercultivation with Guntaka (blade harrow) will favour better performance. *Ryots* do not give such intercultivation. Now the economics of cultivation per acre in both the methods are as below.

Particulars	*Local method*	*Improved method*	*Increase due to improved method*
	Rs.	Rs.	Rs.
Expenditure			
Season	65	111	
Summer	9	12	
Total	74	123	49
Gross Income			
Season	104	208	
Summer	30	74	
Total	134	282	148
Net Profit	60	159	99

It would be seen from the above table that by incurring an additional expenditure of Rs. 49 the ryot can get a net profit of Rs. 99 per acre over and above what he would ordinarily get in the cultivation of dry cotton.