

Intercropping in sugarcane

to boost farmer's income

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Sugarcane (Saccharum spp. hybrid complex), is a very important sugar crop belonging to the grass family Gramineae. On worldwide basis, sugarcane is cultivated in more than 100 countries, producing 178 million tonnes of sugar, nearly 80% of which is contributed by cane sugar. In India, it occupies about 2.53% (4.9 million ha) of the gross cropped area of the country with an annual production of 303.6 million tonnes. India is the second largest producer after Brazil producing nearly 15 and 25% of global sugar and sugarcane, respectively. Growing two or more crops simultaneously on the same field is known as intercropping. Crop intensification is in both temporal and spatial dimensions. Until recent years, sugarcane crop was cultivated as a single crop. But with increase in population, insufficient food, limited scope for expansion of cultivated area, diversified needs of small farmers for food and cash etc. have forced the adoption of intercropping systems.

Keywords: Cultivation, Intercropping, Sugarcane, Tillering

GREAT potential exists in India for increasing production and productivity through wider use of multiple cropping in cereals, oilseeds, legumes and in fibre crops. In long duration crops like sugarcane, short duration intercrops can be easily grown and harvested before the inter-rows are covered by canopy. Due to slow establishment of the crop canopy of sugarcane in the initial 90-120 days, the greatest scope for complementary effect lies in the addition of short duration intercrops to the temporal system to enhance the resource use efficiency in the early crop growth period. It is an excellent technique to increase total yield, higher monetary return, greater resource utilization and fulfil the diversified demands of the farmers.

Pre-requisites for a successful intercropping system

- Selection of intercrop of short duration with different growth habit and compact canopy.
- Meeting the nutritional needs of

- base crop and intercrop separately.
- Complimentarity should exist between the component crops.
- The intercrop should not host insect and diseases which might affect sugarcane adversely.
- Wider row planting should be preferred (120-150 cm) as it reduces the chance of intercrop competition with least effect on cane growth and tillering.
- Soon after harvesting of inter-crop, timely inter-row cultivation for sugarcane should be followed.

Suitable intercrops in Sugarcane

Crops from different groups of family can be taken as inter-crop. Some suitable inter-crops with sugarcane includes:

Pulses: Important pulse crops, namely, green gram, black gram, cowpea can be profitably intercropped in spring planted sugarcane while gram, lentil, french bean in autumn planted sugarcane.

Vegetables: Vegetables like radish, potato, cauliflower, cabbage etc have

been found to be compatible with sugarcane in both tropical and sub-tropical regions. Among vegetables, potato with one row intercropped recorded better profit and proved ideal intercrop for sub-tropical regions.

Spices: Spices like garlic, coriander, onion, chillies etc as intercrop with sugarcane have given better return compared to sugarcane alone. As spices are highly remunerative and labour intensive, their intercropping in autumn planted sugarcane may increase the income level as well as employment potential for small farmers. This crop also serves as a repellent to the insect-pest of sugarcane.

Benefits of intercropping

- Being long duration exhaustive crop, sugarcane caused reduction in soil fertility. Hence, intercropping preferably with legumes, protect the soil from loss in fertility and also improve soil health.
- Effective use of crop production

resources viz. solar energy, land space and water can be utilized.

- Certain intercrops (garlic, onion, mentha) helps in controlling certain insect pests and allows better weed control, increases land equivalent ratio and also improves nutritional quality of diet for the farm family.
- Intercropping provides insurance against crop failure and generates employment opportunities for the rural people.

Economics of profitable intercropping of sugarcane + coriander: A case study in Samastipur district of Bihar

Sugarcane cultivation along with intercropping can be a profitable enterprise for farmers in Bihar. Mr. Mahesh, a progressive sugarcane farmer of Hasanpur village, Samastipur district, Bihar has been successfully growing sugarcane with intercrops in his 6 acre cultivated land area. Mr. Mahesh is at present growing the Rajendra Ganna 1, a mid-late variety of sugarcane released from RPCAU, Pusa. This variety has a good sucrose per cent of 17.60 in

Table 1. Economics of inter-cropping in sugarcane and sugarcane sole cropping

Cropping system	Cane yield (q/acre)	Intercrop yield (q/acre)	Gross returns (₹/acre)	Net returns (₹/acre)	B : C ratio
Intercropping	360	5	1,41,600	91,600	1.83
Sole cropping	360	-	1,11,600	63,600	1.32

juice and also resistant to red rot and wilt. He used to intercrop coriander with sugarcane in autumn planting although he also engaged his land area in spring planted sugarcane but without intercropping. After harvesting of seed cane, dry and green leaves were stripped off and seed canes were cut into three budded setts of 25-30 cm length. However, before planting, about 225 kg castor oilcake, 65 kg DAP, 45 kg muriate of potash, 22 kg urea were applied as basal application uniformly per acre during the final land preparation and coriander seeds @ 5 kg/acre were also broadcasted. Then, the setts were placed in furrows and immediately covered up with soil using a country plough.

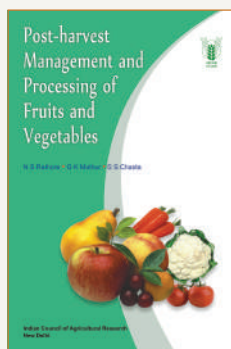
After the 15-20th day of planting, Metribuzin @ 2-2.5 g/litre and 2, 4-D @ 5 ml/litre of water was sprayed

in the field to control weed growth. The buds germinated in 30-45 days after planting. Urea @ 45 kg/acre was applied in two split doses after first and second irrigation.

He got an average yield of about 360 quintals/acre of sugarcane and 5 quintals/acre coriander seeds and had spent ₹ 50,000/acre for cultivating the crop. His gross income by selling his cane to the sugar mill @ ₹ 310/quintal and coriander at ₹ 6,000/quintal was about ₹ 1,41,600 and net profit after deducting the expenses was about ₹ 91,600 and the benefit: cost ratio was 1.83 (Table 1).

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