



agriculture & rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

INTERCROPPING OF SUGARCANE

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Introduction

Research done as part of the Joint Project between the Department of Agriculture and Environmental Affairs and the South African Sugar Association Experiment Station (SASEX) since 1996 has shown that the intercropping of sugarcane enables cane growers to produce food, or cash crops, between the cane rows in plant cane. This Agri-Update presents the extension recommendations for the successful intercropping of sugarcane. They have been developed from the Joint Project research results. If these recommendations are followed, the cane grower should be able to produce good yields of intercrops within 3 - 5 months from planting. The crops can then be eaten, exchanged, or sold.

In order to obtain optimum cane and intercrop yields, it is essential that each crop is supplied with its own fertilizers, as identified by soil analysis. Soil samples should be analysed at SASEX, Mt Edgecombe, to determine the fertilizer recommendations for cane, and also at Cedara, to determine the fertilizer recommendations for each crop to be planted in the cane interrows.

Planting the Cane

Under dryland conditions, the best time to plant cane with food crops is in Spring, once the rains have soaked the soil (September - November). Many soils in KwaZulu-Natal will require lime to be incorporated for the benefit of the intercrops. If lime is needed, it must be broadcast onto the whole field, and ploughed in, at least 4 weeks before planting. The intercrops will need a well-prepared, weed-free seedbed, on land which has not had long-term residual cane herbicides applied within the previous 12 months.



Double-stick cane setts planted in normal furrows 1.2 m apart, being covered with soil

For successful intercropping, use a minimum row width of 1.2 m to allow space for the food crops. If cane fertilizer is required, place the recommended amount into the furrow. Plant double stick cane setts, close the furrows and level off the field.

Planting the Food Crop

Immediately after closing the cane furrows, a planting furrow for the intercrop must be made in the centre of each cane interrow. The most suitable food crops for intercropping dryland plant cane are cabbages, green mielies, green beans and sweet potatoes. Only ONE row of ONE food crop should be planted in the CENTRE of each cane interrow.

Cabbages are very successful as an intercrop in cane. Plant seedlings 40 cm apart in the row in small basins, as shown in Diagram 1. The basal fertilizer should be put into the basin first, and then covered with a little soil.

The cabbage seedling plug must be planted vertically. If there is no rain, hand-water once per day, for one week.

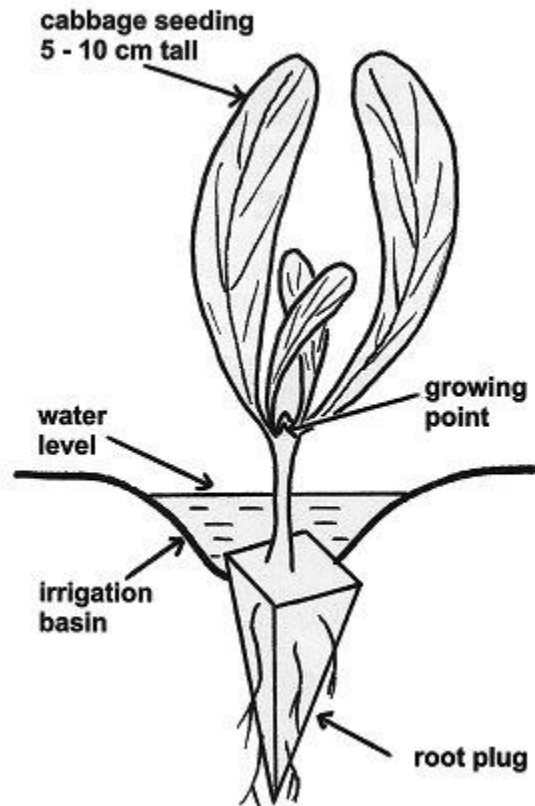


Diagram 1. Single cabbage seedling in irrigation basin, showing plug planted vertically, the soil level with the top of the plug, and the water level below the growing point

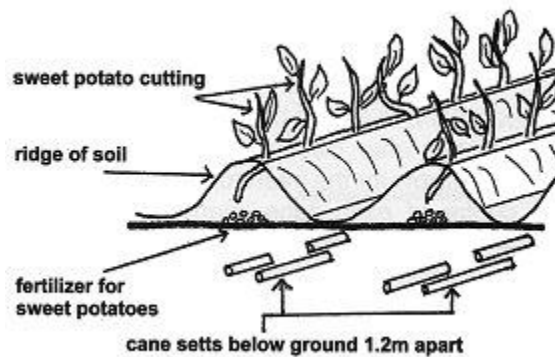


Diagram 2. Raised ridges, made in cane interrows, for planting sweet potato. Cuttings planted 30 cm apart in the top of the ridge, with 15 cm of the stems below the soil

Sweet potato cuttings must be planted on the top of a raised ridge in the interrow, as shown in Diagram 2. The basal fertilizer is applied to the soil surface in the centre of the interrow, and ridges are hoed upon top of the fertilizer. Plant 30 cm stem cuttings of sweet potatoes, 30 cm apart, into the top of the ridge. If there is no rain, handwater once per day, for one week. For maize or green beans, apply the basal fertilizer to the planting furrow, sow seeds into the furrow, and cover. Sow 2 maize seeds every 30 cm, and thin to 1 plant when 20 cm tall. Green beans should be sown with 1 seed per hole every 6 cm in the interrow.

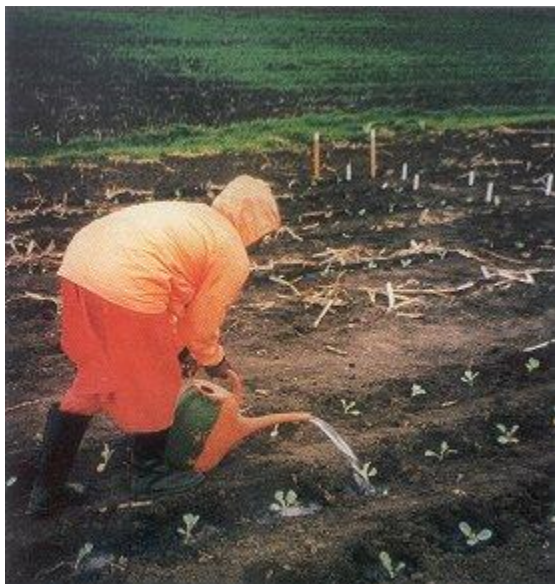
Care of the Crops

Insecticides

If grasshoppers are a problem, immediately after transplanting the cabbage seedlings, lightly sprinkle the plants with Bexadust. When the seedlings are 4 weeks old, spray them with a pyrethroid insecticide to control caterpillars, and repeat every 10 days until 2 weeks before harvest. Immediately after sowing maize or green beans, either spray the soil with an insecticide such as cypermethrin or sprinkle cutworm bait along the rows. When the maize plants are 6 weeks old, put a pinch of stalkborer granules into each funnel.



Cabbage seedlings being planted into cane interrows



Cabbage seedlings being hand-watered



Spraying insecticide onto cabbage in cane



Unsprayed cabbages severely damaged by caterpillars



A good crop of cabbages in cane



Intercrop of young beans in cane

Top Dressing

In most fields, sugarcane will require one top dressing of fertilizer, 2 - 3 months after planting. Cabbages will need two top dressings of nitrogen fertilizer, at two weeks and four weeks after planting. To avoid burning the cabbage leaves, put the fertilizer under the leaves, close to the stem. Maize will require a single top dressing of nitrogen fertilizer when the plants are 30 cm tall. Sweet potatoes will require a single top dressing of nitrogen fertilizer, 7 weeks after planting. Green beans should not require any topdressing.

Weed Control

It is VERY IMPORTANT to keep the intercrop clean of weeds. Weed competition will reduce crop yields. Each food crop has different registered herbicides which may be applied at the time of planting. Hand-weeding is essential if herbicides are not used. DO NOT USE any sugarcane herbicides when the intercrops are planted in the cane interrows.

Harvesting

Food Crops

Green beans will be ready for the first picking of pods about 60 days after planting. The beans must be picked twice per week until the pods cease production. Cabbages must be harvested Intercrop of mature maize in cane when they have hard, solid heads, which will be 80 - 110 days after planting. The cabbage heads will split if harvested late. Maize can be harvested for green mielies 80 - 110 days after planting. Remove the bean plants, the cabbage roots and maize stalks from the field after harvesting these crops. The sweet potato tubers must be well-developed, which will occur 130 - 150 days after planting. Once harvesting starts, the tubers can be left in the soil for up to 60 days after reaching harvest maturity, without losing their quality.

Sugarcane

After all the food crops have been harvested, care of the cane should continue as usual until harvest. It will normally be necessary to weed the interrows after all the intercrops have been harvested. Planting any food crop in the cane interrow will reduce the tonnage of cane harvested.



Intercrop of mature maize in cane



Intercrop of mature sweet potatoes in cane