



PRODUCTION GUIDE FOR COWPEAS



Zimbabwe Government



Food and Agriculture
Organization of the
United Nations



UKaid
from the British people

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IDENTIFICATION

Common name:	Cowpea
Scientific name:	<i>Vigna anguiculata</i>
Shona name:	Nyemba
Ndebele name:	Indumba

INTRODUCTION

This is a quick production guide for cowpea. Cowpea is grown as a low-input pulse by many smallholder farmers in Zimbabwe. It is an important vegetable (leaves) and grain in the diets of smallholder households. The grain is an important source of protein. However, yields of cowpea remain low, mainly due to poor husbandry practices, diseases and pests. Cowpea can be grown in the marginal areas (agro-ecological zones III, IV & V) of Zimbabwe.

The production guide is meant to provide field based agricultural extension personnel and farmers with quick reference material to guide them in the promotion of cowpea production.

CONDITIONS FOR GROWING COWPEA

Rainfall

250-500 mm of well distributed rainfall during the growing season is adequate for cowpea production.

Temperature

The base temperature for germination is 8,5 °C and for leaf growth 20 °C. Cowpea is a heat-loving and drought-tolerant crop. The optimum temperature for growth and development is around 30 °C. High temperatures can cause flower and pod drop, resulting in low grain yield. The crop is prone to frost.

Soil conditions

Cowpea grows in a wide range of soil types. Best yields are obtained in well drained sandy loam to clay loam soils with a pH range of 6.0-7.0.

AGRONOMIC PRACTICES

Varieties

Some of the varieties currently on the market are CBC 1, CBC 2, CBC 3 and IT18. There are 2 types of cowpeas: the upright/bunchy type, which is mainly grown for grain production, and the spreading type, which may be grown for grain and vegetable or fodder. See annex 1 for characteristics of cowpea varieties. Local landraces are also available.

Planting

Type of cropping	Plant type	Spacing (cm)	Seed rate (kg/ha)
Sole spacing	Bushy	45 x 15	30-40
	Spreading	75 x 20	20-25
Intercropping	Bushy	180 x 15	10-15
	Spreading	180 x30	5-10

For sole cropping use the following rates:

Bushy types: 30-40 kg/ha (120 000 plants/ha)

Spreading types: 12-15 kg/ha (60 000 plants/ha)

- Planting depth: 5-7 cm
- Plant from end November to first week of January
- In high rainfall areas it is best to plant late from mid-December to avoid diseases, and to avoid the crop maturing when rains are still falling
- Use thiram 80% WP (or any other appropriate dressing) at 70g/100kg seed for non-certified seed to control damping off of seedlings

Crop rotation

Rotate with cereal crops such as maize, sorghum, millet and other non-leguminous crops like cotton and tubers. The crop can also be intercropped with cereals and young fruit trees to capitalize on the space between tree seedlings.

Land preparation

Land preparation should begin in advance, well before the onset of the rainy season. The most ideal time to begin land preparation is just after harvesting the preceding crop. The tillage method used will determine how the land will be prepared.

There are 2 land preparation options for cowpea, conventional tillage and reduced tillage. Under conventional tillage the land is ploughed using a mouldboard plough, while under reduced tillage planting furrows are made on the land without ploughing by turning the soil. The furrows can be made using a ripper tine attached to a mouldboard plough, or a locally available ploughing share.

It is strongly recommended that cowpeas be produced under conservation agriculture (CA), incorporating the 3 principles.

Fertilizer application

Cowpea responds well to manure or basal fertilizer application. Basal fertilizer is applied at rates of 100-200 kg/ha. Soil analysis to determine the pH and fertilizer rates is important. Where manure is applied, apply 1-2 handfuls of well-rotted manure/compost over 30 cm along each planting line/furrow.

As a legume, cowpea fixes its own nitrogen, and does not need nitrogen top dressing.

Weed management

Weed as early as weed emergence and continue until crop canopy is formed to the smother late weeds. Appropriate herbicides can also be used.

Pest and disease management

Cowpea is very attractive to insects. Insect pests are an important setback to cowpea production, because each phase attracts a number of insect pests. The main pests by crop stage are:

<u>Stage</u>	<u>Pest</u>
Vegetative	Aphids; Sucking bugs; Blister beetles; Thrips
Podding	Pod borer

Storage

Storage weevils

A variety of insecticides can be used to control the pests. Integrated pest management (IPM) is also strongly recommended.

The common cowpea diseases are scab, bacterial blight and bacterial spot. The use of certified seed or seed dressing, as well as rotations curtail the spread the seed-borne pathogens. Appropriate fungicides are also recommended.

Harvesting

- Leaves can be harvested from 4 weeks after planting to the onset of flowering
- Harvest pods when they are relatively dry and thresh when completely dry

STORAGE

- Dry to less than 11% moisture before storage
- Use recommended grain protectant against cowpea weevil
- Hessian bags store and maintain seed viability better than polypropylene bags

Annex 1: Characteristics of cowpea varieties

Characteristics	VARIETY			
	CBC 1	CBC 2	CBC 3	IT 18
Growth habit	Upright & bushy	Upright & bushy, slightly semi-determinate	Upright & bushy	Upright & semi-bushy
Purpose	Grain & leaves	Grain	Grain & leaves	Grain & leaves
Maturity status	Early (75 days)	Early (85 days)	Early (88 days)	Early (88 days)
Grain description	Smooth and reddish brown	Smooth & Dark-reddish brown	Small, smooth and creamish	Light brown
Yield potential (t/ha)	1.5-2.0	Up to 3	Up to 2.5	1.0-1.5
Disease status	Resistant to cowpea aphid borne mosaic virus (CABMV)	Aschochyta blight & scab problematic under high rainfall, cool conditions and persistent cloud cover.	Aschochyta blight and scab problematic under high rainfall, cool conditions and persistent cloud cover.	Susceptible to CABMV, scab, aschochyta and bacterial blights and major cowpea diseases.
Recommended agro-ecological zone	II, III, IV, V	II, III, IV, V	II, III, IV, V	II, III, IV, V
Comments	Suitable for sole & intercrops,	Suitable for sole & intercrops, most of the pods are	Suitable for sole & intercrops, exhibits vigorous growth, has bigger pods	Suitable for sole & intercrops

		above the canopy.	that are light green in colour	
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