ZIMBABWE COMMERCIAL FARMERS UNION

FACT SHEET

RAISING A BANANA PLANTATION

1.0 CONSIDERATIONS WHEN SITING THE PLANTATION

a) Water availability: all year round supply of water to the site

b) Soil quality: deep, sandy loam, well drained aerated, permeable and neutral to slightly acid soil.

c) Topography: fairly level. Slope should be at least 2%.

d) Temperature: warm temperatures

e) Accessibility: located at an easily accessible place

f) Protection: protected from animals and fire. Fencing is a priority.

g) Light and wind: receive adequate sunlight but free from strong winds.

Commercial Varieties

a) The Cavendish Banana tree is a South American banana that produces high quality and commercial quantities of large bunches of full sized fruit. The Cavendish Banana tree can grow upwards of 5.2 m, with leaves that measure 60 cm wide and 182 cm long.

b) Giant Williams: the variety produces large uniform fruits, with a yield up to 50 tonnes per hectare. The variety is prone to logging because of its size.

2.0 Land preparation

Primary tillage should be done to break the soil pan, loosen the soil, bury the vegetative matter and improve aeration. Secondary tillage should be done to provide, good loose physical

structure, with fine tilth to ensure close contact between the plant roots and the soil so that moisture can be readily supplied to the plant. Sufficient organic matter should be well incorporated during primary cultivation to improve soil structure and promote good root development. Sufficient time must be given before sowing to allow for decomposition of the organic matter and the elimination of any phytotoxic gasses such as ammonia. Soil pH should be adjusted to the specifics for each crop and a base fertilization carried out prior to sowing. A deep ploughing, discing and ridging are recommended for land preparation. Planting holes should be established at a depth of 60- 90-cm. The plant/tree spacing should be 2.4 m x 2.7 m or 4.0 m x 2.0 m.

Soil sterilization

Use of Chemicals in sterilization

A granular formulation of chemicals, such as Dozamet and Nemacuir, provides effective control of nematodes, soil fungi, pests and weeds.

Planting material

Bananas are very sensitive to frost. The sword suckers are the best planting material, they must be uniform. Remove all roots before planting. Select planting suckers from healthy orchard. In altitudes less than 1000 m above sea level, select suckers of Dwarf Cavendish and plant between July-October. Suckers selected between December and March produce bunches of poor quality.

Tree spacing

2.4 m x 2.7 m or 4.0 x 2.0 m

Cultural practices

Desuckering

Growth of suckers is greatest in August to April and low during winter. This is the period to select the suckers, which must be sword suckers (young suckers) on which the first narrow leaves have begun to unfold) since they have a stronger attachment to the rhizome. Water suckers which are small suckers growing around the main shoot, are unsuitable for followers and should be removed.

Propping

Wind, old age and poor sucker selection may result in falling. Use single wooden stakes and prop against the throat of the plant. Giant Williams is very prone to wind damage due to its height and heavy bunch weight.

Trimming of leaves and bunches

This involves removal of dead leaves so as to control pests and diseases. Trimming is best done in April and August. Avoid winter trimming. Withered floral remnents at the end of banana fingers are removed, which improves appearance and reduces spread of the cigar-end rot infection. The bell is removed to increase average finger weight.

Bunch covers

Blue Polythene bunch covers, open on both sides. Loosely tied above the first hand of the bunch and hanging about 15 cm below the lowest hand, they protect the fruit from hail damage. To control pests, spray the bunches before covering. Apply bunch covers at the onset of the rains and remove them three weeks from maturity.

Wind breaks

In areas where wind is a problem, wind breakers will minimize losses due to wind damage and leaf tearing. Use wind breaks available within your area.

Crop duration

About 5 years

Fertilizers

Fertilization

Manure:	10-25 tons/ha (applied 3 to 4 weeks before planting.
Nitrogen	400-700 kg/ha of AN, applied as top dressing in four equal amounts in January, March, September and November.
Potassium	250-750 kg/ha of Muriate of Potash, apply at the same time as AN.
Phosphate	200-350 kg/ha of SSP, apply and incorporate before establishment. Apply again 150-300

kg/ha each year in August and September.

Lime Apply 0.5-2 tons per ha of lime when the pH is below 5.5. The pH range is 5.5-6.5

Harvesting

Expected Yield is 50 tons/ha per year
Picking is done at the following stages for different uses.
A) Breaking stage for prickling
B) Pink stage for salads.
C) Pearl red stage for fresh market and cooking
D) Red ripe stage for immediate market, cooking and processing.

Pests and Diseases

Diseases

1) **Burrowing nematode *(Radopholus similis)***

This causes toppling disease that destroys the plant roots, resulting in plants falling over. Control is by use of fenamiphos, a systemic nematicide, it is applied soon after outbreak. Rotation is also a good control method.

2) **Cigar end rot disease:** it is caused by Verticillium theobromae. Symptoms are rotted portion of the banana finger which dries and tends to adhere to fruits. Control is by removal of the pistil and perianth parts of the flower 8-11 days after bunch emergence

3) **Verticillium tip rot:** this is a fungal disease which is niticed by sudden willing of the leaf and fruit tips. The disease is common in high humid conditions.

4) **Bunchy top viral disease:** The disease is caused by virus infection and is spread by insects and very few varieties of banana have resistance to them. Bunchy top stunts the growth of plants by causing leaves to sprout from the top, Control methods is by cultural sanitation and use of resistance varieties.

5) **Bacterial wilt** - are both bacterial wilt kills off plants and makes their fruit inedible.

6) **Yellows/Yellow pulp:** this is a fruit disorder condition where there is a delay in fruit filling which may be caused by drought, excessive shading, magnesium deficiency, or poor nutrition

Pests

1) Mites on leaf: Low veld mites, Red mites, Bud mites. These insects distort plant leaves and can be controlled by tetradifon at 20 ml/10 l of water. Buds mites can be controlled by meoron at 3

ml/10 l of water in March.

2) Aphids: these are small greenish sucking pests. Can be controlled by primor at 4 g/10 l of water.

3) Fruit fly/false codling moth: this insect attack the ripening fruit by stinging the fruit. The stings acts like the entry point for infection, causing the fruit to go rotten and drop. Control is by sanitation. Chemical control is by use of malathion 25 % wp.