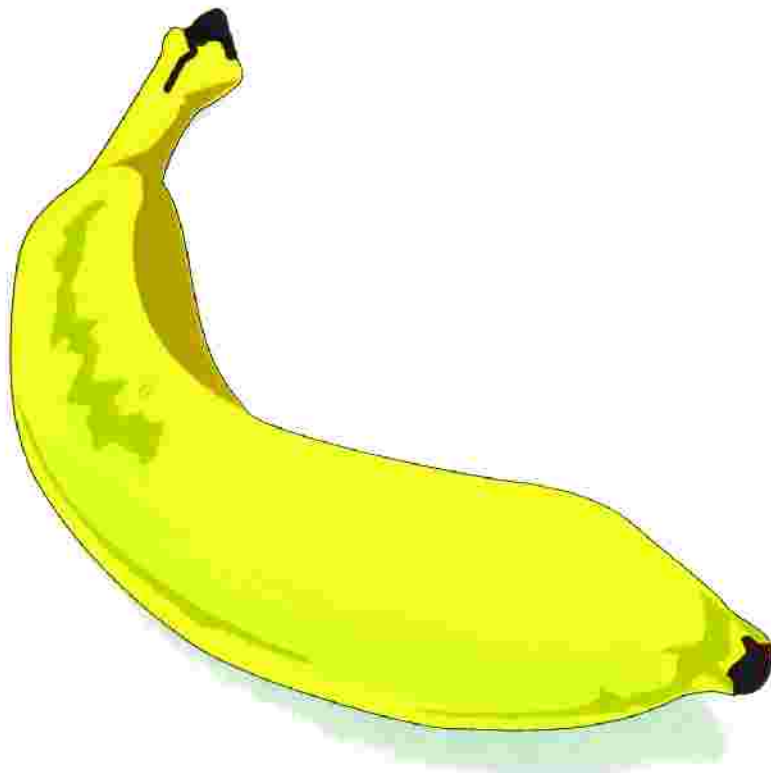


# BANANA PRODUCTION



*ARC-Institute for Tropical and Subtropical Crops*

*Banana Production - English*

# **BANANA PRODUCTION**



**Compiled by Directorate Communication  
National Department of Agriculture  
and  
W. Willemse, KwaZulu-Natal Department of Agriculture**

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**Text revised by**

**ARC-Institute for Tropical and Subtropical Crops, Nelspruit  
Tel (013) 753-7000**



**2008**

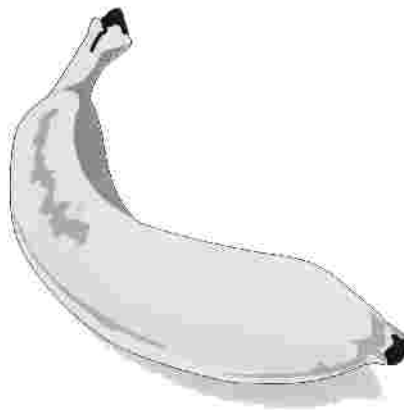
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## Planning production

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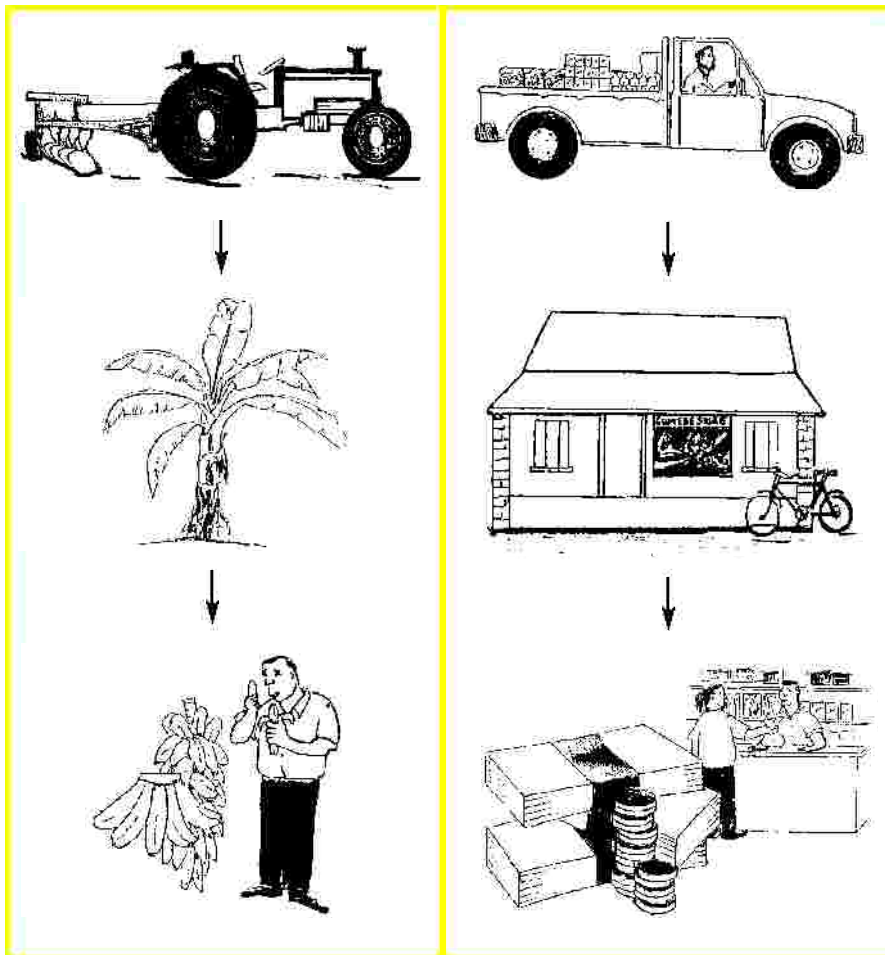


Plan your banana production well. Farming with bananas is farming for profit

**FARMING**

=

**BUSINESS**



## How do you plan?



Use a calendar or a year planner to organise your actions

### CALENDAR/YEAR PLANNER



→ Soil Analysis

Do a soil analysis before planting - take soil samples to see if nematodes are present and which nutrients are lacking



Irrigate, rip, plough, ridge and disc the field. Apply lime, potash and phosphate with ploughing



Measure and start digging holes for planting



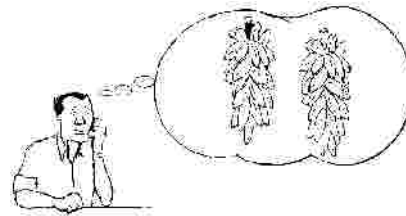
Plant, fertilise, irrigate the plants and hoe the weeds



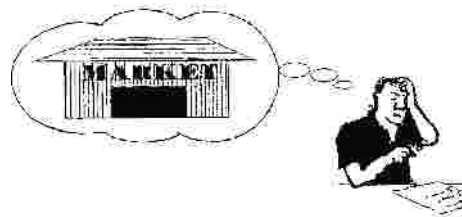
## What actions to plan



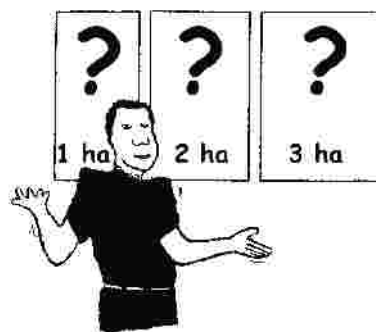
1. Decide on a cultivar



2. Identify where your bananas can be marketed #



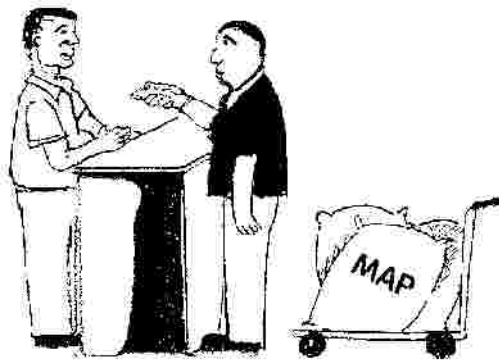
3. Decide on size of land and spacing between plants



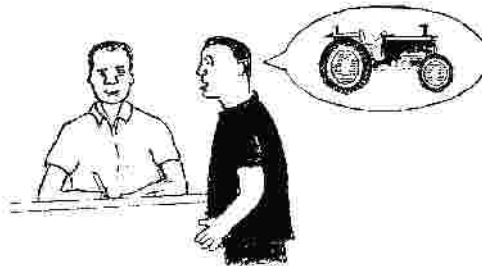
# Ask the Banana Growers' Association of SA for advice



4. Obtain finance and buy inputs such as fertilisers and tissue culture plants



5. Buy land preparation equipment: tractors for ploughing, discing, etc

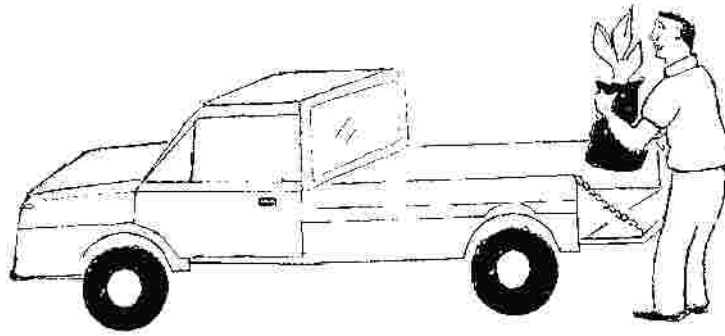


6. Plan labour

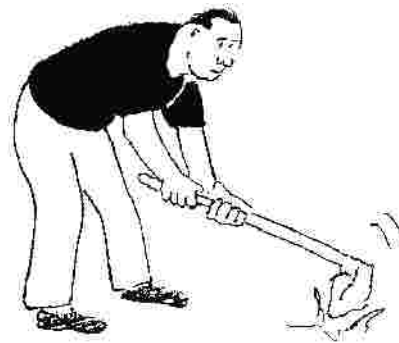




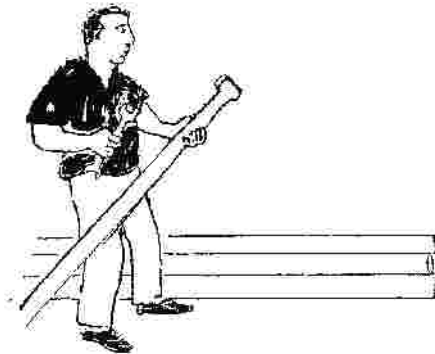
7. Buy and fetch planting material from a nursery



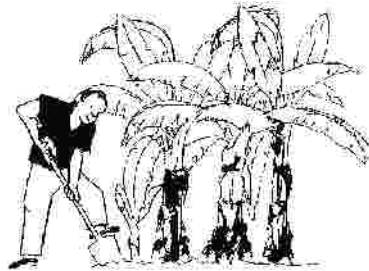
8. Plan how to get rid of weeds



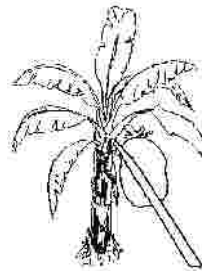
9. Maintain and upgrade irrigation equipment and plan irrigation scheduling



10. Plan desuckering of the banana plants and selection of ratoon suckers



11. Plan covering the bunches and propping the plants



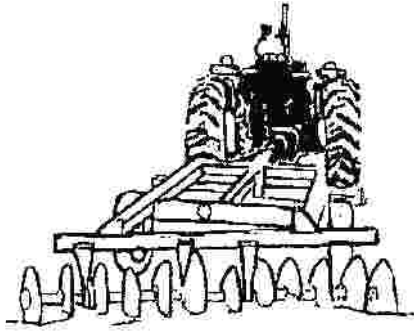
12. Plan harvesting your bananas



13. Plan how to utilise the income

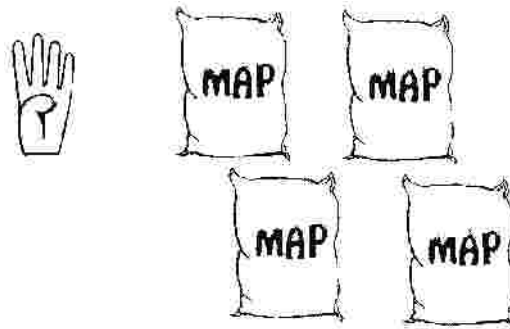


## Preparing the land



Soil analysis for lime and phosphate is essential before planting. Add kraal manure or compost if available.

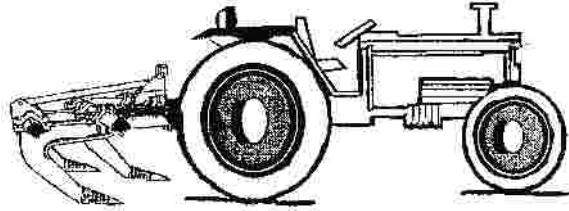
1. Fertilise the soil using 4 bags of MAP fertiliser per hectare



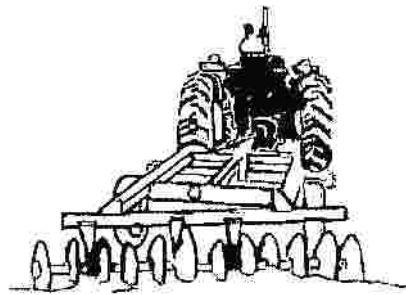
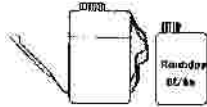
Add 2 bags of lime if the pH is low on soil analysis



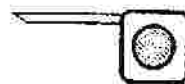
2. Rip the field after fertilising to loosen the soil deep



3. Spray or disc if there are many weeds in the field



4. Measure the planting distance and dig holes for planting



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# Planting

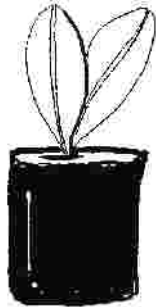
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Bananas can be planted using 3 methods:

- (A) tissue culture plants
- (B) bits and
- (C) suckers

## A. Planting method for tissue culture plants



Tissue culture plants are small plants which are grown from the tissue of the banana plant, in bags, and are ready for planting

For hygiene reasons, this is the preferred method for planting bananas

### 1. Prepare for planting by digging holes

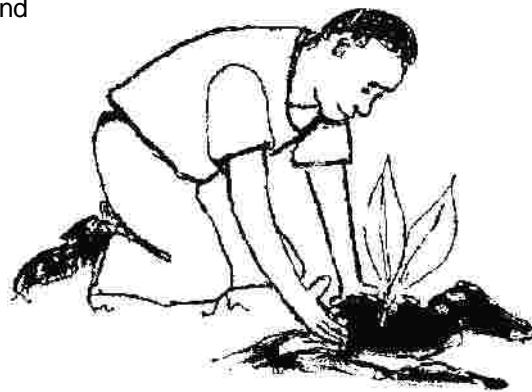
Add old kraal manure and put some loose soil back into the holes. Do not add more than 10 g of MAP into each planting hole



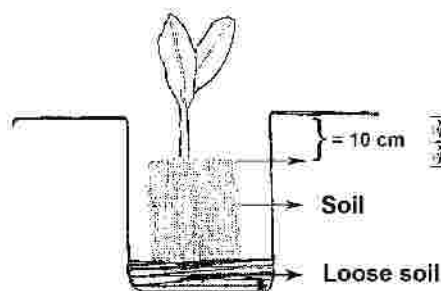
2. Remove the plastic bag before planting and place the plant in the hole. The soil in the bag must not break up



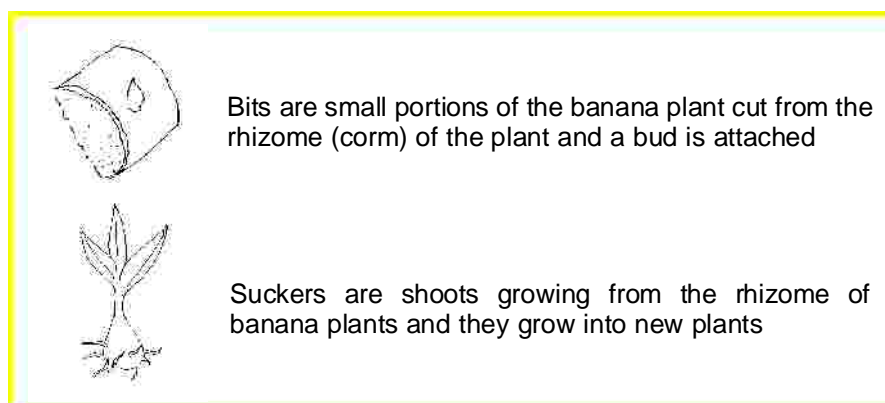
3. Fill the hole with soil round the plant and compact it



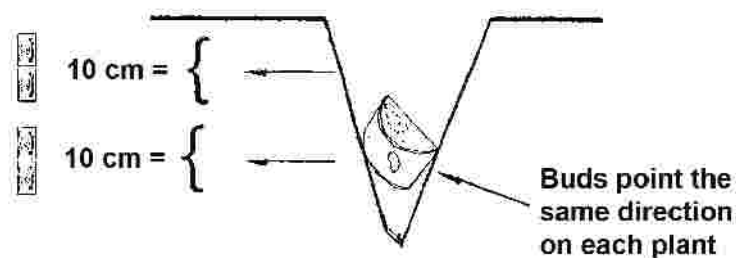
Check correct planting depth when planting



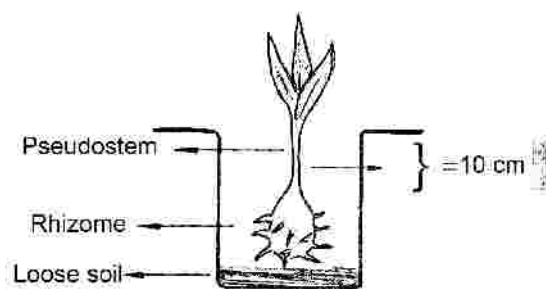
## B. Planting method for bits and suckers



1. When planting bits, the planting depth must be 10 cm and the bit also about 10 cm

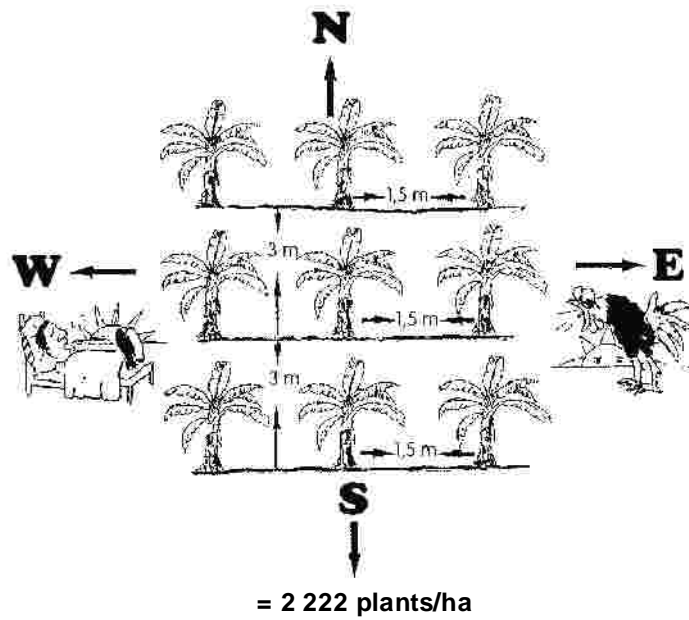


2. The planting method for suckers is the same as for planting tissue culture plants

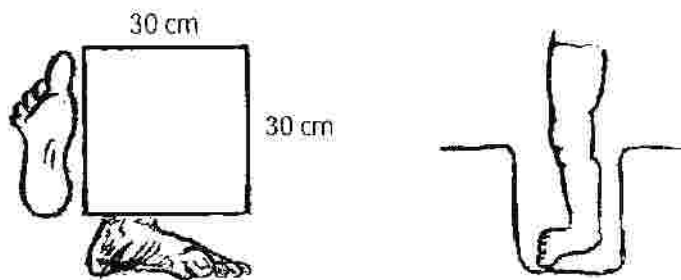


**Spacing**

Space the rows 3 m apart and the plants 1,5 m in the row



The size of the hole must be 30 cm x 30 cm and the depth about knee height







## Do's and don'ts when planting



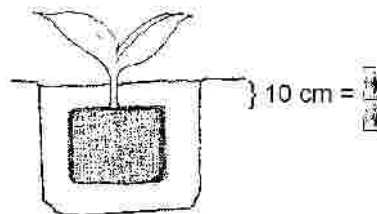
**X**

Do not damage the plant or dislodge the soil when removing the bag - use a knife instead of a hoe



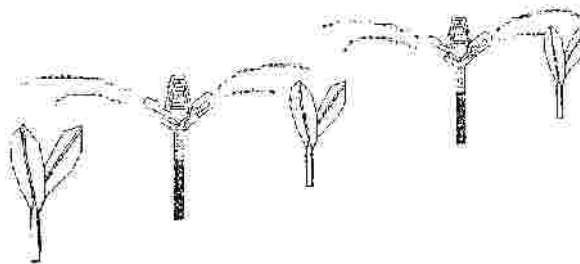
**X**

Do not plant too shallow or too deep and allow a space of 10 cm between the plant and the soil surface



**✓**

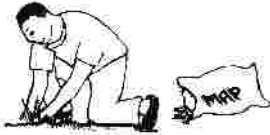
Irrigate the banana plants after planting



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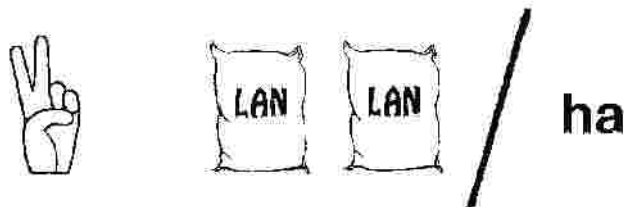
## Fertilising

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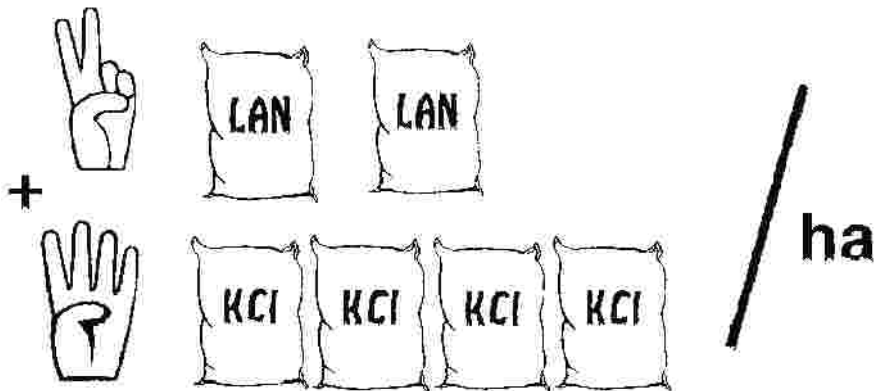


Make the soil fertile for the banana plants after planting by applying topdressing

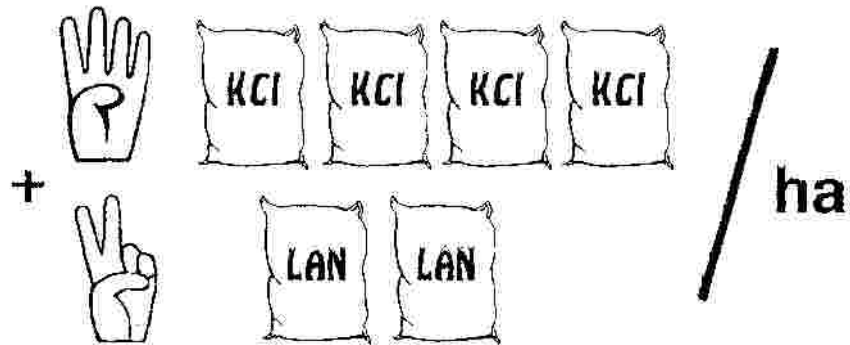
1. Apply first topdressing a month after planting (January) using 2 bags of LAN fertiliser per hectare (50 g per plant)



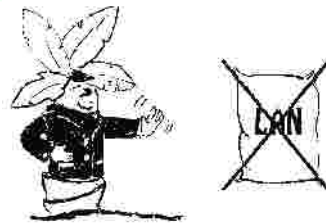
2. Apply second topdressing 3 months after planting (March) using 2 bags of LAN fertiliser per hectare (50 g per plant) and 4 bags of KCI fertiliser per hectare (100 g per plant)



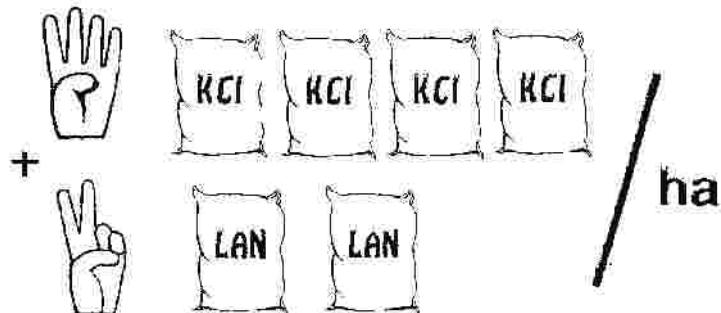
3. Apply third topdressing 5 months after planting (May) using 4 bags of KCI and 2 bags of LAN fertiliser per hectare



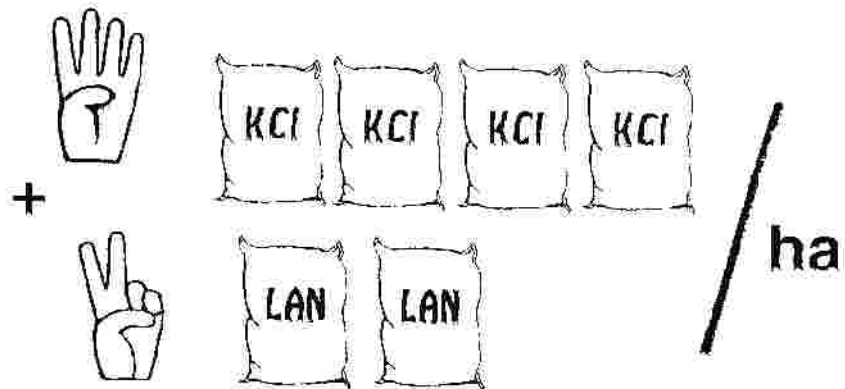
Do not apply topdressing in June, July and in August



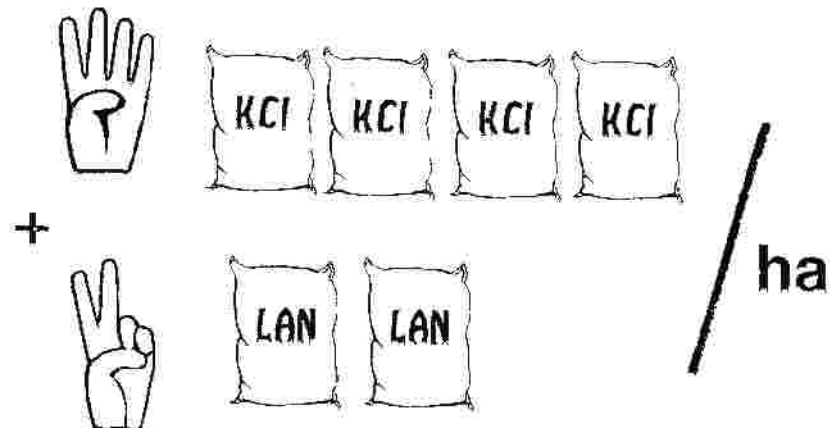
4. Topdress again 9 months after planting, in September using 4 bags of KCI and 2 bags of LAN fertiliser per hectare



5. Topdress again 11 months after planting (November). Use 4 bags of KCl and 2 bags of LAN fertiliser per hectare



6. Apply the last topdressing in January using 4 bags of KCl and 2 bags of LAN fertiliser per hectare



Make compost heaps from old vegetable leaves, chicken and kraal manure, which can supplement the fertiliser programme

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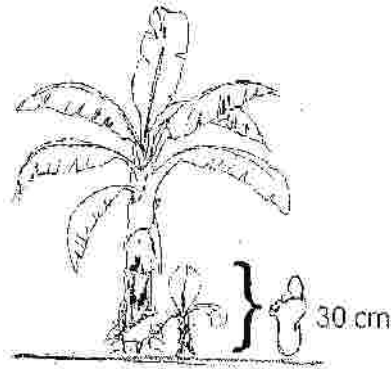
## Desuckering

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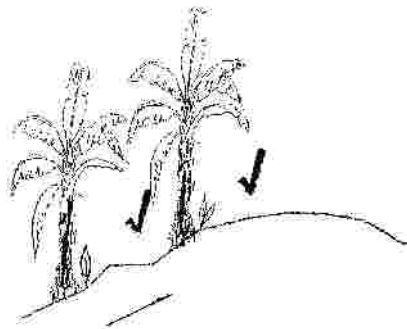


Desuckering means cutting off unwanted shoots from the stems of the mother banana plant

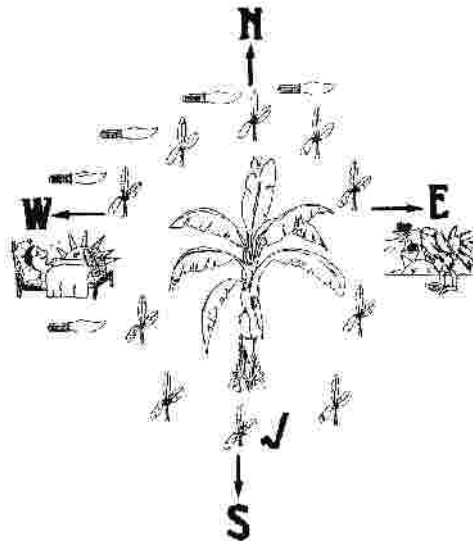
1. Use a knife to cut off the stems of the suckers which have grown to about the size of a foot



2. When planting on a slope, always leave the suckers which are on the uphill side



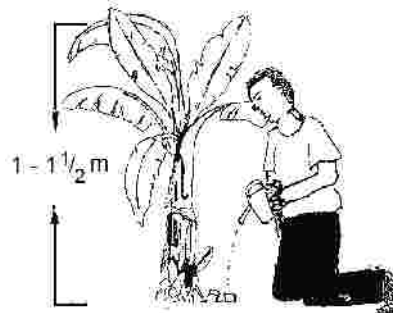
- Cut off all suckers which are on the north-western side of the banana plant. This is the side where the bunch hangs



- After 5 months from planting, select only 1 vigorous sucker to carry the next bunch. Cut the remaining suckers.

Continue removing unwanted suckers as they appear

Do not pour diesel over the stems of the suckers, water them instead

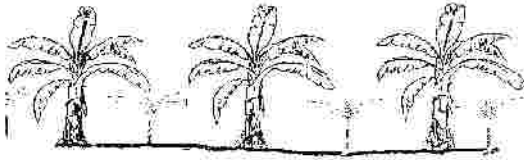


**NB:** It is important to keep not more than 2 222 plants per hectare. Therefore, after harvesting only 1 sucker should be allowed to grow

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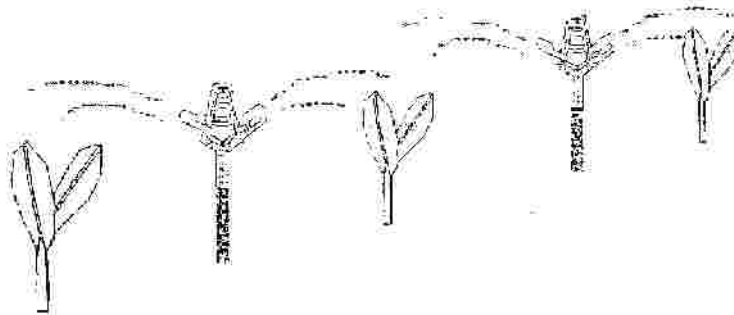
## Irrigating

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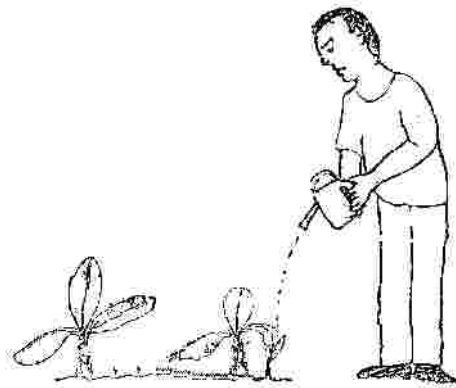


Water the banana plants after planting

1. Irrigate newly-planted tissue culture banana plants everyday for 2 weeks (15 minutes per irrigation) to protect leaves from heat stress

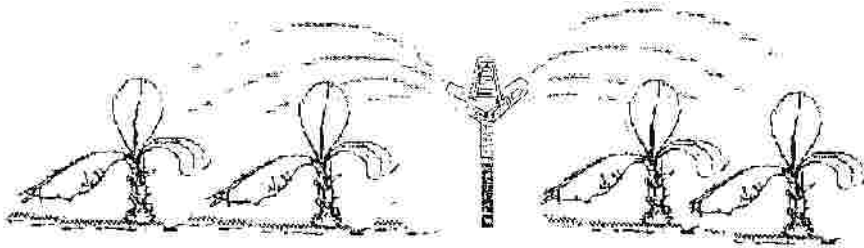


2. In the absence of rain, irrigation water should be applied on a "little and often" basis to banana plants



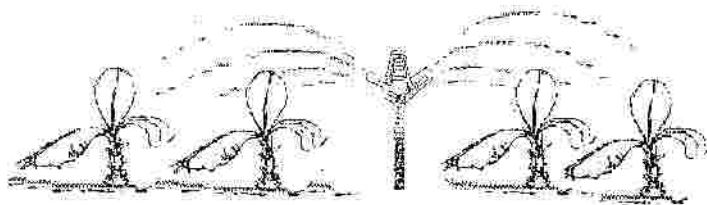
3. For heavy loamy soil apply 20 mm of water every 3 days in summer and every 8 days in winter

**NB: Find out the delivery rate of sprinkler nozzles**



**Example: nozzle delivery = 3 mm per hour**

For every irrigation, run the system for 20 hours divided by 3 hours = 6 hours and 40 minutes ( $20/3 = 6$  hours, 40 min)

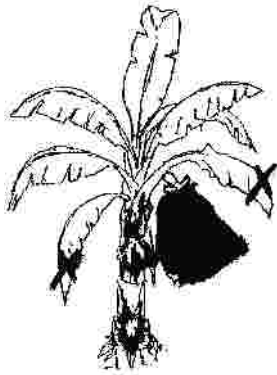


**Example: nozzle delivery = 3 mm per hour**

For every irrigation, run the system for 12 hours divided by 3 hours = 4 hours and 40 minutes ( $12/3 = 4$  hours)

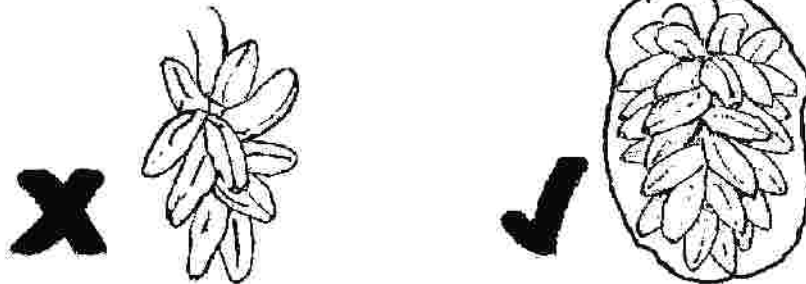


## Bagging and removing leaves

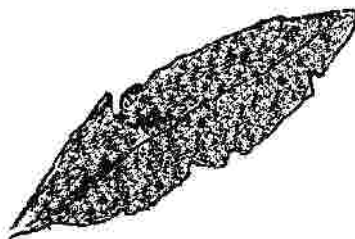


Cover the banana bunches with bags for protection against insects and wind. Remove lower hanging, yellow leaves from the plant

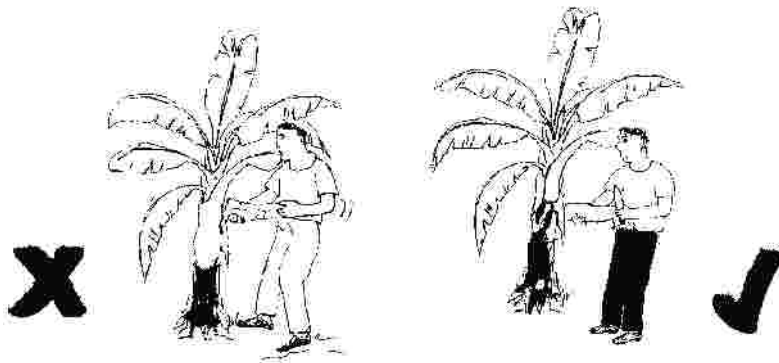
Covering the bananas will result in better quality bananas



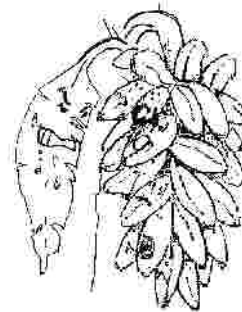
1. Remove lower leaves from the banana plant as they get old because they can spread diseases and scratch the bunch



Use a knife to cut off old leaves from the banana plant - do not pull them



2. Old leaves can scratch and damage the fruit on the bunch



3. Cut off the old leaves and place them on the ground - they mulch the surface and increase nutrient content in the soil



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## Controlling weeds

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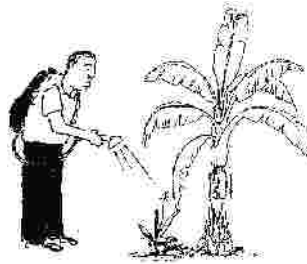
Control weeds by using:

- (A) chemical method or
- (B) hand method or
- (C) both methods

- A. Chemical sprays are used to kill the weeds - use only recommended chemicals and apply these strictly according to the instructions on the label

**Do not spray:**

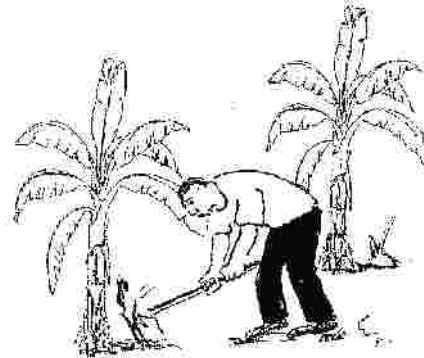
- too much
- the banana plants
- when it is windy



When using chemical control, such as glyphosphate or paraquat, protect all parts of the banana plant from spray drift



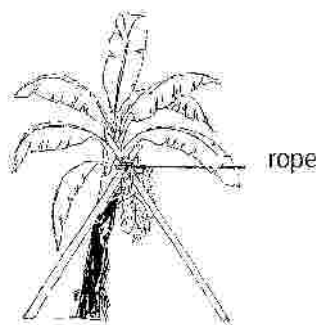
B. Weeds are also killed by using a hoe or by hand, especially in the area near the plant to avoid chemical spray contact with the plants



C. Both methods can be used at the same time to kill weeds



Remember to give your banana plants support by propping the bunches with a rope and sticks



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## Pest and disease control

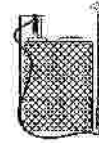
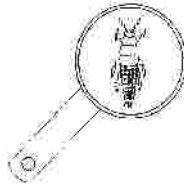
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Control pests and diseases. Different pests and diseases require different treatments

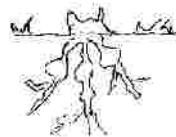
### Thrips

Use chlorpyrifos pesticide once a month to kill thrips if they are present



### Nematodes

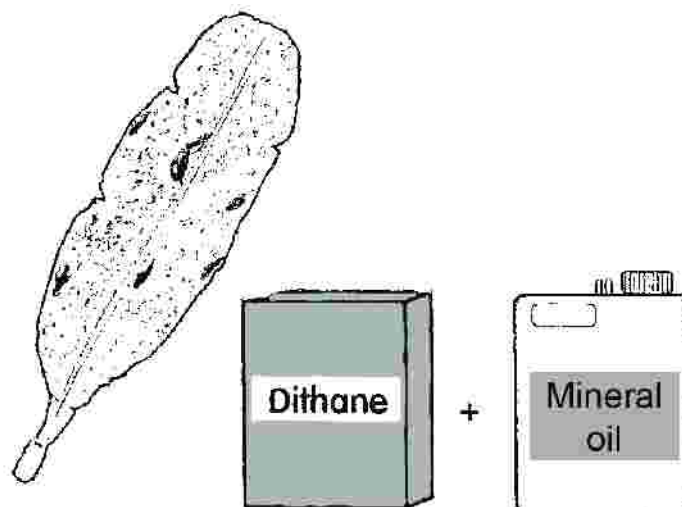
If they are present, kill them with Nematicur using 45 kg per hectare (20 g per plant)



Compost, kraal manure and chicken manure applied in ample quantities will also suppress nematodes. Tissue culture plants are free of nematodes

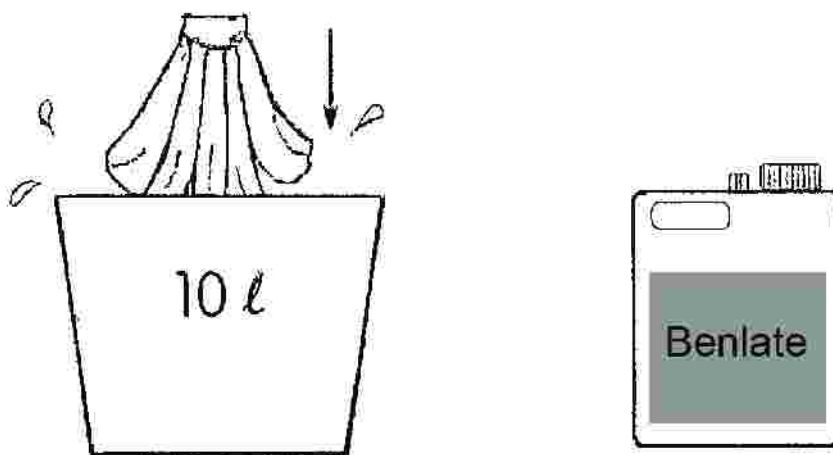
**Sigatoka**

Spray with Dithane plus mineral oil



**Post-harvest decay**

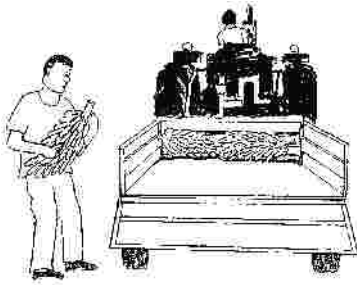
Dip the banana hands into Benlate solution (5 g Benlate per 10 l water) to prevent post-harvest decay



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## Harvesting

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Harvest bananas when they are swollen and green but before they become ripe (plump and yellow)

1. Do not harvest too early (when the bananas are thin and dark green) or too late (when they are thick and turning yellow)



Too early



OK



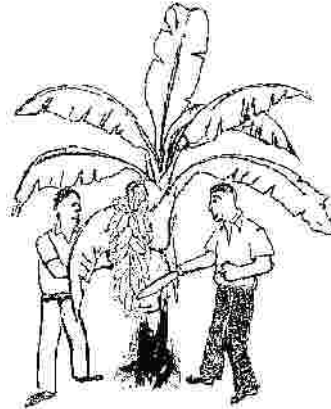
Too late



## How to harvest

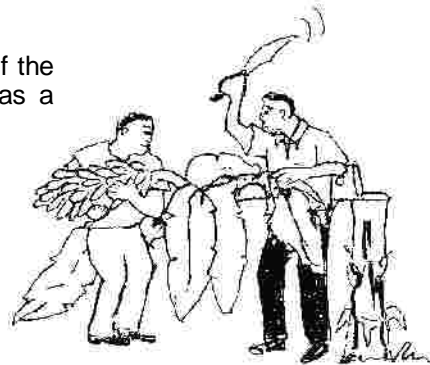


1. Get at least 2 people to help you cut the banana pseudostem half way across and half way down

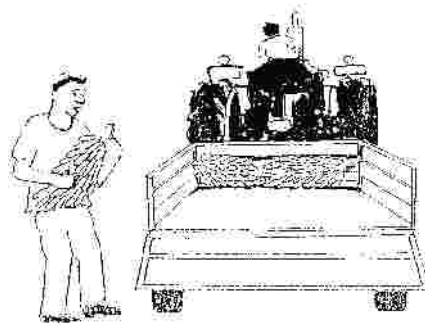


2. Let the plant fall down slowly and then remove the bunch from it by cutting the bunch stalk

Chop up the leaves and top part of the pseudostem and lay on the soil as a mulch



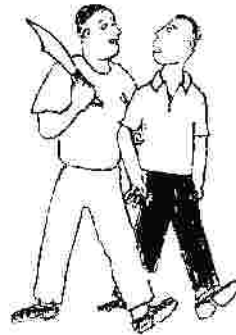
3. Carry the bunches to the trailer and put them next to each other (not on top of each other)







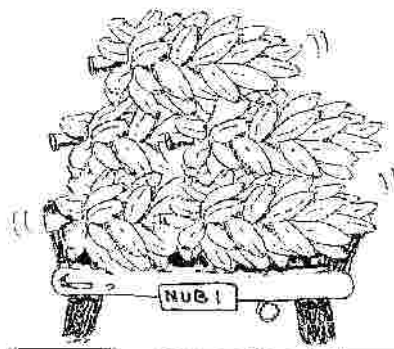
Do not work alone, always work in pairs



Do not let the bunches fall to the ground



Do not pack the bunches on top of each other





Harvest early in the morning when the sun is not too hot



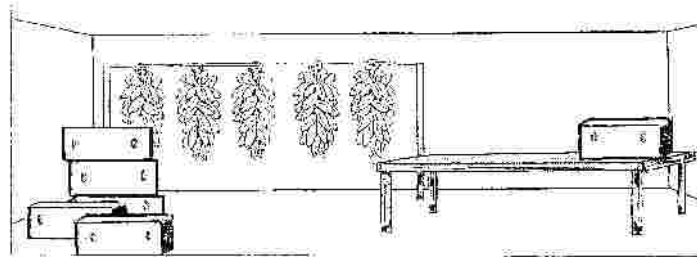
Do not leave cut bunches in the sun



Do not cut in the hot afternoon unless overcast



Build a packhouse in a cool location to hang bunches, remove hands, cut into clusters, pack into cartons and store (on southern side)



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# Marketing

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Now your bananas are ready to be taken to different markets where they can be sold

## Local market

You can sell your bananas on the streets or at a roadside stall



## Municipal markets

You can arrange with the nearest local market to sell your bananas



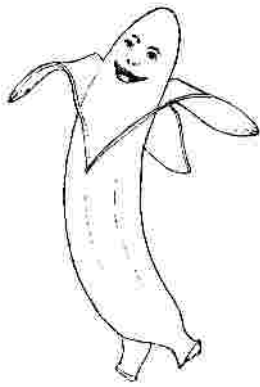
## Contracts

You can have contracts with supermarkets and chain stores which can buy and sell your bananas on a regular basis



## Home use

You can use some bananas for food security at home



For further information on producing  
bananas contact the extension officer in  
your area