

TRAINING GUIDE

# **EUREPGAP OPTION 2**

FOR MD2 PINEAPPLE

## **SITE PREPARATION AND PLANTING**



1st Edition 2007

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## Reference material:

“Pineapple Agricultural Practices” by COLEACP

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# INTRODUCTION

## CONTEXT

This training guide is designed to provide practical reference material for the training of farmer groups in the production of MD2 pineapple for export under EurepGAP Option 2 certification.

## DESCRIPTION

This guide covers the steps of MD2 pineapple cultivation from site selection, land preparation, planting and fertilizer application. This illustrated guide is structured for easy comprehension and to complement hands-on training.

This guide does not replace the direct advice of trained extension field agronomists.

## NOTE

The training guide series for MD2 pineapple production for EurepGAP Option 2 consists of the following 4 modules. Please refer to the other guides for coverage of the full production cycle.

1. Site Preparation and Planting
2. IPM and Pesticide Handling
3. Forcing, Degreening and Harvesting
4. General Hygiene

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Site selection	Why?	
<p><b>1.</b> Find a site with <b>road access</b>.</p>	<p><b>1.</b> If there is no road, it will be difficult to transport your pineapple.</p>	
<p><b>2.</b> Find a site with a source of <b>water</b> nearby.</p>	<p><b>2.</b> You need water for mixing fertilizer and chemicals.</p>	
<p><b>3.</b> If possible, check pH of the soil. It should be between <b>pH5.5</b> and <b>pH6.5</b></p>	<p><b>3.</b> Below pH5.5 (acidic) → nutrients cannot be absorbed easily.</p> <p>Above pH6.5. (alkaline) → it can easily be affected by <i>Phytophthora</i> rot.</p>	 <div data-bbox="829 706 1143 782" style="border: 1px solid black; padding: 5px;"> <p><b>MD2 can be easily attacked by <i>Phytophthora</i>!</b></p> </div>
<p><b>4.</b> Find a site with good <b>drainage</b>. Loamy soil is ideal.</p>	<p><b>4.</b> Clayey soil is poor in drainage and aeration. → encourages <i>Phytophthora</i></p>	<div data-bbox="829 819 1143 895" style="border: 1px solid black; padding: 5px;"> <p><b><i>Phytophthora</i> likes wet places!</b></p> </div>
<p><b>“Find a good site and save yourself trouble!”</b></p>		

Land preparation	Why?	
<p><b>1.</b> <b>Plough</b> and <b>harrow</b> twice each either mechanically or manually.</p>	<p><b>1.</b> Good land preparation allows good root growth, and controls weed.</p>	
<p><b>2.</b> Leave <b>2 weeks</b> between the first ploughing and the next.</p>	<p><b>2.</b> Time is necessary for organic matter to decompose.</p>	<div data-bbox="829 1343 1143 1452" style="border: 1px solid black; padding: 5px;"> <p><b>When using a machine, be careful not to remove the top soil.</b></p> </div>

**Ridging****Why?**

1. Create **ridges** of **60-70cm width** and **30cm height**. (45cm height in wet area.)

1. Ridges encourage drainage and prevent *Phytophthora*.

60cm = length of a new machete



2. Keep **50-60cm** space between ridges.

2. Too much interval allows weeds to grow there.

3. Make sure that your ridge surface is **level**.

3. Water stays at the lowest parts and causes *Phytophthora*.



**"Let water go!"**

**Basal fertilizer**

1. Use **750g tomato can** to measure,
- MAP (Mono-Ammonium Phosphate)
  - Urea
  - SOP (Sulphate of Pottasium)

**Note :** Apply nematicide if you plant at a site that can be affected by nematodes due to previous cropping (pineapple, papaya, vegetable, etc.)



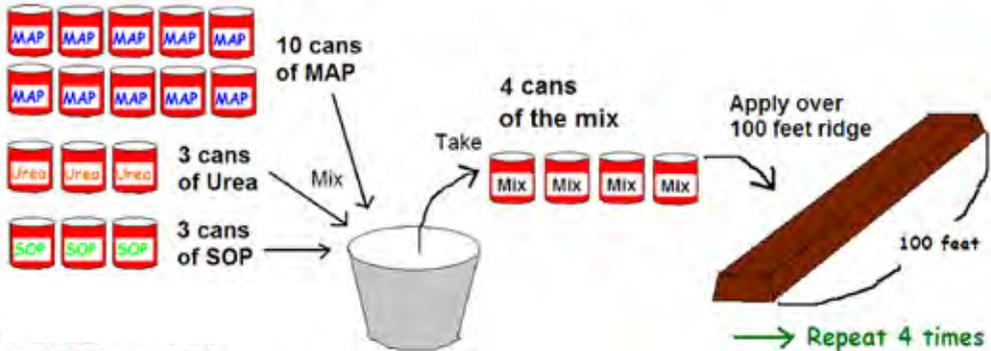
**WT 750g**

Measure **flat**. Don't heap, or put less.



**Note 1:** If you have done soil analysis, adjust the amount of fertilizer based on the result.

**For 1000 plants**



**How do you measure 100 feet ?**



**X 16 = 100 feet**

**Abasam** (The length of your arms stretched)

**Note 2:** 1 can of MAP = 800g; 1 can of Urea = 670g; 1 can of SOP = 1000g

**Note 3:** Please use powder form SOP (e.g. Ultrasol) for the measurement above. If you use granular form, put a little more than 3 cans.



**For 1 acre (24,000 plants)**



**Note 4:** 1 bag of MAP/SOP = 25kg; 1 bag of Urea = 50 kg

**Recommended doses**

<b>Ingredients</b>	<b>Per plant</b>	<b>Per 100 feet ridge (240 plants)</b>	<b>Per 1000 plants</b>	<b>Per acre (24,000plants)</b>
<b>1. MAP</b>	<b>8g</b>	<b>4 cans of the mixture of ingredients 1-4</b>	<b>10 cans</b>	<b>8 bags</b>
<b>2. Urea</b>	<b>2g</b>		<b>3 cans</b>	<b>1 bags</b>
<b>3. SOP</b>	<b>3g</b>		<b>3 cans</b>	<b>3 bags</b>

**2.** Spread **evenly** on the bed.



**“Let’s measure precisely!”**

**Mulching****Why?**

**1.** Water the ridges **evenly**.

**1.** Mulch conserves water for 4-5 months after planting.



**2.** Cover them with plastic mulch, and **seal the edges** with soil.

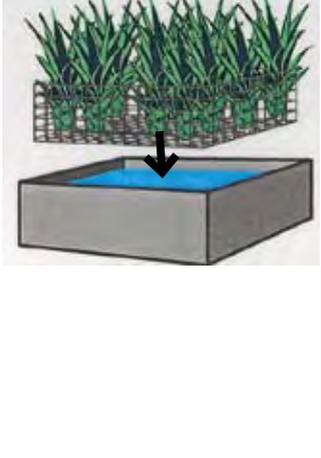
**2.** Mulch reduces soil erosion, and prevents weed growth. You can save the cost of herbicide!



**“Mulch will save you from trouble!”**

Selection of suckers	Why?
<p><b>1.</b> Grade the suckers by weight. Good size is between <b>200g</b> and <b>450g</b>.</p> <div data-bbox="136 405 452 496" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>Share your scale among the group members!</b></p> </div> <p>Before planting large suckers, trim them so that they don't fall easily.</p>	<p><b>1.</b> Different sizes of suckers grow at different speed.</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p style="text-align: center;"><b>Large (400g-)      Good (200-450g)      Small (-200g)</b></p>
<p><b>2.</b> Separate...</p> <ul style="list-style-type: none"> <li>• suckers with <b>thorns</b> → plant for local market</li> <li>• suckers harvested in <b>different weeks</b> → plant separately</li> <li>• suckers with <b>diseases</b> → discard</li> </ul>	<p><b>2.</b> Thorny sucker produces a fruit with thorny crown, which cannot be exported.</p> <div style="display: flex; justify-content: space-around;">   </div>
<p><b>3.</b> Select <b>a person in charge of sorting and grading</b> of suckers for the group!</p>	<p><b>3.</b> Good selection of suckers is the key to good yield.</p> 
<p><b><i>“Good suckers mark a good beginning.”</i></b></p>	

Treatment of suckers	Why?	
<p><b>1.</b> After harvesting, <b>cure</b> suckers in the sun for 2-3 days</p>	<p><b>1.</b> The sun heals the wound.</p>	

Treatment of suckers	Why?	
<p><b>2.</b> Don't <b>heap</b> the suckers!</p>	<p><b>2.</b> Temperature and moisture can rise in the heap, and cause rotting. Suckers also start to yellow when heaped.</p>	
<p><b>3.</b> If you store them, keep them <b>upside down</b> under the <b>shade</b>.</p>	<p><b>3.</b> Leaving suckers under the sun for too long can damage the butt. It is better to plant them right away without storing.</p>	
<p><b>4.</b> Remove <b>basal leaves</b>.</p>	<p><b>4.</b> Mealybugs and ants are hidden in basal leaves.</p> <p>New roots are found under basal leaves.</p> 	
<p><b>5.</b> Prepare the mix solution of insecticide and fungicide, and dip the butt end for <b>at least 1 minute</b>.</p> <div data-bbox="146 1208 461 1470" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Insecticide</b> (Eg. Dursban, Pyrical, Dimethoate)</p> <p><b>Fungicide</b> (eg. Aliette, Ridomyl, Bayleton)</p> </div>	<p><b>5.</b> Aliette is effective against <i>Phytophthora</i>.</p> <p>Insecticide controls mealybugs.</p> <div data-bbox="512 1248 705 1328" style="border: 1px solid black; padding: 5px; margin-top: 10px; text-align: center;"> <p><b>Follow the label instructions!</b></p> </div>	
<p><b>6.</b> Let them air-dry for <b>2 hours</b>, and plant within 1 day.</p>	<p><b>“Treat your suckers nicely.”</b></p>	

Planting	Why?
<p><b>1.</b> Plant the suckers <b>within 2 weeks</b> after harvest.</p>	<p><b>1.</b> Leaving them too long can cause yellowing of leaves and rotting.</p>
<p><b>2.</b> Use <b>frame marker</b> to space...</p> <ul style="list-style-type: none"> <li>• <b>30cm</b> between rows</li> <li>• <b>15cm</b> from the edge</li> <li>• <b>25cm</b> between plants</li> </ul>	<p><b>2.</b> Uniform intervals are the key to uniform growth.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>Create a frame marker and share it among the members!</b></p> </div>
<p><b>3.</b> Plant around <b>24,000 plants /acre.</b> (= 60,000plants /ha)</p>	<p><b>3.</b> Planting 24,000 plants/acre will give you an ideal size of fruit for export.</p>
<p><b>“Spend your time to get the intervals right.”</b></p>	
<p><b>4.</b> Create a hole with a <b>flat piece of wood/ metal</b>, and put the suckers into planting holes.</p>	<p><b>4.</b> Using a thick piece of wood would compact the soil around the hole.</p>
	 <p><b>Step 1.</b> Insert the wood at an angle</p>
<p>‘Screwing in’ the suckers can damage the roots and break the stem.</p>	 <p><b>Step 2</b> Pull it straight</p>
 <p>You can use a planting hoe, but make sure not to make the hole too big.</p>	 <p><b>Step 3.</b> Put the sucker in</p>

**5.** Check all planted suckers to be sure they are planted **firmly in the soil.**

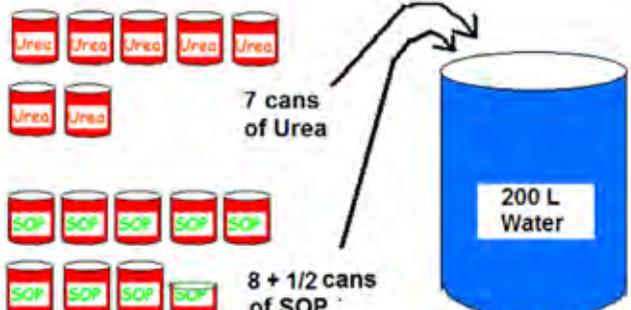
**5.** If they are not touching the soil, roots will not develop well.



**“Don’t screw the suckers in!”**

Weed control	Why?	
<p><b>1.</b> Spray between ridges <b>soon after planting.</b></p>	<p><b>1.</b> Post-planting herbicide (eg. Bromacil, Diuron) kill the seeds of weeds in the soil.</p>	
<p><b>2.</b> Spray right <b>after the rain</b>, or spray on <b>moist soil.</b></p>	<p><b>2.</b> Ingredients become active when they contact water.</p>	
<p><b>3.</b> Use <b>clean water</b> for mixing.</p>	<p><b>3.</b> Muddy water makes the herbicide ineffective.</p> <div data-bbox="493 911 805 1039" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>If you use muddy water, let it settle and use the top layer.</b></p> </div>	
<p><b>4.</b> Check the <b>nozzle</b> to ensure uniform spray.</p>	<p><b>4.</b> Using a stick can spoil your nozzle.</p> <div data-bbox="493 1212 805 1303" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Don’t use a stick to open the nozzle!</b></p> </div>	
<p><b>5.</b> During growth period, manually (or chemically) remove weeds.</p>		

Foliar fertilizer	Why?
<p><b>1.</b> Start <b>1 month after planting</b>.</p> <p>Continue <b>once a month</b> for 7 months <b>until one month before forcing</b>.</p>	<p><b>1.</b> MD2 pineapple requires good fertilizer application.</p>

For 1 drum (4000 plants)	For 1 acre (24,000 plants)
 <p>7 cans of Urea</p> <p>8 + 1/2 cans of SOP</p> <p>200 L Water</p>	 <p>1/2 bags of Urea</p> <p>2 bags of SOP</p>

Recommended doses

Ingredients	Per drum (4000 plants)	Per plant	Per acre (24,000plants)
<b>1. Urea</b>	<b>7 cans</b>	<b>50ml</b> of the mixture of <b>1- 3</b>	<b>1/2 bag</b>
<b>2. SOP</b>	<b>8 + 1/2 cans</b>		<b>2 bags</b>
<b>3. Water</b>	<b>200L</b>		<b>1200L</b>

**Note 5:** If you have done soil analysis, adjust the amount of fertilizer based on the result.

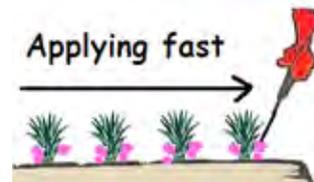
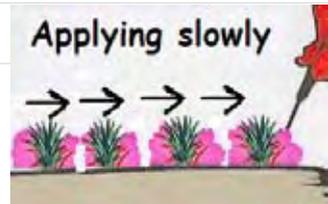
<p><b>2.</b> Mix fertilizer <b>with a little water first</b>, then pour the rest of the water into the drum. Stir with a stick.</p>	<p><b>2.</b> Fertilizer may be concentrated at the bottom of the drum.</p>	
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## Foliar fertilizer

3. Keep the **same speed** of spraying to make sure each plant receives **50ml**.

## Why?

3. You spray too much by going slow, and too little by going fast.



4. Apply **close to the heart**, but **not at the heart** of the plant.

4. Applying at the heart can burn the plant.



***“Uniform spray ensures uniform growth.”***