
How to Grow Crops Using
Bio-Plant and Pro-Plant Liquid,
100% Organic Bio-fertilisers


Bio-Plant
Pro-Plant
ไบโอ-แพลนท์ 99
BIO-PLANT
สูตรดิน
โปร-แพลนท์ 99
PRO-PLANT
สูตรใบ

Nigeria needs a new paradigm for agriculture.

Land becomes degraded. CO_2 is released. Organic matter is lost.

Soil structure damaged. Soil erosion. Top soil is lost. Leaching.

Microbial life is killed. Land degraded. CO_2 is released. Health. Leaching.

Microbial life is killed. CO_2 is released. Organic matter is lost.


The Nation

Soil Fertility Maps of Nigeria

Soil organic carbon is the basis of soil fertility. It releases nutrients for plant growth, promotes the structure, biological and physical health of soil, and is a buffer against harmful substances.

Chemical Sprays Kill the Microbial Life

Why Is This Bad?

- Use of toxic compounds, such as pesticides and inorganic fertilizers, kill the micro-organisms that build structure in the soil so that roots can go deep to find water.
- They also kill the micro-organisms that protect the root systems, and which cycle nutrients for the plants.

Cancers Caused by Pesticides

- Bladder Cancer ● Bone Cancer ● Brain Cancer
- Cervical Cancer ●Mouth Cancer ● Eye Cancer
- Gallbladder Cancer ● Kidney/Renal Cancer
- Larynx Cancer ● Leukemia ● Lip Cancer
- Liver/ Hepatic Cancer ● Lung Cancer ● Lymphoma
- Melanoma ● Colorecatal Cancer ● Multiple Myeloma ● Neuroblastoma ● Oesophageal Cancer
- Ovarian Cancer ● Pancreatic Cancer
- Prostate Cancer ● Soft Tissue Sarcoma
- Stomach Cancer ● Sinonasal Cancer
- Testicular Cancer ● Thyroid Cancer
- Uteran Cancer

Do You Need to Change?

- Food security issues.
- Soil fertility.
- Agriculture will not be profitable.
- Youth employment.
- Poverty.
- Water shortages and poisoning.
- The health of farming communities and the nation.
- Western markets are changing.
- How will you sell your chemical produce?
- “Cocoa anyone?”

Organic Farming
The Effect of Organic Farming

https://www.youtube.com/watch?v=MeZo3h3OcFo

Note: The video will inspire the farmers to practise 100% organic farming with Bio-Plant and Pro-Plant.

Section 1

The Nature and Benefits of Bio-Plant and Pro-Plant.


Bio-Plant
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ไบโอ-แพลนท์ 99
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What is Bio-Plant?

- It is a microbial, liquid bio-fertiliser for the soil. “Bio” means it is alive. It is alive because it is full of alive micro-organisms.
- It is made with sugarcane molasses using bio-technology.
- It is chemical-free and toxin-free. You do not need a mask or gloves to use it.
- It is very concentrated with micro-organisms; the micro-organisms multiply very rapidly; and it restores the fertility of the soil. It turns organic matter into a “factory”, which multiplies micro-organisms extremely rapidly.
- It makes wonderfully rich compost.

What is Bio-Plant?

- It provides the plants with an abundance of soil nutrients through microbial action.
- There are micro-organisms, which produce and make available for the plants:
  * Nitrogen * Phosphorus * Potassium * Trace Nutrients
  * The 80% of NPK lost in the soil in chemical agriculture.
- It strengthens the plant's immune system, and enables farmers to stop using chemical sprays.
- Certain micro-organisms clean toxins in the soil, e.g. from gold mining and oil pollution; and also clean waste water.

What is Bio-Plant?

- Bio-Plant contains micro-organisms, which:
  - Enhance the efficiency of the Carbon and Nitrogen cycles.
  - Act as a bio-fungicide.
  - Act as an antifungal.
  - Degrade organic matter and release nutrients.
  - Fertilise the soil.
  - Enhance the structure of soil and makes it crumblier and looser.
  - Increase the uptake of minerals.
  - Degrade pollutants and toxins, and carry out bio-remediation.
  - Disinfect the soil.
  - Produce enzymes and other organic compounds, which plants need to grow well and healthily.

“A nation that destroys its soil, destroys itself.” Franklin D. Roosevelt

Healthy Soil is the Key to Food Security and to Feeding the Population

Soil Degraded by Chemical Agriculture

What is Pro-Plant?

- It is a liquid bio-fertiliser, which provides 50+ nutrients by foliar-spraying the leaves, buds, flowers, and fruit.
- The nutrients are available immediately.
- It is made from fresh fish using bio-technology techniques.
- It is chemical-free and toxin-free. You do not need a mask or gloves to use it.
- It strengthens the plant's immune system; and coats the leaves with micro-organisms, which protect the plant against fungal attacks.
- Pro-Plant increases the quality of produce.
- Bio-Plant and Pro-Plant together will enable Nigeria to become known for 100% organic food production.

100% Organic Farming Rice Field Test in Taraba State – Pro-Plant Used Only

- In this field test on rice, the farmers did not prepare the soil with Bio-Plant and organic matter, and only sprayed Pro-Plant on the rice.
- Nevertheless, the farmers said that their crop yield was more than they ever got with Urea and NPK.
- Also, their costs were very much lower because they only needed one litre of Pro-Plant per hectare.

Bio-chemical Farming Maize Field Test in Karfe Town, Suleja, Niger State, Nigeria

- The maize seeds were soaked in Bio-Plant and water for 12 hours before planting.
- The soil, which was in poor condition owing to years of chemical farming, was prepared with a bio-chemical mixture of Urea and Bio-Plant.
- Bio-Plant was mixed with NPK and this bio-chemical mixture was sprinkled around the maize plants during the crop. Pro-Plant was sprayed regularly on the maize.
- The farmers almost doubled their yield. Normally, they only produced 30-40 bags of maize per hectare, but this test produced 60 bags per hectare.
- Normally, the farmers have problems with insects during their maize crops, but this time there were no problems with insect pests at all. No chemical sprays were used.

Bio-chemical Farming Maize Field Test in Karfe Town, Suleja, Niger State, Nigeria

Benefits of 100% Organic Farming with Bio-Plant and Pro-Plant

- Higher nutritional value. The crop quality is higher. For example:
  - size, appearance, shiny leaves, less broken rice, etc.
  - Improved taste of the fruit and vegetables.
  - Farmers can use the seeds as mother seeds, and increase their crop quality and yield more.
- The organic produce keeps longer.
- Higher Brix value. The crops are healthier and can resist disease and pests.
- Beneficial insects will return.
- There is no need to use chemical sprays.
- The produce is free of poisons, eg. carcinogens.

Benefits of 100% Organic Farming with Bio-Plant and Pro-Plant

- There is no river and water supply pollution caused by run-off of nitrates and chemicals.
- Fewer problems with weeds.
- The crops are much more drought-resistant.
- Lower production cost and a higher profit.
- As the soil's fertility is restored, the yield surpasses that of chemicals fertilisers.
- Farmers can get a higher price for their crops because of the higher quality and because they are organic.
- There is a growing demand for organic produce.

Maize Test in Chanchaga Village, Niger State, Dry Season, 2015/2016

- Bio-Plant and Pro-Plant were tested on maize using different farmers to evaluate their impact compared to inorganic NPK fertilizer.
- Results obtained revealed that plots treated with Pro-Plant combined with Bio-Plant had significantly higher yields.
- In all the treatments where Pro-Plant was used either alone or combined with NPK or Bio-Plant, an appreciable yield increase was obtained.
- “Any treatment that involves Pro-Plant is therefore highly recommended to maize farmers.”

The Director,

Farm Input Support Services Department,

Federal Ministry of Agriculture and Rural Development.

Part 2 (p. 7)

The Facts People Should Know About Chemical Fertilizers

The Adverse Effects of Chemical Agriculture

https://www.youtube.com/watch?v=WKMpmIbbwwI

Part 3 (p. 12)

The Advantages of 100% Organic Farming

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Part 4 (p. 16)

What is a Bio-fertiliser?

Part 5 (p. 20)

The Effect on the Soil Biology When Using Bio-Plant and Pro-Plant

Section 2

The Benefits of Bio-compost and How to Make It.

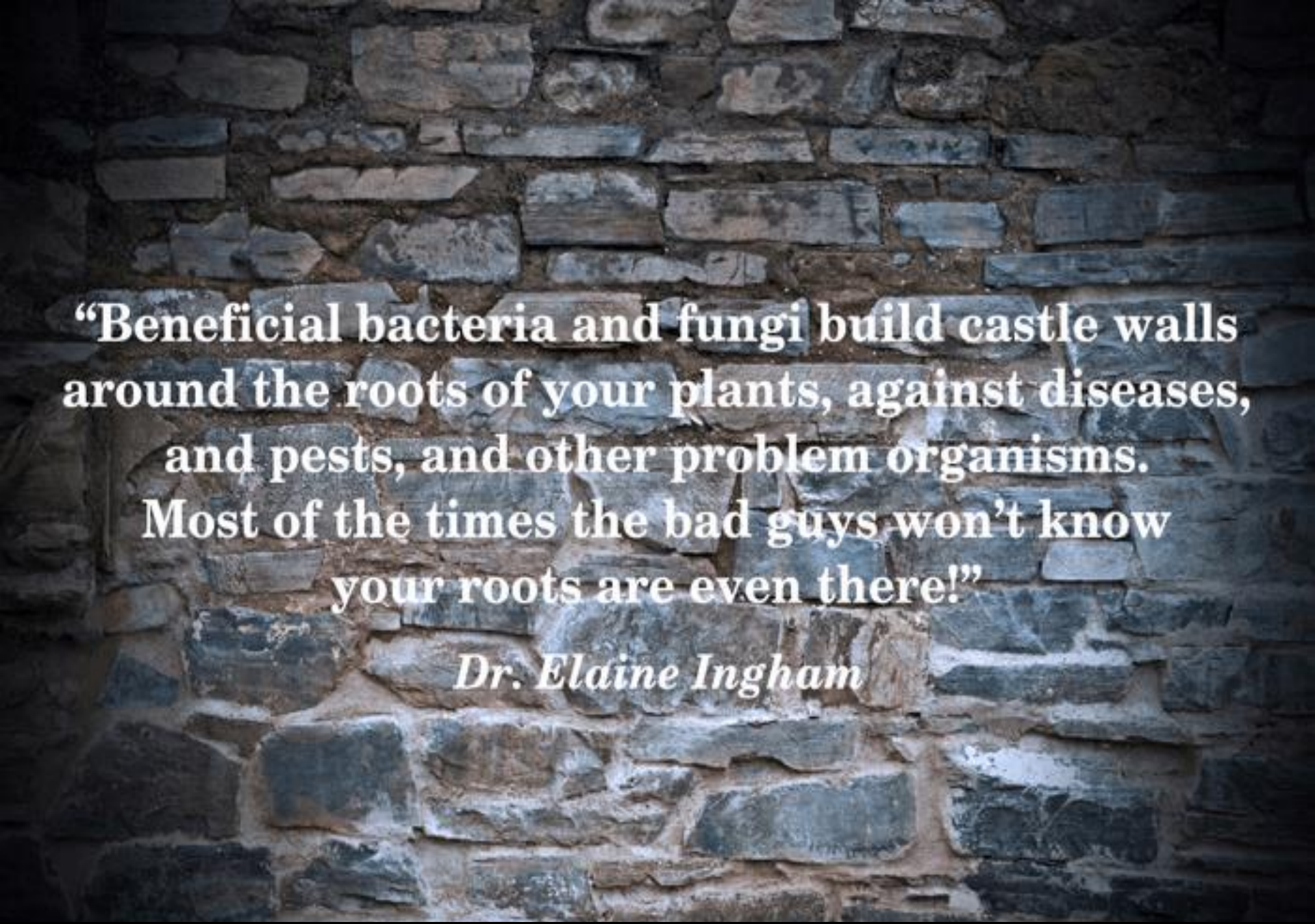
**“Compost is NOT a fertiliser.
It’s an inoculate of beneficial organisms
for your soil”**

Dr. Elaine Ingham

The Benefits of Compost

https://www.youtube.com/watch?v=PXWiOaUnXU8


ORGANIC
fertilizers
feed the soil
and the plant
TRADITIONAL
fertilizers
feed only the plant
and damage the soil
PLANT NUTRIENTS
ORGANIC MATTER
MICRO-ORGANISMS
SOIL NUTRIENTS
PLANT NUTRIENTS


"Beneficial bacteria and fungi build castle walls around the roots of your plants, against diseases, and pests, and other problem organisms. Most of the times the bad guys won't know your roots are even there!"
Dr. Elaine Ingham

Chemical Sprays Kill the Microbial Life


Bio-Plant and Pro-Plant will
Turn Your Soil Into This

How to Make Layered Compost

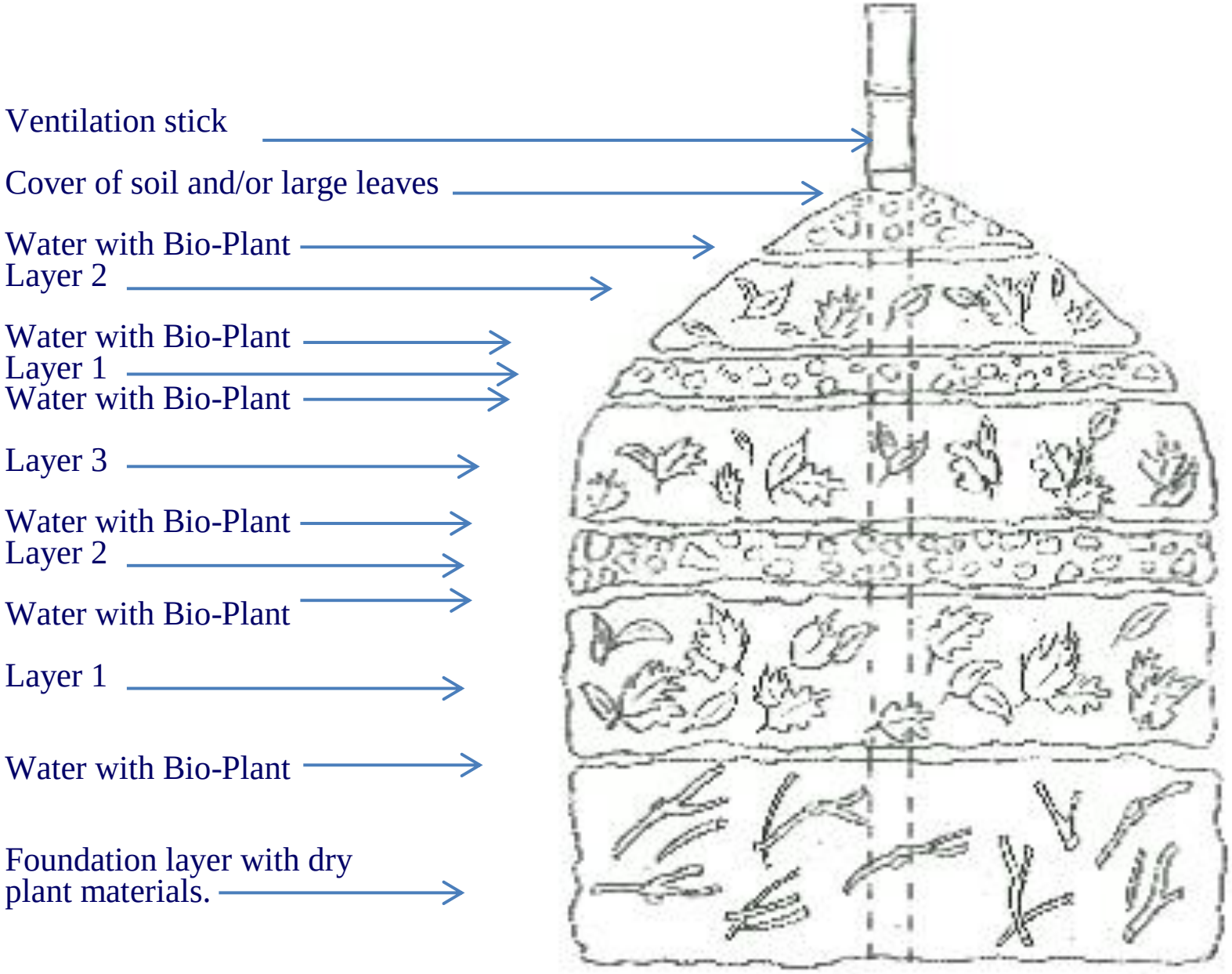
https://www.youtube.com/watch?v=mbZtViYd5bM

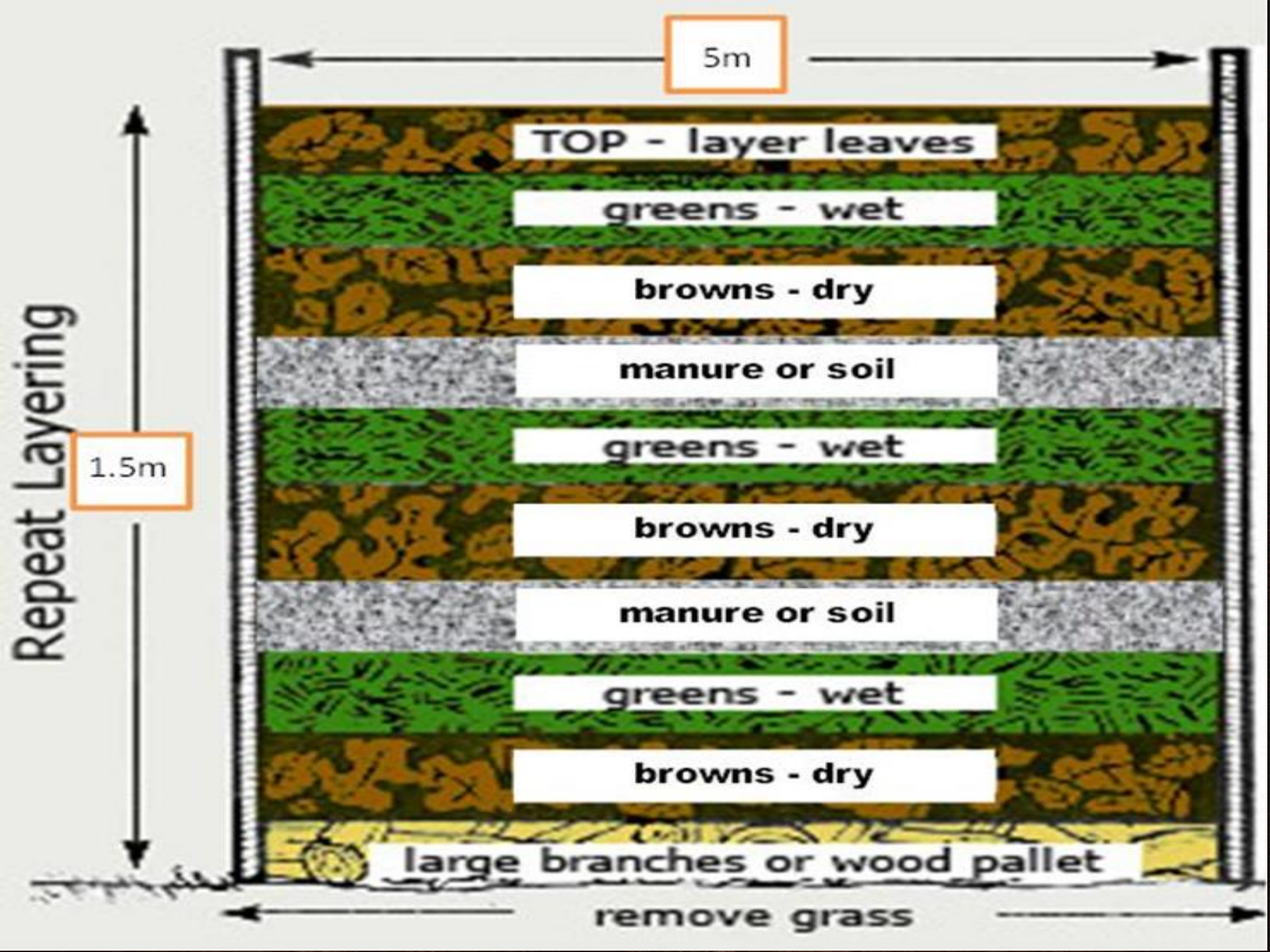
How to Sift Compost

https://www.youtube.com/watch?v=2wCCdAVlVsA

1.1 (p. 43)

Diagram Showing the Layers in a Compost Heap


Ventilation stick
Cover of soil and/or large leaves
Water with Bio-Plant
Layer 2
Water with Bio-Plant
Layer 1
Water with Bio-Plant
Layer 3
Water with Bio-Plant
Layer 2
Water with Bio-Plant
Layer 1
Water with Bio-Plant
Foundation layer with dry
plant materials.


5m
TOP - layer leaves
greens - wet
browns - dry
manure or soil
greens - wet
browns - dry
manure or soil
greens - wet
browns - dry
large branches or wood pallet
remove grass
Repeat Layering
1.5m

1.4 (p. 44)

How to Start to Make the Compost Heap

1.5 (p. 44)

The Layers in Making the Compost Heap

Farmers Often Say They Have No Organic Matter

The Farmer's Biggest Mistake

BEFORE

AFTER

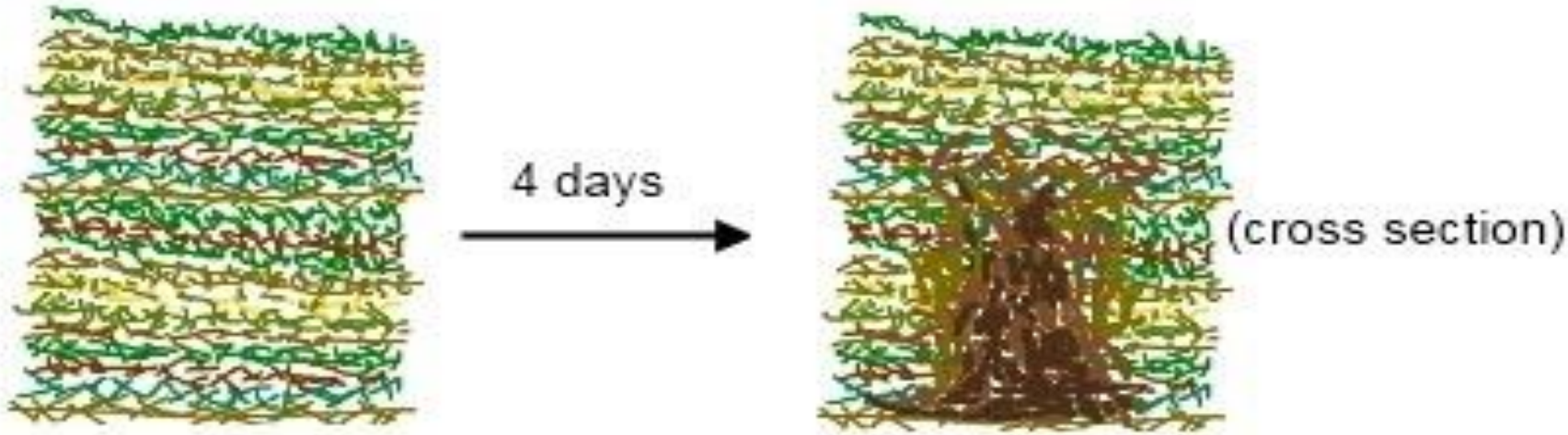
2. (p. 48)

What to Do During the Compost-Making Process

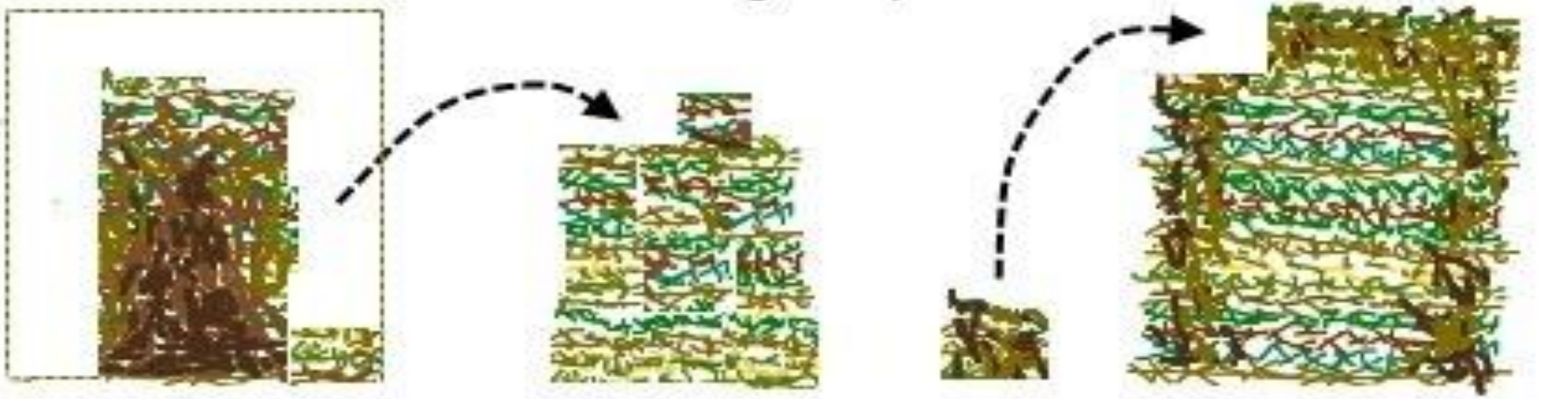
3. (p. 50)

Turning the Compost Pile

Turning Over the Compost Pile



Turning Compost



Turning Over the Compost Pile

4. (p. 50)

When is the Compost Finished?

5. (p. 52)

Methods 1 – 12

Making Potting Soil and Organic Fertiliser to Place Around Vegetables and Trees.

Section 3

Soil Preparation With Organic Matter and Bio-Compost

6.1 and 6.2 (p. 54)

Method 1: Preparing the Soil with Uncomposted Organic Matter

Ploughing Crop Stubble into the Soil

Disadvantages of Cultivation

1. Disturbs the natural **structure** built up by organisms such as earthworms.
2. Can damage the soil structure if done when soil conditions are not suitable, or by using heavy machinery.
3. Dormant seeds may be brought to the surface where they will germinate.
4. Leaving a bare surface may cause erosion or the leaching of nutrients.
5. Moisture may be lost from the soil.
6. Hard work!

Create Rows of Organic Matter and Mix in Bio-Plant in Water.

Cover the Field with the Treated Organic Matter and Plough It into the Soil

Plant Between the Stubble

- No-till and reduced-tillage farming leaves old crop residue on the ground instead of plowing it into soil. This covers the soil, keeping it in place.
  - *Here, corn grows up out of a "cover crop."*

In the 1950s and 60s, university researchers showed that leaving stubble from the last harvest on the field and planting crops like corn through the stubble protected moisture and produced better yields.

Planting Between the Stubble and Crop Residue

The Crop Has Been Planted Between the Stubble

Place Organic Matter in the Planting Holes / Ditches and Spray Bio-Plant on It

Fill Planting-Trenches with Organic Matter Sprayed With Bio-Plant

How to Destroy the Microbial Life of the Soil

6.2 (p. 55)

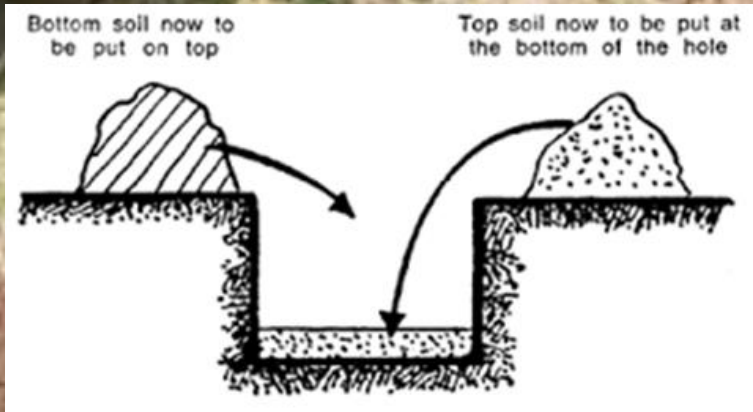
Method 2: Preparing the Soil with Bio-Compost

Covering the Soil with Compost Before Planting

Covering the Soil with Organic Matter Before Ploughing

Fill the Trenches with Compost Before Planting

Tomato Plant Holes Filled with Compost Before Planting


Bottom soil now to be put on top
Top soil now to be put at the bottom of the hole

Zai Planting Pits

https://www.youtube.com/watch?v=x28NpUZjmN8

Note: This shows to to plant crops in semi-arid areas by digging pits called “Zai Pits”.

Section 4

The Benefits of Planting Cover Crops

Radishes with a Ryegrass Cover Crop

Ryegrass Cover Crop to Protect the Soil

Winter Rye and White Clover Cover Crops

Mowing the Cover Crop Causes It to Produce More Exudates, Which Increase the Growth of Beneficial Soil Bacteria & Fungi and the Roots

Cover Crops

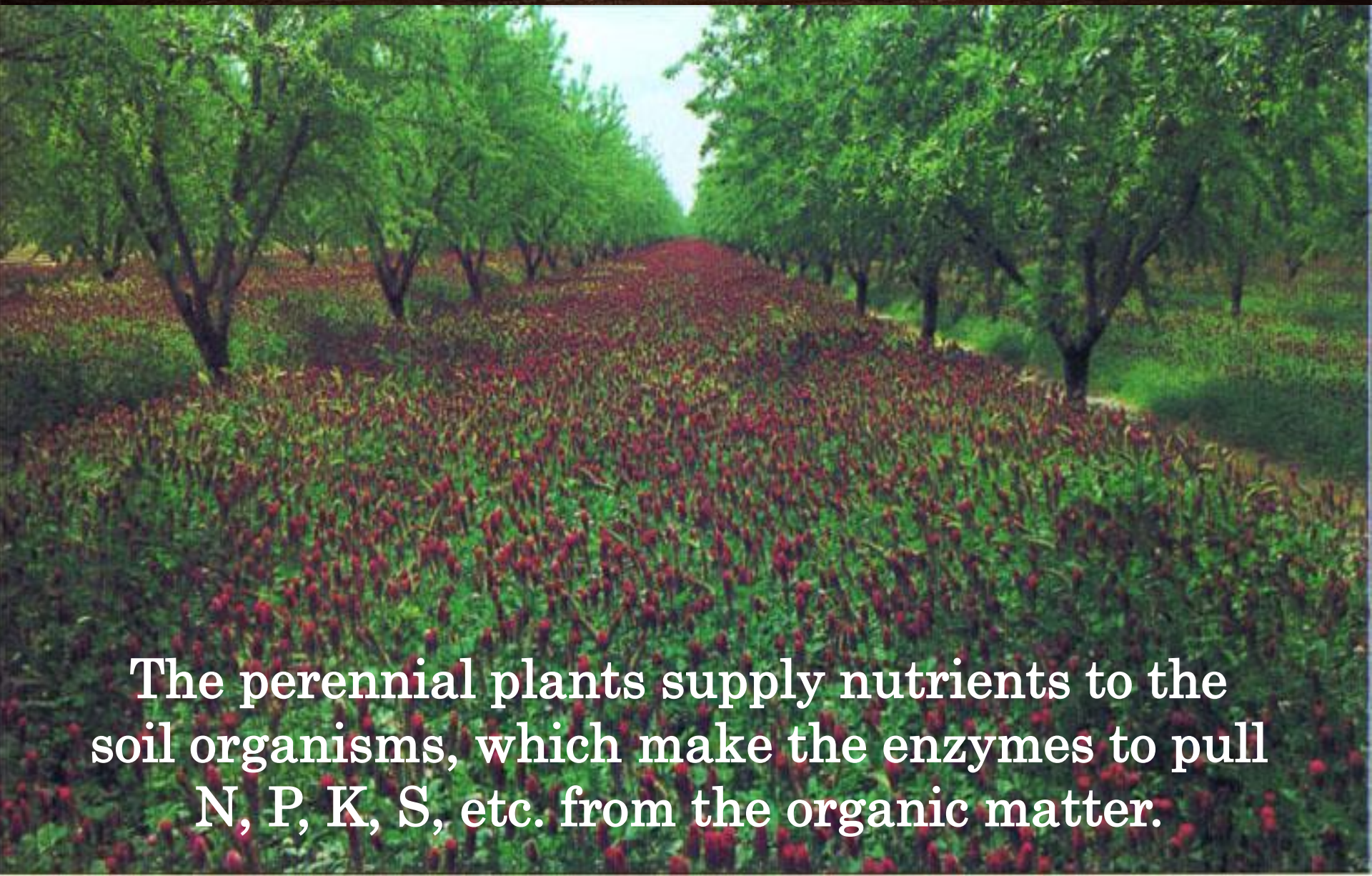
https://www.youtube.com/watch?v=56-H7oRI5Dk

7. (p. 57)

10 Benefits of Planting a Cover Crop

Kura Clover Perennial Cover Crop

Marijuana Cover Crop



Crimson Clover in a Pecan Orchard

Clover Cover Crop in a Walnut Orchard

Cover Crop in a Walnut Orchard

Planting Into the Remnants of a Cover Crop

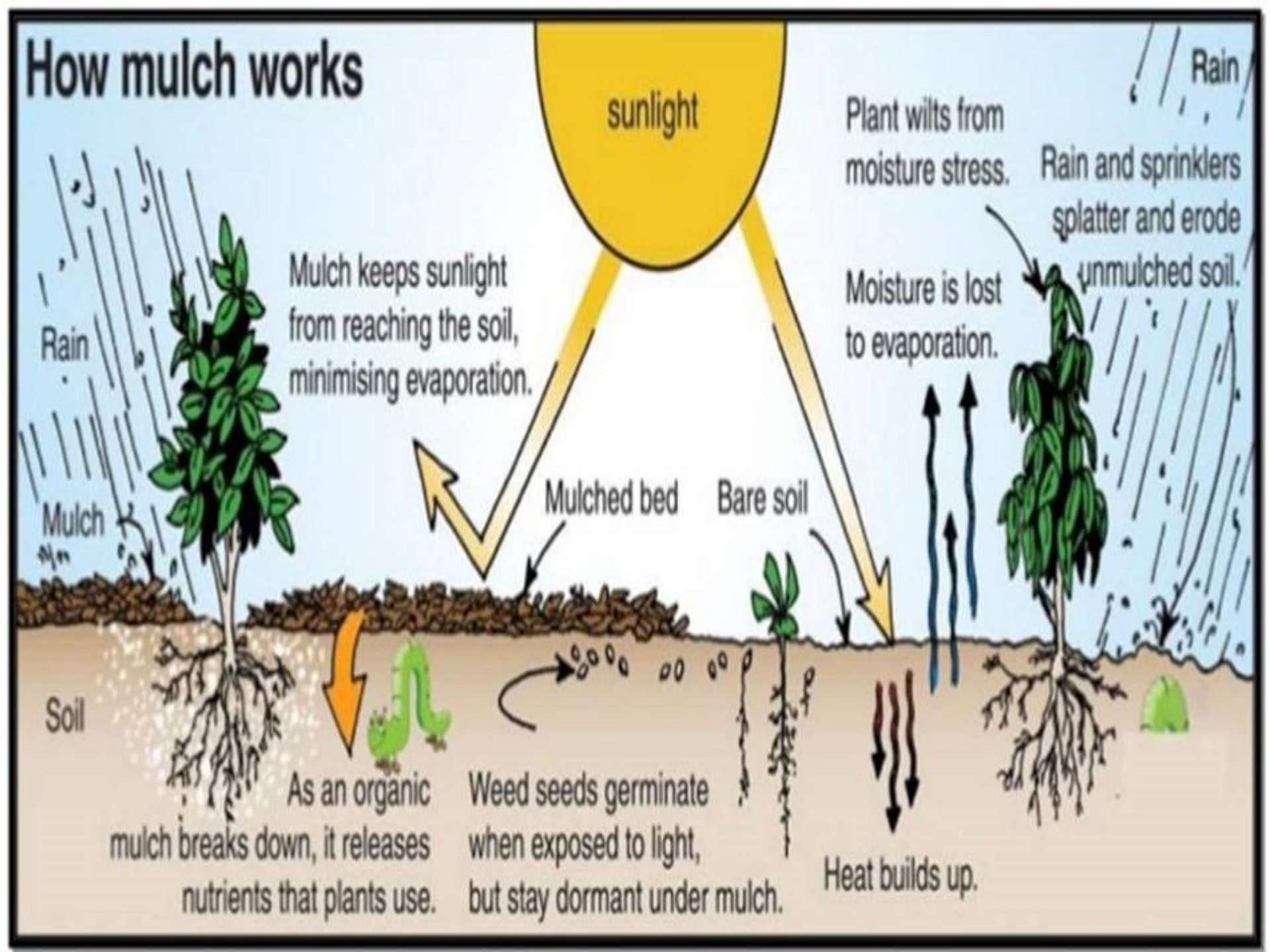
https://www.youtube.com/watch?v=0oQjZykbGIg

Section 5

The Benefits of Mulching the Soil

8. (p. 59)

The Benefits of Mulching the Soil


How mulch works
sunlight
Rain
Plant wilts from moisture stress.
Rain and sprinklers splatter and erode unmulched soil.
Mulch keeps sunlight from reaching the soil, minimising evaporation.
Moisture is lost to evaporation.
Rain
Mulch
Mulched bed
Bare soil
Soil
As an organic mulch breaks down, it releases nutrients that plants use.
Weed seeds germinate when exposed to light, but stay dormant under mulch.
Heat builds up.

Mulching
The Magic of Mulch

https://www.youtube.com/watch?v=dUVpRfRlkIg&list=PLefsPOoRytGwgMS2i_Yym7RC4NaJNIqmO&index=46

Mulching
Benefits and How to Mulch

https://www.youtube.com/watch?v=2brHfHPusac

Mulching a Vineyard

Mulching a Banana Plantation with Maize Crop Stubble

Mulching Between Crops *(Conservation Agriculture)*

https://www.youtube.com/watch?v=fdn3PgA97E4

Section 6

Seed Preparation

1.1 (p. 60)

The Common Approach to Soaking and Germinating Seeds For Crops in Fields

1.2 (p. 61)

The Baggy Method for a Garden

1.3 (p. 61)

How to Prepare Rice Seeds

Rice - Principles of SRI Part 1

https://www.youtube.com/watch?v=sF5wBOpgV24

1.4 (p. 62)

How to Prepare Maize Seeds

SOAK + SPROUT

Seeds, nuts, grains and beans are covered in chemicals called enzyme inhibitors which prevent premature germination and store nutrients for plant growth. When humans consume these chemicals, they reduce the absorbtion of important minerals and proteins causing nutrient deficiencies and other health issues. Soaking and sprouting bypasses this issue as it activates the seed and nutralises the inhibitors.

Paper Towel and Baggy Methods to Germinate Seeds

https://www.youtube.com/watch?v=dirz0WIMQi0&t=691s

1.6 (p. 62)

How to Prepare Small Seeds

1.7 (p. 62)

How to Prepare Hard-Shelled Seeds

1.7 (p. 63)

Germinating Mango Seeds

Section 7

How to Apply Pro-Plant

1. (p. 64)

Guidelines for How to Spray Pro-Plant

2. (p. 64)

Examples of When to Spray Vegetables

Foliar Feeding and Fertilizing your Plants - Benefits and the Science

https://www.youtube.com/watch?v=wHyflvaVuIM&t=443s

Note: 5:24 – 8:48.

Foliar Spraying - Bell Pepper 9000x speed time lapse

https://www.youtube.com/watch?v=LAVX1fit1Z0

Note: The main point to learn here is the importance of good soil, and of spraying Pro-Plant on the leaves, buds, flowers, and vegetables as they grow.

Section 8

Weeding the Soil

Weeding a Rice Field

https://www.youtube.com/watch?v=3eIjssE2Sk4

Mechanical Rice Field Weeder

Motorised Rice Field Weeder

BSM

BEST MACHINERY

HENAN BEST MACHINERY CO.,LTD

Value For You

BSM

Motorised Rice Field Weeders

Motorised Rice Field Weeders

http://www.nairaland.com/3886524/weeding-machines-cassava-farms-sale

N120,000

A Rice Field Full of Weeds

Weeding
Weeding by Motorbike

https://www.youtube.com/watch?v=j95rdH30SXo

Weeding a Maize Field

https://www.youtube.com/watch?v=NLBFteTtdvM

The Main Points

- There is no need to use herbicides.
- Herbicides will kill the soil's microbial life.
- There are hand-pushed weeders and motorized weeders. Choose whichever fits your budget.
- Weeding could add 1-2 MT of yield to a rice crop.

Section 9

How to Grow Various Crops with the Bio-fertilisers.

Part 11. (p. 66)

Using the Bio-fertilizers for Growing Rice

Rice – SRI in the Philippines

https://www.youtube.com/watch?v=fOyHW3Im_50&t=2s

Note: Rice farmers can use some or all of the techniques of **SRI** to increase their rice crop yields.

Rice – Establishing a Modified Mat Nursery

https://www.youtube.com/watch?v=CLS2WvMoDLc&t=26s

Note: Conservation agriculture methods can be used to increase maize crop yields.

Rice - SRI Principles in Upland Rainfed Rice Fields

https://www.youtube.com/watch?v=d5fQAJkPeM4

Note: How to apply some SRI principles to Upland, rainfed rice growing.

Part 12. (p. 75)

Using the Bio-fertilizers for Growing Maize

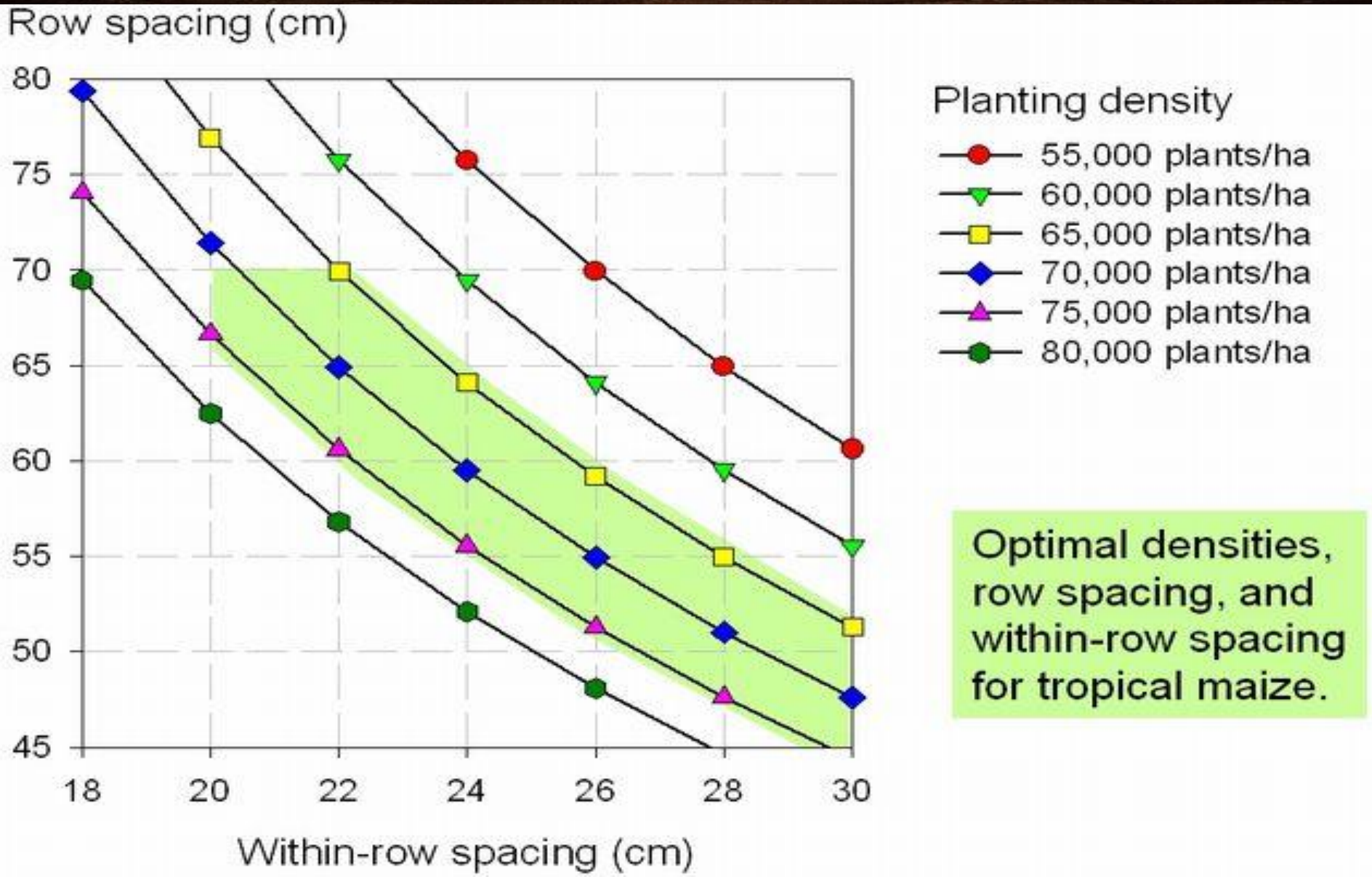
Conservation Agriculture – Islands of Hope

https://www.youtube.com/watch?v=IEf-5WUHoyo

Note: Conservation agriculture methods can be used to increase crop yields of all crops. Perhaps the farmers would like to apply some of the techniques.

A Maize Field Full of Weeds

Optimal Spacing of Maize Plants



Maize Intercropped with Squash

The Benefits of Intercropping with Maize

PUMPKIN/ SQUASH: A living mulch that shades soil, helps retain moisture and inhibits weeds

CORN

CORN: Living support trellis & protective shady 'umbrella'

CORN: Provides sugars to feed nitrogen-fixing bacteria on bean roots

PUMPKIN/SQUASH

BEANS: Bacteria converts nitrogen in soil to boost growth

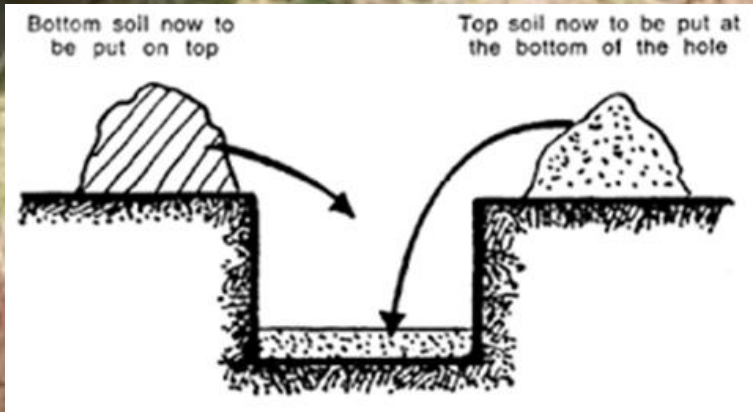
BEANS

Part 13. (p. 77)

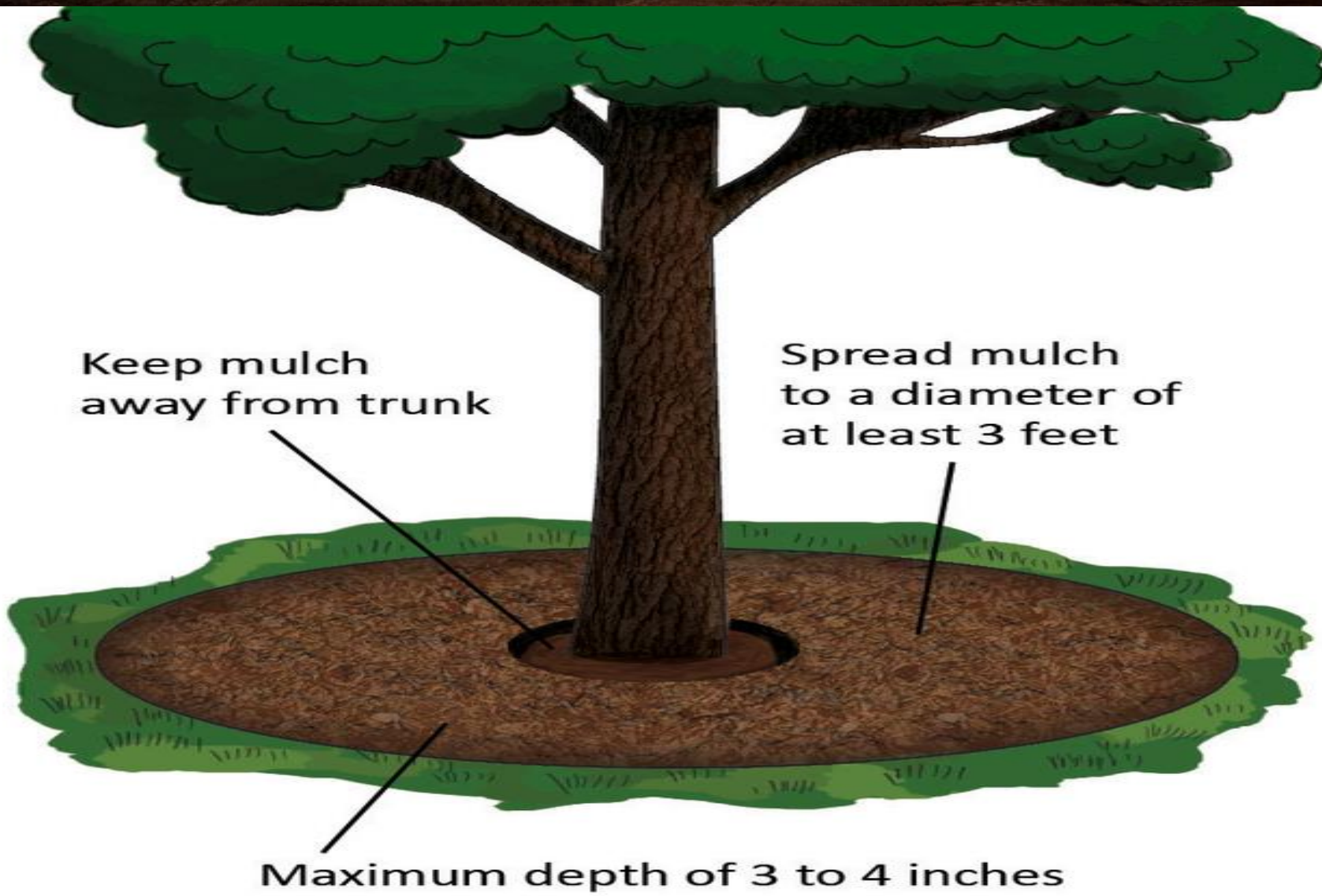
Using the Bio-fertilizers for Growing Fruit Trees

Effect on Mangoes

- The main difference is the taste. The mangoes are very sweet and the mango flavour is much stronger than with chemical mangoes.
- Another characteristic is the number of flowers on the tree in the flowering season. The trees are covered with flowers during the flowering season, more than the other mango trees, which do use fertilizer or which use chemicals. Pro-Plant causes fewer flowers to drop and the trees have more mangoes as a result.
- Trees rarely have a problem with disease. The reason is that the immune system of the trees becomes stronger and stronger. Farmers place Bio-Plant in organic matter around the trees every month, and spray Pro-Plant on the leaves, flowers, and fruit so that they get coated with micro-organisms, which protect the plants from disease.


Bottom soil now to be put on top
Top soil now to be put at the bottom of the hole

Where to Spread Compost and Mulch



Mulch Around Fruit Trees

Mulching with Wood Chips

Part 14. (p. 80)

Using the Bio-fertilizers for Growing Bananas

Effect on Bananas

- The weight of bananas per tree is higher. The bananas are sweeter than bananas grown with chemical fertilizer.
- The bananas look more attractive to buy and eat as the skin is shinier.
- The bananas do not have black spots on them.
- The bananas keep longer after picking.
- The problems with disease disappear.
- The cost of growing the bananas drops significantly.

Banana Trees - Foliar Spraying and Nutrient Deficiencies

https://www.youtube.com/watch?v=yV0PP5AhA_Y&t=193s

Note: Just pay attention to how the farmer sprays, and to the benefits of foliar spraying. The advertised product and how to mix it can be ignored.

Banana Trees - 4 Tips on How to Grow Healthy Organic Bananas

https://www.youtube.com/watch?v=h4N-QLhXjjY

Note: This video is useful, if the participants want some tips on increasing their yield of bananas.

Part 15. (p. 82)

Using the Bio-fertilizers for Growing Papaya

Papaya - How to Grow from Seeds

Note: This video can be used to show how to apply compost made with Bio-Plant around the base of papaya trees, and how to spray Pro-Plant (on the buds, flowers, leaves, and fruit).

Papaya – How To Plant & Care For a Growing or Mature Papaya Plant

Note: This video can also be used to show how to apply compost made with Bio-Plant around the base of the trees, and how to spray Pro-Plant (on the buds, flowers, leaves, and fruit).

Part 16. (p. 84)

Using the Bio-fertilizers for Growing Cocoa

Applying the Bio-fertilizers During the Growth, Flowering and Fruiting Stages

(Slides 92-118 in “Growing Cocoa with Bio-Plant and Pro-Plant)

Composting the Cocoa Trees

(Slides 119-128 in “Growing Cocoa with Bio-Plant and Pro-Plant)

Cocoa – Pruning Techniques

https://www.youtube.com/watch?v=KmDlnu3KODA&t=407s

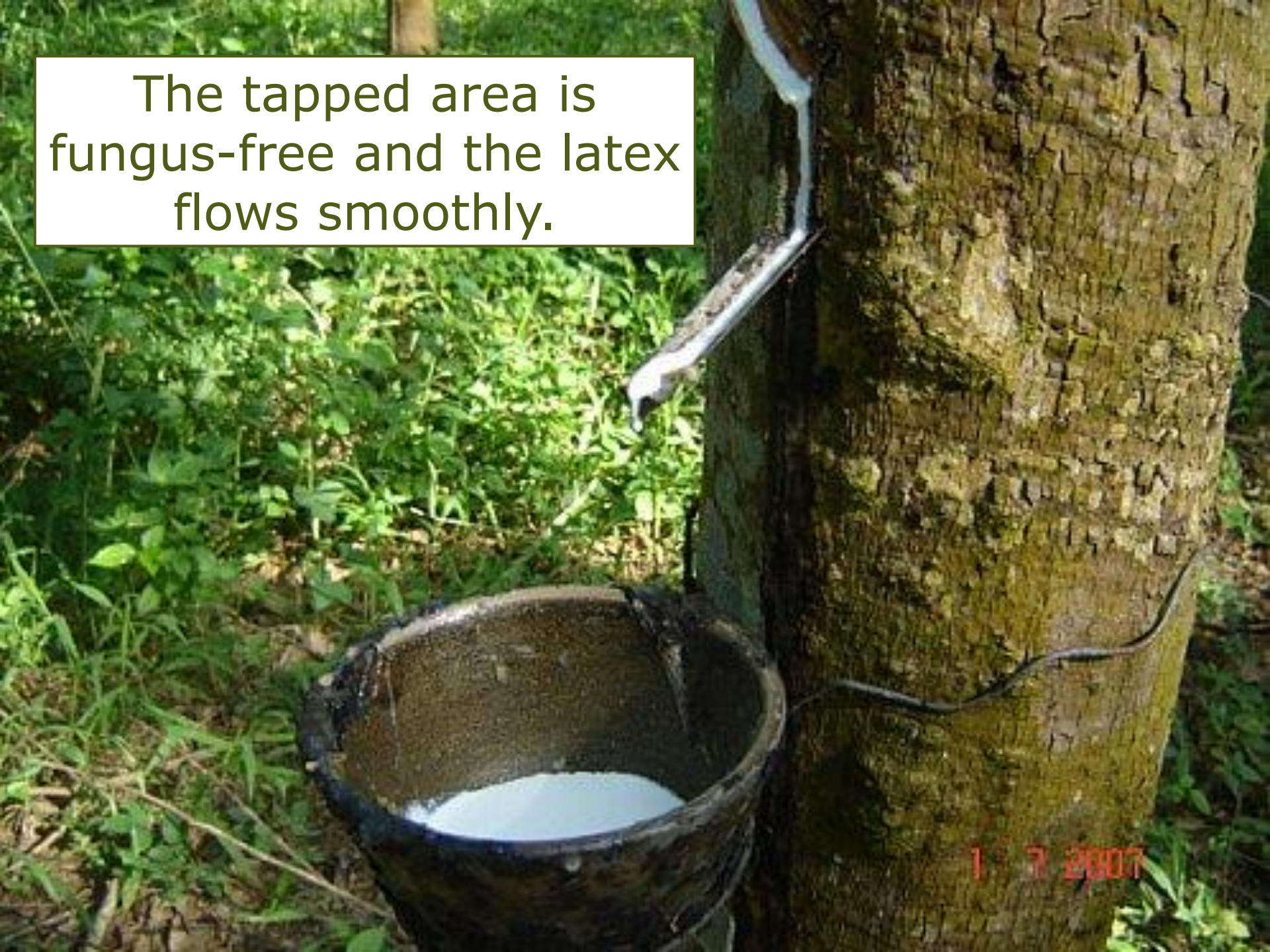
Note: This video shows how to prune cocoa trees and thereby eliminate disease and increase yield. Start at: 9:14 mins.

Part 17. (p. 88)

Using the Bio-fertilizers for Growing Rubber Trees

Typical Effects on Rubber Trees

- In Vietnam almost all rubber plantations use Bio-Plant and Pro-Plant now, and produce 100% organic latex for export.
- The trees produce more latex than when chemicals were used in the past. Much lower costs.
- The latex is softer and flows easier.
- The growth of young trees is usually 20% - 25% faster than normal, and the saplings can be transplanted a month earlier than normal.
- Bio-Plant stops the growth of fungus when brushed onto the trees.


The tapped area is fungus-free and the latex flows smoothly.

Rubber Trees – The Nursery

https://www.youtube.com/watch?v=yGOfDRAe0fs

- Germination and Planting of Seeds: 1:00 – 6:06
- Planting Seeds in Poly Bags: 7:40 – 8:05
- Spray Pro-Plant every 7-10 days.
- Poly Bag Plants: 21:38 – 23:33
- Dip Seedlings in Slurry with Bio-Plant or Water Mixed with Bio-Plant: 24:15 – 25:50
- Spray Pro-Plant on the poly bags every 7-10 days: 24:50 – 25:25. (No need for spraying chemicals.)

Part 18. (p. 90)

Using the Bio-fertilizers for Growing Sugarcane

Effect on Sugarcane

- There is a significant effect on the growth parameter:
  - number of internodes per cane
  - internodal length
  - tops weight
  - trash weight
  - sucrose contents
  - yield components (number of millable canes, cane length, cane diameter, weight per stripped cane and stripped cane yield).

Effect on Sugarcane

- There is a significant effect on the yield components:
  - number of millable canes
  - cane length
  - cane diameter
  - weight per stripped cane
  - stripped cane yield
- Many sugar factories only want to buy from farmers who grow their sugarcane crops with Bio-Plant and Pro-Plant, principally because the sugar from the sugarcane is sweeter than chemical sugarcane - usually about 20% sweeter on analysis.

3-Node Setts Germinate Better

Sugarcane
How to Grow Seedlings from One-Node Setts

https://www.youtube.com/watch?v=VHV0S48Xe5c

Note: This video shows when farmers can apply Bio-Plant and Pro-Plant to grow sugarcane from one-bud setts.

Sugarcane
Bud Chip Cutter

Sugarcane
How to Increase Production With One-Node Setts

https://www.youtube.com/watch?v=0NQIn9yrRjc&t=136s

Note: This video supports the previous video, and shows when farmers, who wish to grow sugarcane from one-bud setts, can apply Bio-Plant and Pro-Plant.

Mulch Between the Rows of Sugarcane

- Mulch the ridges uniformly with cane trash to a thickness of 10 cms within a week after planting.
- It conserves moisture, reduces the weed population, and minimises shoot borer incidence.
- Avoid trash mulching in areas where there are termites.

Mulch Between the Rows of Sugarcane

Part 19. (p. 93)

Using the Bio-fertilizers for Growing Cotton

Cotton – From Flowers to Bolls to Cotton

https://www.youtube.com/watch?v=_6Y4jPf9W88

Note: Point out the need to spray the buds, the flowers, the withering flowers, and the bolls until they open. Spray under the leaves as well as on them.

Part 20. (p. 95)

Using the Bio-fertilizers for Growing Coffee

Effect on Coffee Trees

- There are many farmers in North Thailand growing coffee with the bio-fertilizers in a 100% organic manner.
- The organic coffee has more aroma, a better flavour, more body, and a fresher after-taste.
- The yield is especially good when the trees are grown from the sapling stage with Bio-Plant and Pro-Plant. Almost all the berries turn dark at the same time.

Coffee
How to Grow Coffee

https://www.youtube.com/watch?v=SvBj4O44Fnw

Note: This video shows the stages of growing coffee. You can see how Bio-Plant and Pro-Plant can be applied at each stage.

Coffee
Organic Coffee Production Strategies and Tricks

https://www.youtube.com/watch?v=zGtKRWgqoaU

Note: This video provides some strategies for growing organic coffee.

Coffee
Coffee Grower Using Organic Farming

https://www.youtube.com/watch?v=hZC_IzOH9M8

Note: This video shows what fertilizer is used to fertilize the coffee trees. (Show until 3:23.)

Part 21. (p. 97)

Using the Bio-fertilizers for Growing Potatoes

Potatoes – How to Plant Potatoes

https://www.youtube.com/watch?v=iN67u8A6lSQ

Note: This video shows different ways to plant potatoes. Also, it explains the importance of using compost in the soil.

Part 22. (p. 101)

Using the Bio-fertilizers for Growing Cassava

Cassava - Rapid Multiplication of Cassava: Part 1 of 2

https://www.youtube.com/watch?v=TVjXnNuCdxA

Note: This video shows how to increase the yield by cutting the cassava poles into small setts.

Cassava - Rapid Multiplication of Cassava: Part 2 of 2

https://www.youtube.com/watch?v=c6OGaEV4N94

Note: This video shows when bio-compost should be used in the planting stage.

Benefits of Weed Management in Cassava Fields

"… our preliminary results show that an average national yield of 20-39 MT (12-13 MT is normal) per hectare is achievable, if farmers can simply adopt and use improved weed management practices," said Dr Alfred Dixon, Project Leader for the Cassava Weed Management Project.

Weeding a Cassava Field

Manual Weeders for Cassava Fields

Mechanical Weeder for Cassava Fields

Intercrop Cassava with Melon

Intercrop Cassava with Pumpkin

Cassava - Growing Cassava for Optimum Profitability

https://www.youtube.com/watch?v=whoEB28kHrQ&t=215s

Note: This video shows cassava production at different stages. Point out that Pro-Plant should be sprayed on and under the leaves at each height.

Part 23. (p. 104)

Using the Bio-fertilizers for Growing Yams

Yams - Propagating Yam Through Mini-Sets

https://www.youtube.com/watch?v=c6OGaEV4N94

Note: This video shows how to make and grow yam mini-setts.

Part 24. (p. 106)

Using the Bio-fertilizers for Growing Sweet Potatoes

Sweet Potatoes – How to Make Slips

https://www.youtube.com/watch?v=ueb-Fcuzc4U

Note: This video shows how to make slips and how to plant them. You can add Bio-Plant to the water in which the slips are soaked. The soil should be rich in compost made with Bio-Plant.

Sweet Potatoes – How to Plant Slips

https://www.youtube.com/watch?v=PONy8eSt1II

Note: This video shows how to plant the slips in a field. Lay compost along the bottom of the trench by the roots. The soil should be rich in compost made with Bio-Plant.

Sweet Potatoes – How to Plant from Growing Vines

https://www.youtube.com/watch?v=OqmlXhgY9oA

Note: This video shows how to use vine cuttings off existing plants to plant more sweet potatoes.

Part 25. (p. 108)

Using the Bio-fertilizers for Growing Pumpkins

How To Plant Pumpkins, Zucchinis And Cucumbers

https://www.youtube.com/watch?v=S5a-IARwG5M

Note: The main point to learn here is that the soil must be rich in the kind of bio-comp[ost the farmers can make with Bio-Plant.

Pumpkins - Growth time-lapse from the seed to the mature fruit in 108 days and nights

https://www.youtube.com/watch?v=ytMpE6fubSQ

Note: The main point to learn here is the importance of good soil, and of spraying Pro-Plant on the leaves, buds, flowers, and fruit as the pumpkins grow.

Part 26. (p. 110)

Using the Bio-fertilizers for Growing Onions

Onions – How to Fertilize Onions

https://www.youtube.com/watch?v=CkV5G_i6YJk

Note: Compost would be placed in the furrow between the rows of onions.

Weeding – Wheel Hoe Weeder for Garlic and Onions

https://www.youtube.com/watch?v=BzdnNC9X9LY

Note: The video shows how weeding can be carried out simply.

Part 27. (p. 112)

Using the Bio-fertilizers for Growing Tomatoes

How to Germinate Tomato Seeds

https://www.youtube.com/watch?v=ZuBv-OpZ-8s

How to String Sucker Tomato Plants

https://www.youtube.com/watch?v=4SlPAY3Ks1U

Part 28. (p. 114)

Using the Bio-fertilizers for Growing Flowers

Flowers
How to Plant Seeds Densely

https://www.youtube.com/watch?v=CoYgX3y5ptQ

Flowers
How to Transplant Densely Planted Seedlings

https://www.youtube.com/watch?v=nLbeZEcz3sw

Covering the Soil with Landscape Fabric (For Weed Suppression)

Covering the Soil with Landscape Fabric (For Weed Suppression)

Planting in Grids for a Higher Yield

Planting in Grids for a Higher Yield

Prepare the Soil With a Lot of Compost

Prepare the Soil With a Lot of Compost

Lay Down Drip Pipes

Flatten the Surface of the Soil

Place Landscape Fabric on Top (If You Wish)

Or Mulch the Soil to Suppress Weeds

Part 29. (p. 117)

Using the Bio-fertilizers for Growing Pineapple

Preparing Pineapple Suckers for Planting

: https://www.youtube.com/watch?v=wIhMTid0Ytg

Pineapples
How Dole Grows Organic Pineapples

https://www.youtube.com/watch?v=vpJHgXaPzFA

Pineapples
Tops, Suckers, Slips

https://www.youtube.com/watch?v=21Ldn9xP8uA

Part 30. (p. 119)

Using the Bio-fertilizers for Growing Tea

A Tea Nursery

Spraying the Leaves

Spraying the Leaves

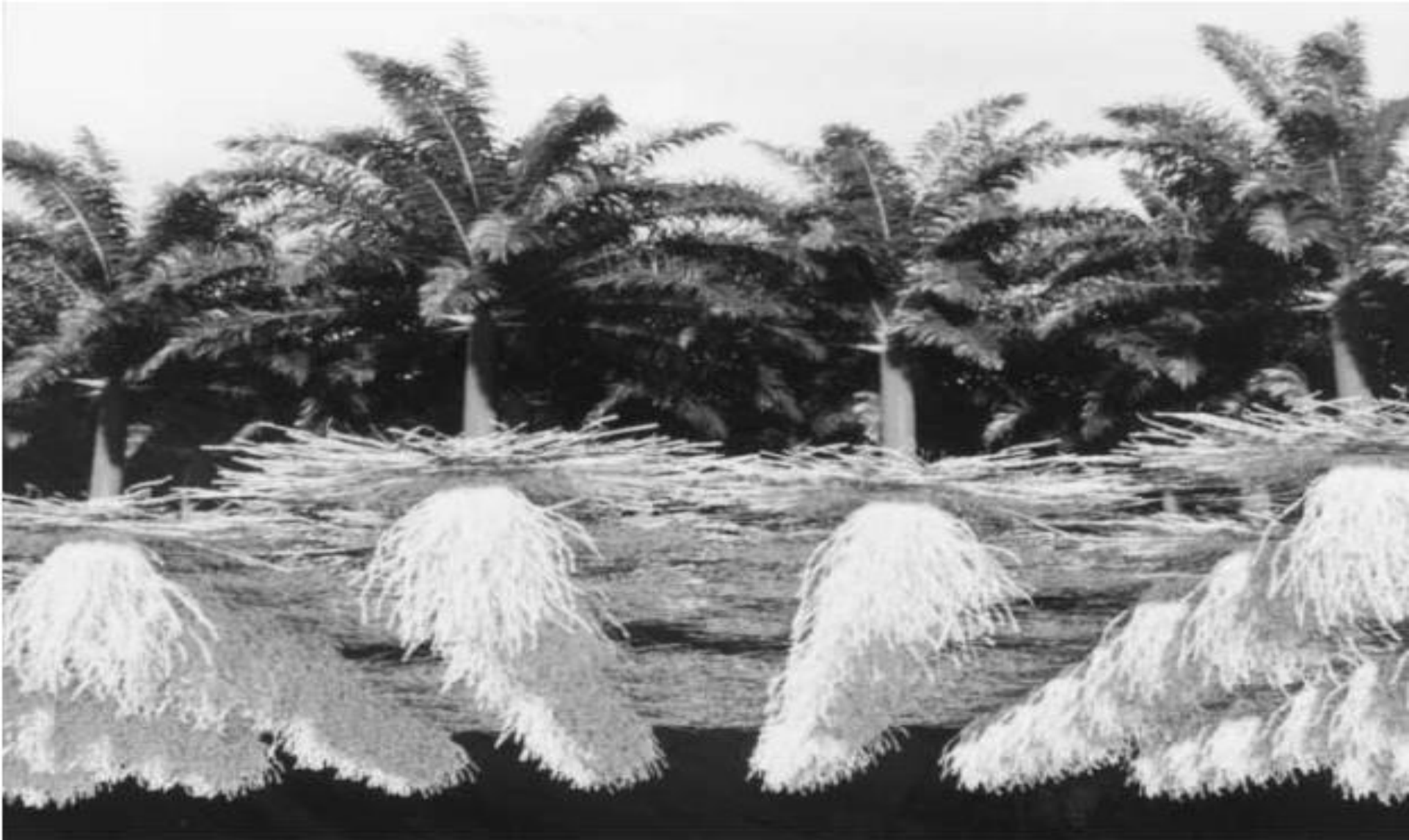
The Mulching Effect of Pruning

Part 31. (p. 122)

Using the Bio-fertilizers for Growing Palm Oil Trees

Spray Bio-Plant on Cut-Up Branches

Spray Bio-Plant on Cut-Up Branches in the Rows



Spray Bio-Plant on Decanter Cake

Part 32. (p. 125)

The General Effects of Using the Bio-fertilizers With Some Crops

Typical Effects on Pineapple

- The fruit is much sweeter than pineapple grown with chemical fertilizer. About 35% sweeter.
- The pineapples are heavier.
- The pineapples look fresher and more attractive to eat.
- There are more suckers and slips so that more pineapple plants can be planted and grown.
- There are more roots and the roots are longer.
- The problems with disease disappear.
- The pineapples keep longer after harvest.

100% Organic Farming Cucumber Field Test in Akwai, Ibom State

- The soil, which was in poor condition before the test, was prepared with Bio-Plant mixed with organic matter.
- The seeds were soaked in Bio-Plant and water.
- Pro-Plant was sprayed regularly on the plants. No chemical sprays were used.
- The farmers said that the cucumbers were larger than they grew with chemicals; they tasted better; they looked fresher; and the quality was better.

Typical Effect on Tea Bushes

- The following benefits are common in tea plantations in Thailand and Vietnam:
  - The yield is 20%-30% higher.
  - The leaves look fresher and shine more.
  - The tea bushes have more leaves and branches.
  - The quality and fertility of the soil is superior.
  - The quality of the tea is higher.
  - The tea has a more pleasant scent.
  - The tea has less tannin.
  - The Vitamin C level is higher.
  - Fungicides and insecticides are no longer needed.

Effect on Tea Bushes

- OCIRTHE, the main tea association in Rwanda carried out tea plantation tests in 2010 with very positive physical and quantitative results.
- The tea leaf colour in the test areas changed from a dark green shade to a lighter green with a distinct shine visible. The leaves were softer and looked fresher.
- This change highlighted improvement in the health of the tea plants and a reduction in the tannin content.
- A noticeable increase in the size of the tea leaves as well as evidence of more leaves per tea bush. This change co-relates to the effective increase in yield.

Bio-fertilizer Tea Growing in North Thailand

Effect on Chillis

- Chillis are longer and heavier than chemical chillis, usually by 20% - 30% while the production costs are much lower both in bio-chemical farming and 100% organic farming.
- Like with all crops produced with the bio-fertilizers, the chillis keep fresh much longer – usually 1-2 weeks.

Effect on Tobacco

- In organic farming tests on tobacco in South China the yield increased about 30% compared to chemical tobacco.
- The tobacco leaves became larger, longer, and fresher-looking.

Section 10

How to Use the Bio-fertilisers in Bio-chemical Farming

Part 5. (p. 26)

How to Use the Bio-fertilizers in Bio-chemical Farming

Using the Bio-fertilizers for Bio-chemical Farming

- When farmers mix 330 cc of Bio-Plant with each 50 kgs bag of chemical fertilizer in bio-chemical farming they can halve the amount of chemical fertilizer they use.
  - Each 50 bag can be used over twice the area.
  - Usually, their costs drop by about 45%.
- If they also spray Pro-Plant on the leaves (500 cc per hectare) the yield will rise 25%+.
- If the farmers soak the seeds in Bio-Plant and Pro-Plant as well, they will add 5% to the yield.

Using the Bio-fertilizers for Bio-chemical Farming

- If the farmers prepare the soil with Bio-Plant mixed with organic matter (1 litre with 5 MT of organic matter – ideally 40+% should be chicken dung and cow dung), the yield will increase further.
- The yield will increase each season with the input of micro-organisms in Bio-Plant.
  - Big yield increases of 50%, such as in Thailand with rice and maize, come when the soil is also prepared with Bio-Plant.
- The main advantage with bio-chemical farming is that farmers can almost halve their costs and still increase their crop yield.

Bio-chemical Farming Maize Field Test in Karfe Town, Suleja, Niger State, Nigeria

- The maize seeds were soaked in Bio-Plant and water for 12 hours before planting.
- The soil, which was in poor condition owing to years of chemical farming, was prepared with a bio-chemical mixture of Urea and Bio-Plant.
- Bio-Plant was mixed with NPK and this bio-chemical mixture was sprinkled around the maize plants during the crop. Pro-Plant was sprayed regularly on the maize.
- Normally, the farmers has problems with insects during their maize crops, but this time there were no problems with insect pests at all. No chemical sprays were used.
- The farmers almost doubled their yield. Normally, they only produced 30-40 bags of maize per hectare, but this test produced 60 bags per hectare.

Bio-chemical Farming Maize Field Test in Karfe Town, Suleja, Niger State, Nigeria

Bio-chemical Farming Rice Dry Season Field Test in Jamaare, Bauchi State

- The rice seeds were soaked in Bio-Plant and water for 18 hours before planting.
- The soil was in poor condition. It was prepared with a bio-chemical mixture of Urea and Bio-Plant.
- Bio-Plant was mixed with NPK.
- Pro-Plant was sprayed regularly on the rice plants during the crop.
- No chemical sprays used.
- The farmers normally only produced 50 bags of rice per hectare, but this test produced 80 bags per hectare, which is a 60% increase.

Gombe State, Nigeria
Bio-chemical Maize Field Test

- The yield increased 2X and 3X above the chemical Control areas.
- Pro-Plant also had an insecticidal effect on weevils, grasshoppers, and even aphids, which impressed the farmers in the area.


Chemical
Maize
Bio-chemical Maize with
Bio-Plant, and Pro-Plant sprayed
on the leaves.


A Mature Cob in Plot I With the Stem and
Leaves Still Green

Bio-chemical Rice Field Test Yield Results

Location	Treatment	Yield/Plot (Kg)	Yield/Hectare (Kg)
Pokata	T1	750	3,000
	T2	325	1,300
Posulte	T1	500	2,000
	T2	350	1,400

Group Photograph of the Farmers After Observing the Very Good Results

Section 11

The Credit Fund for State Governments

The Credit Terms

- We can provide the bio-fertilizers on credit for 12 months for purchases of US$20+ million. 0% interest.
- A 30% deposit would be paid when the contract starts. The remaining 70% would be paid at the end of each 12-month period.
- A contract can be for 5 years. The price will not change for the duration of the 5-year contract.
- Payment will be by a Standby Letter of Credit guaranteed by an international bank. This is a rule of Thai banks.

Benefits

- It will ensure an adequate and continuous supply of healthy, 100% organic, chemical-free fertilizer for all farmers.
- All farmers will be able to receive on credit the bio-fertilizers for their crops, and pay back after selling their crops.
- The bio-fertilizers will increase the quality and yield of crops significantly above what chemicals can achieve, and for a lower cost. The nutritional content of food will be higher.
- Farmers not using any fertilizer will be able to restore the soil's fertility and increase the yield and quality of their crops.
- There will be a significant impact on the happiness, stress levels, health, and wellbeing of the population.

Benefits

- The bio-fertilizers will restore the microbial life and fertility of the soil. This will enhance the yields and quality of all crops.
- The Credit Fund will provide the means to increase the area of arable land used for crops, to diversify crops, to make agriculture sustainable, and to help to ensure the state's food security.
- The money saved on subsidizing chemical fertilizers and sprays can be used to develop rural infrastructure, irrigation, farming community and rural development projects, and strong, prosperous farming communities.

Benefits

- Agriculture-related industries can be developed:
  - The horticulture industry will benefit tremendously. The bio-fertilizers have a noticeable effect on the scent, quality, size, and freshness of flowers, which will also keep longer.
  - Jatropha can be grown for biofuels and animal feed.
  - 100% organic cocoa and organic latex for exporting.
- The state can become an exporter of 100% organic food.
- Bio-Plant can be used to turn waste into fertilizer as well as to treat waste water.

Section 12

Raising Your Vibration

Part 33. (p. 127)

Raising Your Vibration

Organic Farming
The Effect of Organic Farming

https://www.youtube.com/watch?v=MeZo3h3OcFo

Note: The video will inspire the farmers to practise 100% organic farming with Bio-Plant and Pro-Plant.