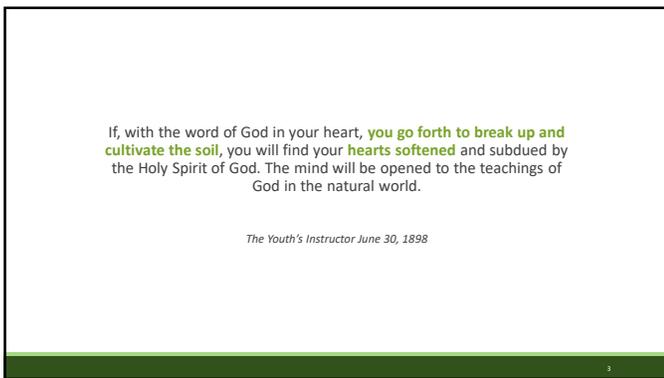




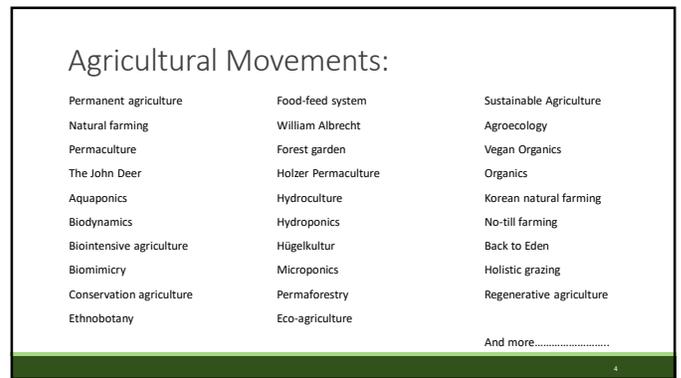
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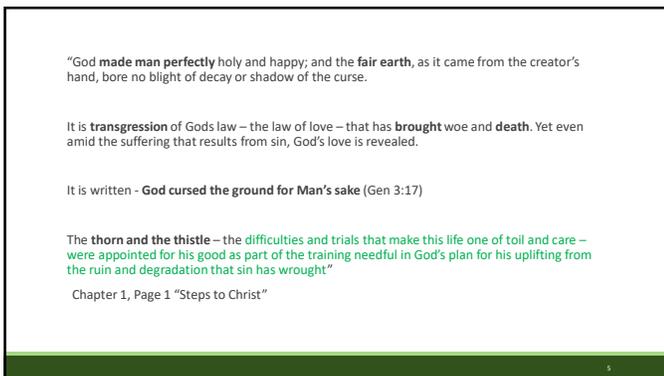
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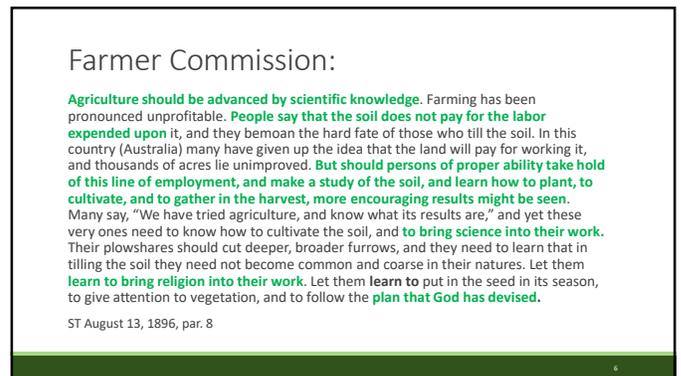
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4



5



6

## God's plan for restoration:

"He who taught Adam and Eve in Eden how to tend the garden **would instruct men today**. There is wisdom for him who holds the plow and plants and sows the seed. The earth has its **concealed treasures**, and the Lord would have thousands and tens of thousands working upon the soil..."

*Adventist Home p. 143.1*

7

7

## God's plan for restoration:

"...if God's people **followed His instruction**, their land would be **restored** to fertility and beauty. God Himself gave them directions in regard to the culture of the soil, and they were to co-operate with Him in its restoration"

*Adventist Home p. 143.2*

### Provided instruction:

"There is much mourning over unproductive soil, when if men would read the Old Testament Scriptures they would see that the Lord knew much better than they in regard to the proper treatment of land. After being cultivated for several years, and giving her treasure to the possession of man, portions of the **land should be allowed to rest**, and then the crops should be changed"

*Fundamentals of Christian Education 323.2*

8

8



9

9

## Problems in Agriculture

1. Thorns and thistles – introduction of cultivation
2. Plant diseases and Pests – Land required Rest/Rotation
3. Lack of water supply – No rivers flowing to water the garden (irrigation)
4. Lack of yield and prosperity
5. Lack of farmer – to keep and tend

We have all these problems

Tools were invented to deal with each problem

10

10

## Inventions of Man Kind

There are many inventions and improvements, and labor-saving machines now that the ancients did not have. **They did not need them....**

The greater the length of time the earth has lain under the curse, the **more difficult** has it been for man to cultivate it and make it productive. As the soil has become more barren, **and double labor has had to be expended upon it**, God has raised up men with inventive faculties to construct implements to lighten labor on the land groaning under the curse. **But God has not been in all man's inventions**. Satan has controlled the minds of men to a great extent and has **hurried men** to new inventions which has led them to forget God.

*1089.7 SDA Bible Commentary, vol. 1*

11

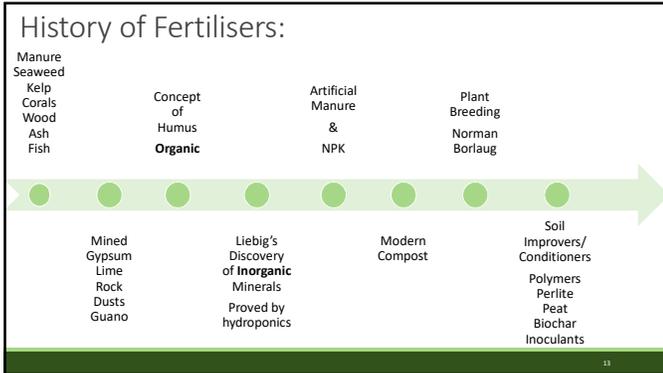
11

## Problems Arise

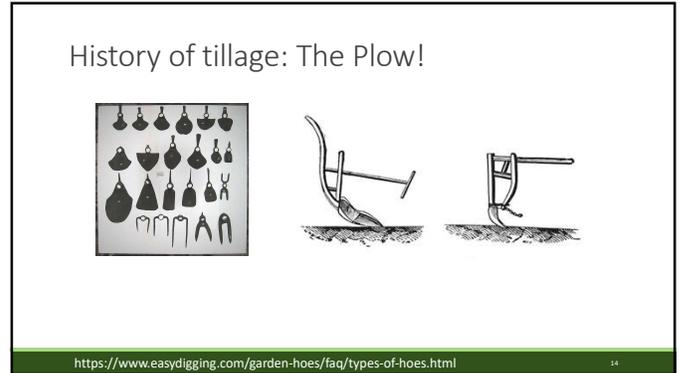
1. Thorns and thistles – introduction of cultivation → **Plow, Herbicides**
2. Plant diseases and Pests – Land required Rest/Rotation → **Pesticides/Fungicides, Plant Breeding**
3. Lack of water supply – No rivers flowing to water the garden (irrigation) → **Politics and automation**
4. Lack of yield and prosperity → **manures** → **Synthetic manures** → **stimulants, plant Breeding**
5. Lack of farmers – to keep and tend → **Bigger farms – automation**

12

12



13



14



15

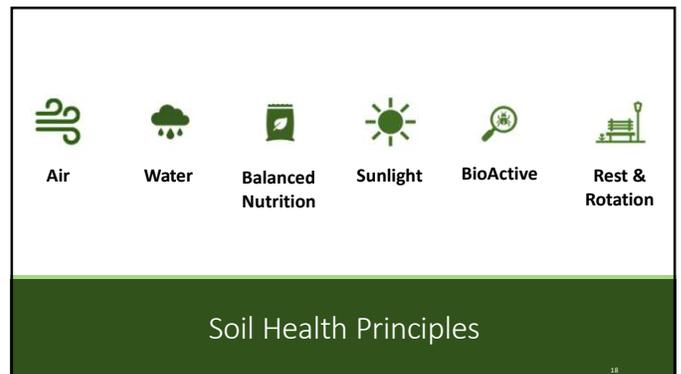
### History of tillage:

1. We made very powerful tillage tools
2. Burning soil carbon – release nutrients
3. Stopped working because we reach 1% organic matter, oops
4. Then fertiliser use increased because we needed to make up for what organic matter was not supplying
5. A dust bath
6. Something had to change
7. Conservation Agriculture - Edward H. Faulkner in 1943, an agronomist who wrote a book "Plowman's Folly"
8. Zero till system

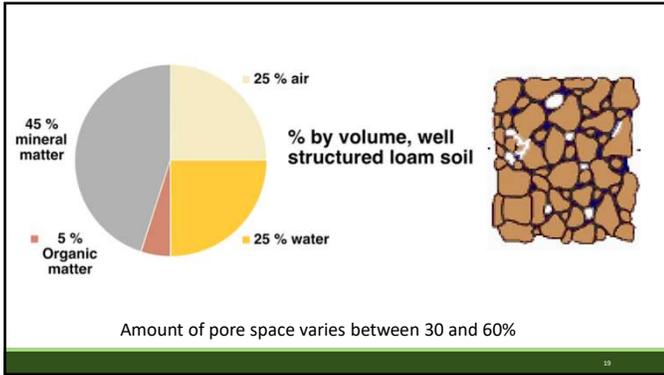
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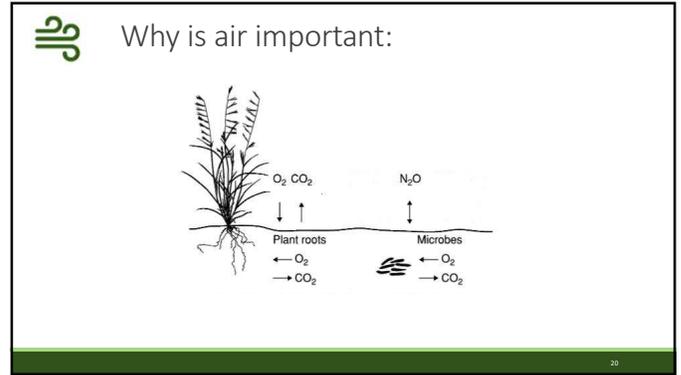
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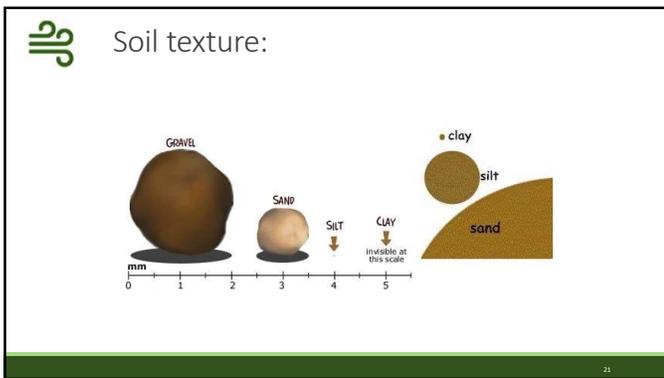
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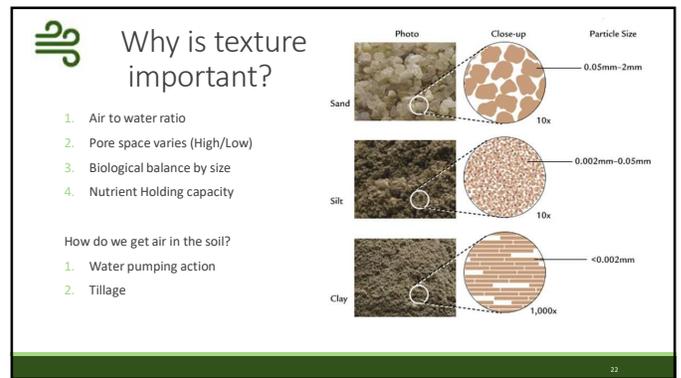
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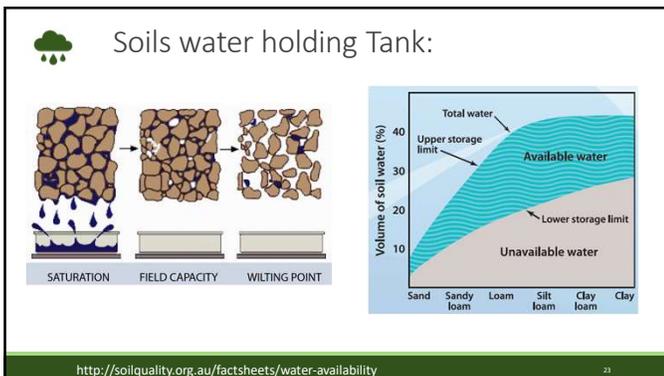
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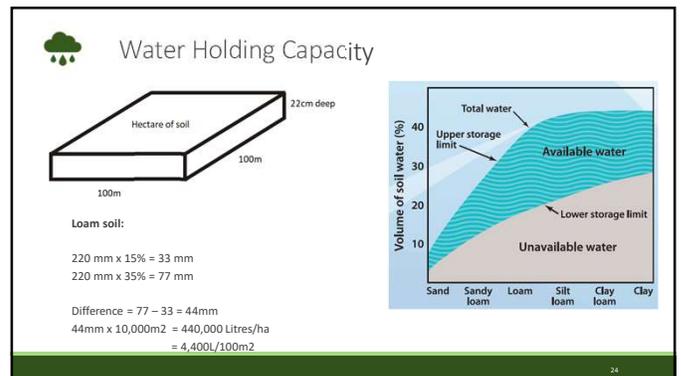
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23



24

### 1. Resilience to drought – Rooting Depth

**Effective Rooting Depth for Various Crops at Maturity in Homogeneous Deep Soils**

Crop	Stage (cm)	Crop	Stage (cm)	Crop	Stage (cm)
Lucerne	90-180	Grains	60-150	Safflower	90-180
Beans	50-90	Grapes	75-180	Soybeans	60-125
Citrus	120-150	Legumes	50-125	Strawberries	20-30
Cotton	75-170	Maize	75-160	Sugarbeet	60-125
Crucifers	30-80	Olives	100-150	Sugarcane	75-180
Cucurbits (cucumbers)	75-125	Onions	30-75	Tomatoes	40-100
Deciduous orchards	100-200	Pastures	60-100	Tobacco	45-90
Eggplant (aubergine)	75-120	Peppers	40-100	Vegetables	30-60
		Potatoes	30-75		

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### 2. Resilience to drought – Soil Carbon

Soil carbon can hold 4 times its weight in water

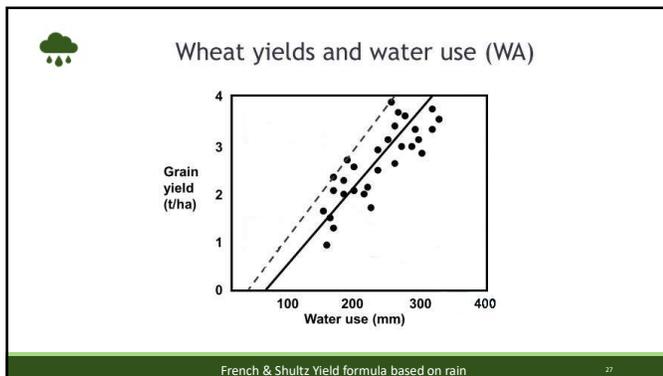
1 Hectare at 22cm deep = 2.6 million Kilos

1% carbon = 26 tonnes

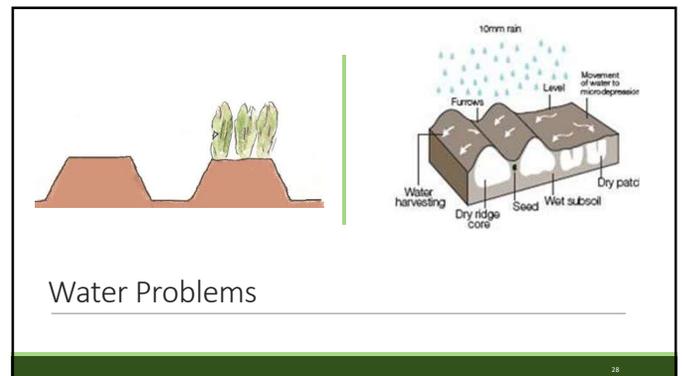
Every Extra 1% carbon = 4 x 26 tonnes = 104 tonnes = 104,000 Liters/ha = 1,040L/100m<sup>2</sup>

<https://managingwholes.com/soil-carbon-means-water.htm/>

26



27



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### Reflections: Why should we till?

- Increase aeration by breaking up compaction – allows air & water to enter
- Plant roots go deeper
- Biology promoted or retarded
- To incorporate fertilisers/manures
- Soil Solution is affected
- The penetration of plant roots is influenced

Should we till for:

- Residue management
- Seed bed

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### Other effects of tillage:

- Creates compaction
- Burns up carbon
- Dries up the soil
- Absorption/retention of heat effected
- Land stability
- Over tillage
- Fuel cost

Other methods of tillage:

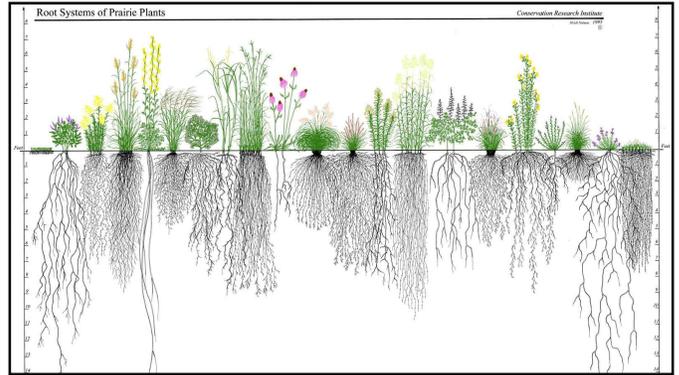
- Tillage radish
- Roots
- Bioturbation

30

### Other forms of tillage: Bioturbation

<https://www.youtube.com/watch?v=Mxp1nnrUG0Q>

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### Plow often and deep:

"The soil will not produce its riches when worked by impulse. It needs thoughtful, daily attention. **It must be plowed often and deep, with a view to keeping out the weeds that take nourishment from the good seed planted.** Thus those who plow and sow prepare for the harvest. None need stand in the field amid the sad wreck of their hopes."

Christ's Object Lessons p. 88.2

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### Deep Repentance:

"The garden of the heart must be cultivated. **The soil must be broken up by deep repentance for sin.** Poisonous, Satanic plants must be uprooted. The soil once overgrown by thorns can be reclaimed only by diligent labor. So the evil tendencies of the natural heart can be overcome only by earnest effort in the name and strength of Jesus. The Lord bids us by His prophet, "Break up your fallow ground, and sow not among thorns." "Sow to yourselves in righteousness; reap in mercy." Jeremiah 4:3; Hosea 10:12. This work He desires to accomplish for us, and He asks us to co-operate with Him."

Christ's Object Lessons p. 56.8

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### Reflections: What makes good soil structure

- Sand, silt and clay proportions
- Porosity – air and water space
- Soil Biology gluing aggregates and bioturbation
- Soil organic matter levels (another particle size)
- Plant roots forming structure
- Improved structure by colloidal balance (Ca & Mg)

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### Clay Colloid Structure

- Clay crystal or humus

[https://www.researchgate.net/figure/SEM-images-of-clay-minerals-a-pseudo-hexagonal-crystals-of-kaolinite-b-tubular\\_fig1\\_311583515](https://www.researchgate.net/figure/SEM-images-of-clay-minerals-a-pseudo-hexagonal-crystals-of-kaolinite-b-tubular_fig1_311583515)

36



Reflections: Which is the best soil?

37

Balanced Nutrition

- Nutrient Groups
- Nutrient cycles and depletion
- Nutrient Interactions
- Are we feeding the plant or the soil?

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Why talk about nutrition

1. Basis of growth:
2. The life is in the blood
3. All nutrients are required in specific amounts as building blocks
4. Nutrient deficiency = disease, low quality, low yield
5. An excess of a nutrient = deficiency of another nutrient
6. Nutrients are needed on time – otherwise stunted

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Groups of nutrients

Macronutrients				Micronutrients				Beneficial		
20 <b>Ca</b> Calcium	12 <b>Mg</b> Magnesium	19 <b>K</b> Potassium	11 <b>Na</b> Sodium	5 <b>B</b> Boron	17 <b>Cl</b> Chlorine	25 <b>Mn</b> Manganese	26 <b>Fe</b> Iron	11 <b>Na</b> Sodium	13 <b>Al</b> Aluminum	23 <b>Va</b> Vanadium
7 <b>N</b> Nitrogen	15 <b>P</b> Phosphorus	16 <b>S</b> Sulfur		28 <b>Ni</b> Nickel	29 <b>Cu</b> Copper	30 <b>Zn</b> Zinc	42 <b>Mo</b> Molybdenum	27 <b>Co</b> Cobalt	34 <b>Se</b> Selenium	
No-Mineral Elements								17 <b>Cl</b> Chlorine	14 <b>Si</b> Silicon	
1 <b>H</b> Hydrogen	6 <b>C</b> Carbon	8 <b>O</b> Oxygen								

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Nutrient Groups

The materials for photosynthesis – the primary job of plants

No-Mineral Elements		
1 <b>H</b> Hydrogen	6 <b>C</b> Carbon	8 <b>O</b> Oxygen

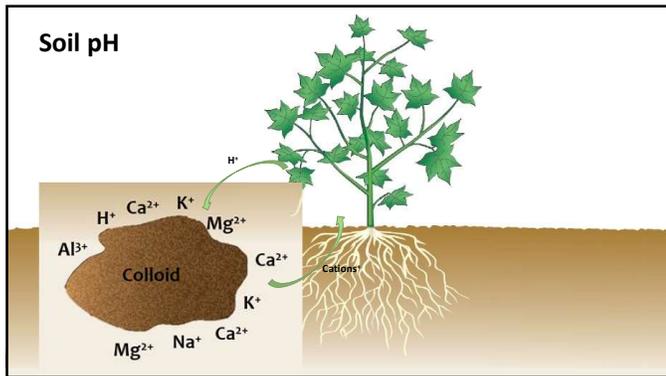
41

1. Nutrient Groups

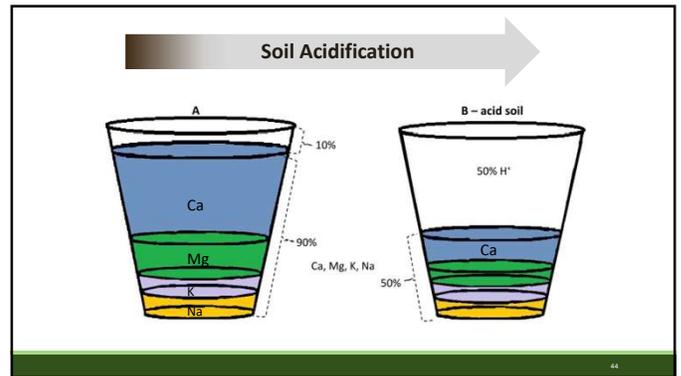
20 <b>Ca</b> Calcium	12 <b>Mg</b> Magnesium	19 <b>K</b> Potassium	11 <b>Na</b> Sodium
----------------------------	------------------------------	-----------------------------	---------------------------

1. The soil environment – structure & pH

42



43



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### 1. Bases

- The soil environment – structure & pH
- Ca – Structure of the plant

**Ca** **Mg** **K** **Na**

*Figs. 1, 2—Cross-section of stems of calcium-starved and calcium-bearing soy bean seedlings (10 days old); fig. 1, calcium-bearing, fig. 2, calcium-starved. X170.*

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### 1. Bases

- The soil environment – structure & pH
- Calcium – Structure of the plant
- Magnesium – makes green Chlorophyll critical to Photosynthesis
- Potassium – regulates nutrients and cell functions, water usage
- Sodium – not required but beneficial in small amounts (beets require it)

**Ca** **Mg** **K** **Na**

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### 2. Macro Nutrition

- Nitrogen - Primary ingredient of amino acids & proteins
- Sulfur – Primary ingredient of amino acids & proteins (direct toxicity)
- Phosphorus – Energy storage from photosynthesis as ATP production and cell division

**N** **P** **S**

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### 2. Macro Nutrition

- Nitrogen/sulfur – Primary ingredient of amino acids & proteins
- Phosphorus – Energy storage from photosynthesis as ATP production and cell division

System of N <sub>2</sub> fixation	SYMBIOSIS (e.g. <i>Rhizobium</i> )	ASSOCIATION (e.g. <i>Azospirillum</i> )	FREE-LIVING (e.g. <i>Rhizosporium</i> )
(and microbes involved) (N <sub>2</sub> → NH <sub>3</sub> )			
Energy source (Organic C)	Sucrose from the host plant	Root exudates from the host plant	Heterotroph Autotroph (photo-residues) : synthesis
Estimates of fixation rate (kg N/ha/y)	50-400	10-200	1-2    10-80

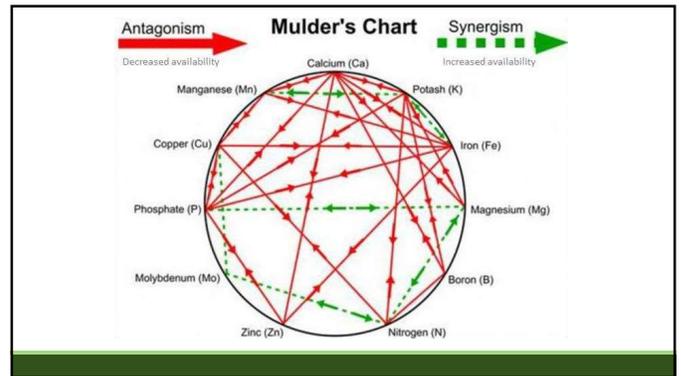
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## 2. Micro Nutrients

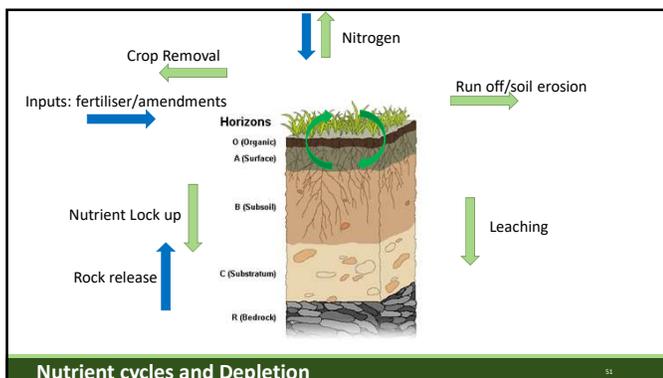
- Boron – improves calcium mobility, increase flowering viability, increase sugar translocation
- Zinc – Leaf formation/sizing & water use efficiency
- Copper – Enzymes supporting lignification & linked to a long list of disease when not functioning (direct toxicity)
- Iron – Used in creating Chlorophyll. Photosynthesis support
- Manganese – Supports photosynthesis process & linked to a long list of diseases when not functioning
- Molybdenum – Nitrogen usage & conversion (denaturing of protein coating of viruses)
- Cobalt – Required by soil biology to fix nitrogen. Forms B12 in soil which is uptaken by the plant.

Micronutrients			
5 <b>B</b> Boron	17 <b>Cl</b> Chlorine	25 <b>Mn</b> Manganese	26 <b>Fe</b> Iron
28 <b>Ni</b> Nickel	29 <b>Cu</b> Copper	30 <b>Zn</b> Zinc	42 <b>Mo</b> Molybdenum

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### Biological Nitrogen Fixation

System of N <sub>2</sub> fixation (and microbes involved) (N <sub>2</sub> → NH <sub>3</sub> )	SYMBIOSIS (e.g. <i>Rhizobium</i> )	ASSOCIATION (e.g. <i>Azospirillum</i> )	FREE-LIVING (e.g. <i>Rhodospirillum</i> )
Energy source (Organic C)	Sucrose from the host plant	Root exudates from the host plant	Heterotroph (plant residues); Autotroph (photo-synthesis)
Estimates of fixation rate (kg N/ha/yr)	50-400	10-200	1-2     10-80

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### Are we feeding the plant or the soil?

Soil	Plant
Colloidal Model – Nutrition in storage	Soil Solution Model - Available nutrition
Remineralisation – Building Fertility	Instantly Soluble Fertilisers
Soils Long term needs	Plants immediate needs
Dr. William Albrecht Model	Current Industry Standard
Colloidal Reserve Hydrogen	Solution Hydrogen
Powerful to restore soil function	Powerful band aid – drip feeding

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### Session 3: Planning For Permanent Soil Health

By Ian Mot  
I.mot@vitalsoils.com.au  
Agronomist



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# Sunlight

"The task of agriculture is to transform solar energy, the energy of light, into the potential energy stored in human food. Sun Light is the basic raw material of the agricultural industry."

Principles of Agriculture 1952 by W. R. Williams

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## Sunlight

**Plants - industrial settlement:**

- Sap flow provides the materials for construction at each cell
- Every cell is a production station
- The factory is powered by the sun (photosynthesis)

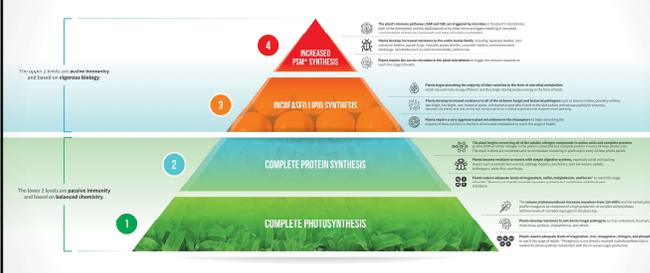
$CO_2 + 2H_2O + \text{photons sun energy} = CH_2O \text{ (carbohydrate)} + O_2 + H_2O$

**Cell Factory: Carbohydrate + Inorganic Mineral = Organic Molecules**

Starch (storage sugar), Amino acids, Proteins, fats, vitamins, acids, hormones etc.

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## PLANT HEALTH PYRAMID



"Healthy plants can become completely resistant to diseases and insects."  
John Kempf

AdvancingEcoAg.com  
Advancing the Agriculture of 2025

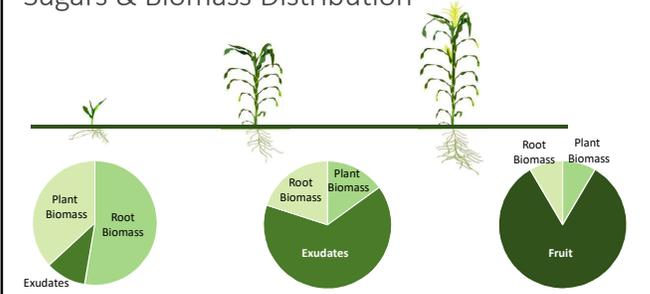
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Plant Species	Organ	Sample Weight (g)	Refractive Index	Brix (%)
Apple	Fruit	10	1.040	10.0
Banana	Fruit	10	1.050	15.0
Carrot	Root	10	1.030	8.0
Corn	Grain	10	1.045	12.0
Cucumber	Fruit	10	1.035	9.0
Garlic	Bulb	10	1.030	8.0
Grain	Grain	10	1.045	12.0
Leafy Green	Leaf	10	1.030	8.0
Onion	Bulb	10	1.030	8.0
Potato	Root	10	1.030	8.0
Spinach	Leaf	10	1.030	8.0
Sweet Potato	Root	10	1.030	8.0
Tomato	Fruit	10	1.040	10.0
Wheat	Grain	10	1.045	12.0

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## Sugars & Biomass Distribution



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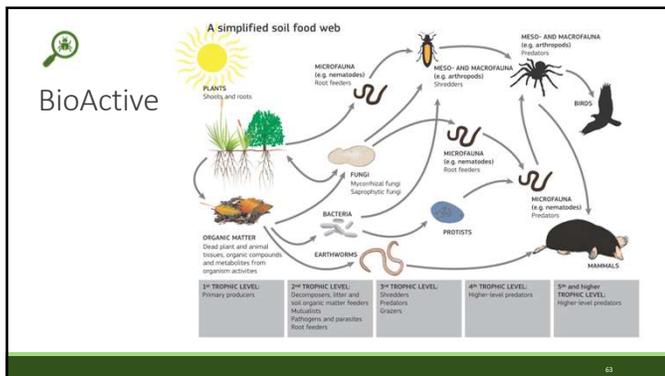
Exudates	Functions	
<b>Organic Acids</b>	Nutrient source Chemoattractant signals to microbes Chelators of poorly soluble mineral nutrients	Acidifiers of soil Detoxifiers of Al nod gene inducers
<b>Amino Acids</b>	Nutrient source Chelators of poorly soluble mineral nutrients Chemoattractant signals to microbes	
<b>Sugars &amp; Vitamins</b>	Promoters of plant and microbial growth nutrient source	
<b>Proteins and Enzymes</b>	Catalysts for P release from organic molecules Biocatalysts for organic matter transformations Plante defense	
<b>Purines</b>	Phenolics Nutrient source	Resistance inducers against phytoalexins
<b>Inorganics and Gases</b>	Chemoattractant signals to microbes	Chelators of poorly soluble mineral nutrients
<b>Phenolics</b>	Microbial growth promoters nod gene inducers and inhibitors in rhizobia	Detoxifiers of Al Phytoalexins against soil pathogens
<b>Root Border Cells</b>	Produce signals that control mitosis Produce signals controlling gene expression Stimulate microbial growth Release chemoattractant	Synthesize defense molecules for the rhizosphere Act as decoys that keep root cap infection-free Release mucilage and proteins

Feth el Zahar Haichar 2014 "Root exudates mediated interactions belowground" 61

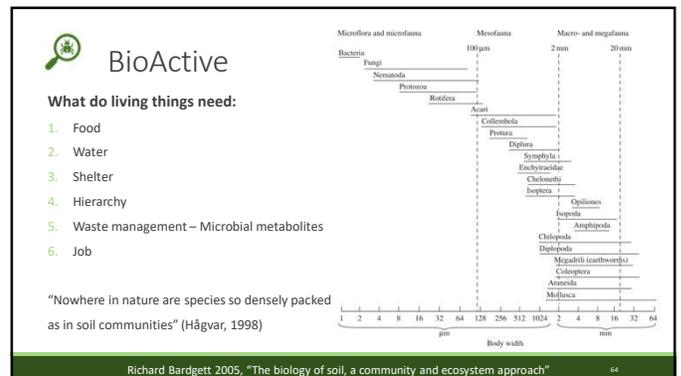
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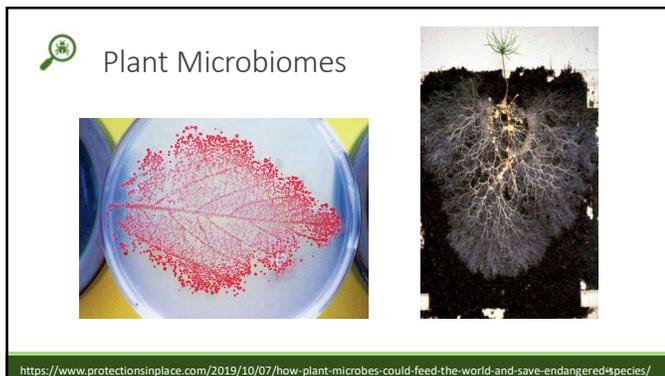
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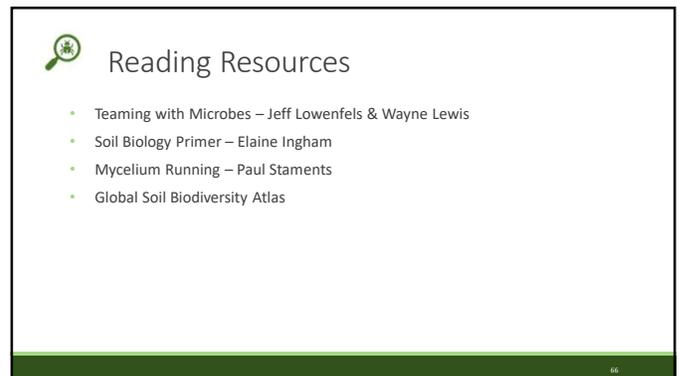


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<https://www.protectionsinplace.com/2019/10/07/how-plant-microbes-could-feed-the-world-and-save-endangered-species/>

65



66

## Rest And Rotation:

"Through disobedience to God, Adam and Eve had lost Eden, and because of sin the whole earth was cursed. **But if God's people followed His instruction, their land would be restored to fertility and beauty.** God Himself gave them directions in regard to the culture of the soil, and they were to co-operate with Him in its restoration"

Christ's Object Lessons p. 289.2

"There is much mourning over unproductive soil, when if men would read the Old Testament Scriptures, they would see that the Lord knew much better than they in regard to the proper treatment of land. After being cultivated for several years, and giving her **treasure** to the possession of man, **portions of the land should be allowed to rest, and then the crops should be changed**"

Christ's Object Lessons p. 289.2

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## Restorative Rest

1. Why do we rest?
2. Why do we rotate?
3. How much is two much?

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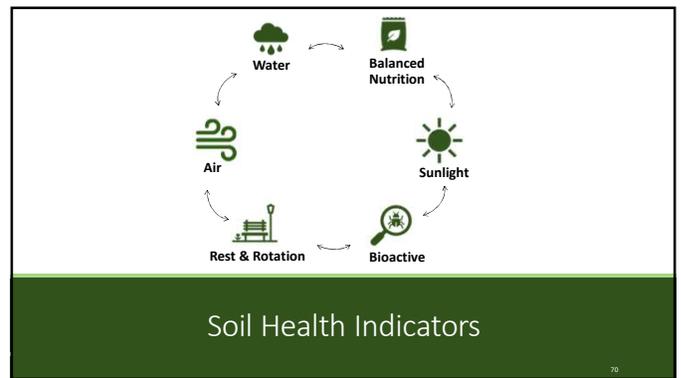
## Principles of Rest & Rotation

How much is too much? Soil Capacity to work

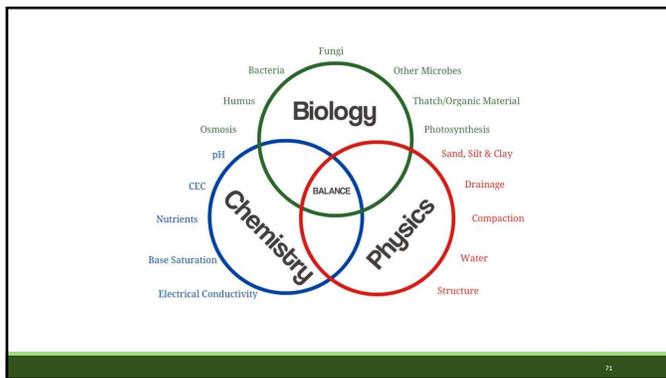
"After every season of crops your soil should be in a stronger position then it was before hand"

Veg farmer

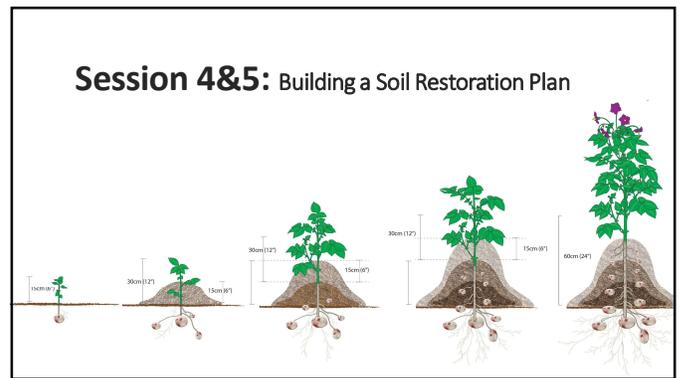
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### How products are invented:

What does a health soil make:

1. Worm castings
2. Probiotics
3. Organic acids – Fulvic/humic acid
4. Exudates – sugars
5. Amino acids – nitrogen
6. Antibiotics

What does my soil need?

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### My Garden Case Study:

A family of 4 can grow all its vegetable requirements for a year on 200m2

20m x 5m = 200m2

50m2/person/year

Not accounting for Corn or Potato



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### Asses the situation:



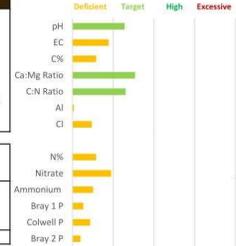
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Client: Example Veg Garden  
Crop: Native Pasture  
Sample ID:

Sample Number: 1  
No of Samples: 1  
Date: 28/10/2019

Unit	Results	Desired
pH (1.5 water)	5.50	6.5
Electrical Conductivity	0.095 dS/m	<0.300
TEC	5.65 cmol+K/g	>4
CEC	3.70 cmol+K/g	>2.5
Organic matter (OM)	6.9 %	
Total Carbon (C)	3.9 %	
Ca:Mg Ratio	6.1 unit	6.0
C:N Ratio	10.3 unit	10 to 12
Aluminium	0.0 mg/kg	0.4
Chloride Estimate	31 mg/kg	<200



N	Total Nitrogen (N)	%	0.12	0.30
	Nitrate	mg/kg	0.1	10
	Ammonium	mg/kg	4.3	13
P	Phosphorus - Bray 1	mg/kg	3	20
	Phosphorus - Colwell	mg/kg	10	35
	Phosphorus - Bray 2	mg/kg	5	39
S	Total Sulphur	mg/kg	9.78	7

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### What is Soil Testing?

1. Discover "what does my soil need?" Measure what you have.
2. Measuring helps us learn/discover – a detective measuring tool
3. A soil test is free from 100m2 up – when setting up a new garden
4. The only way to archive high nutrient density
5. The only way to get rid of diseases and pest with nutrition – using measurement tool(s)

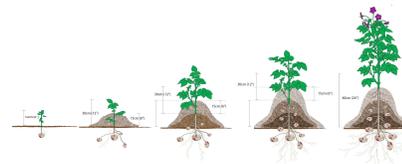
When you are not getting value out of a test:

1. For a mulch garden
2. Growing in Compost
3. Growing in potting mix

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### Nutrient Budgeting:

1. Hidden Hunger hides the problem
2. Nutrient demand over time

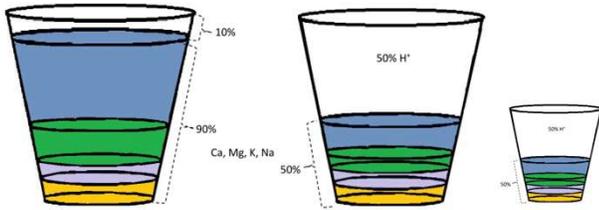


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### 1. Soil pH correction & Balancing



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### 2. Soil Nitrogen, Phosphorus and Potassium (NPK)

**Nitrogen Demand**

1. Apple tree needs 35 - 70 kg/ha
2. Banana 90 - 140 kg/ha
3. Carrots 100 kg/ha
4. Lucerne 160 - 220 kg/ha
5. Celery 300 - 500 kg/ha

**Single Sources of Nitrogen**

1. Organic matter release 1% = 10 - 30kg/ha
2. Thunderstorms 0 - 30 Kg/ha
3. Natural fixation 0 - 400 kg/ha
4. Mulch release 0 - 120 kg/ha
5. Compost/manures
6. Feather meal / canola meal
7. Amino Acids
8. Urea
9. Ammonium Sulphate

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### 2. A compost/manure NPK Solution

Required Nutrients	kg/ha	Example Compost Analysis			
Nitrogen	70	Moisture (%)	40	Total N	1 %
Phosphorous	80	Bulk density (kg m-3)	700	Total P	0.3 %
Potassium	72			Total K	0.3 %
		(% dry weight basis)			
		Compost depth (cm)	Compost m3/ha:	Compost ton/ha:	
<b>Application Rate:</b>		1.0	100	70	
<b>Total nutrient loading from compost</b>					
Majority of NPK nutrients are released over 2 - 3 years, see results below					
	N	P	K		
	420	126	126	kg/ha	
<b>Results</b>					
Year	N	P	K		
	(kg/ha/yr)	(kg/ha/yr)	(kg/ha/yr)		
1	63	56	101		
2	7	30	25		
2	42	50	25		
				Estimated nutrient contribution from compost (green) each year	
Estimated nutrient deficit (- negative) or excess (+ positive) supplied by compost					

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### 2. A compost/manure NPK Solution

**Manure types:**

- Dried Blood 15% N - 1.3% P - 0.7% K
- Bone Meal 3% N - 20% P - 0% K - 30% Ca
- Cow Manure 2% N - 1% P - 1% K
- Sheep Manure 3.5% N - 1.2% P - 3% K
- Kelp Meal 1% N - 0% P - 12% K + trace
- Wood Ash 0% N - 1.5% P - 5% K

**Manufactured Manures:**

- 10-10-10
- 10-5-8

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### 3. Soil Micronutrients

Micronutrient	Mixing Quote	\$/area	kg/area	Rate g/m2	Notes
Zinc	Zinc Sulphate	\$ 17.10	0.7	3.2	This quote is based on 200m2. Freight is charged extra
Manganese	Manganese Sulphate	\$ -	0.0	0.0	
Iron	Iron Sulphate 28%	\$ -	0.0	0.0	
Copper	Copper Sulphate 25.2%	\$ 30.32	0.4	2.0	
Boron	Eldot 67 20.8% Boron	\$ 13.60	0.6	2.6	
Molybdenum	Sodium Molybdate	\$ 12.12	0.2	0.7	
Cobalt	Cobalt Sulphate 21%	\$ 44.25	0.5	2.1	
	<b>Total</b>		<b>2.34</b>	<b>10.63</b>	
Weight Buffer	Sand or Lime		10.9	54.4	
	<b>Total</b>	<b>\$ 117.38</b>	<b>13.2</b>	<b>65.0</b>	

& Extra Sea minerals

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### Application options:

1. Broadcasting
2. Fertigation systems (Drip or sprinklers)
3. Spray Boom



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Venturi Injectors:

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How do we get the biology going?

1. Tree Inoculants – ask nurseries
2. Key biological family for a certain crop
3. Compost teas

Products:

1. General Soil inoculants (add the bugs)
2. Kelp – contains amino acids, hormones which stimulate plant growth. Not a fertilizers
3. Fish Emulsion – stimulate fungi at 2L/ha, or promote photosynthetic bacteria & actinomycetes at 10L/ha
4. Humate – A chelating agent and promoter of fungi
5. Molasses – provides fast energy source for microbes (2 L/ha)

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Garden Budget: 200m2

- |                                   |                           |
|-----------------------------------|---------------------------|
| 1. Soil Test with recommendations | \$ 154 (\$120 to 300)     |
| 2. Lime 265g/m2 x 200m2 = 53kg    | \$ 36 (\$12 per 25kg bag) |
| 3. Compost Require 2 cubic meters | \$ 80 (\$40 per cubic)    |
| 4. Micronutrients                 | \$ 117                    |
| 5. Sea Water                      | Free                      |

**Total \$ 387**

Maintenance cost at \$ 30-60

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Parable of the Sower

"And he went forth and sowed seed"  
 Seed is truth – and the truth shall set you free...  
 The seed causes the restoration to occur.  
 The seed brings back life

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Rest, Rotation & Green Manures

	Season 1	Season 2	Season 3	Season 4
Bed 1	Nitrogen Producers	Heavy Feeder	Light Feeder	Green Manure
Bed 2	Heavy Feeder	Light Feeder	Green Manure	Nitrogen Producers
Bed 3	Light Feeder	Green Manure	Nitrogen Producers	Heavy Feeder
Bed 4	Green Manure	Nitrogen Producers	Heavy Feeder	Light Feeder

<b>Heavy Feeders</b> require lots of nutrients for growth and will easily deplete soil nutrients to produce a crop	<b>Light Feeders</b> comprise of mostly root vegetables, these need little or no fertilisers when planted in good garden soil	<b>Nitrogen producers</b> are legumes, pea and bean, that fix nitrogen back into the soil.
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Green manures:

1. Oats or Barley
2. Field Pea
3. Ryecorn
4. Faba Beans (broad beans)
5. Lupin
6. Tillage radish

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## “Making the Most of green Manures”

Types of green manures

1. Nitrogen Fixers – legumes
2. Soil Breakers – Tillage radish
3. Organic matter builders – Dense roots
4. Natural Fumigators - Mustard
5. Annual or Perennial
6. Any plant that grows well (strawberry)
7. Weeds



[https://www.youtube.com/watch?v=C8JKIGiWB\\_Q](https://www.youtube.com/watch?v=C8JKIGiWB_Q)

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## Being Productive

1. Soil Prep – nutrition program
2. **Planting - schedule**
3. Irrigating
4. **Cultivation** - Weeding
5. **Harvesting**

What should not be part of the tasks:

1. Pest/Disease control – identifying and making a plan
2. Sorting good produce from bad produce
3. Extreme weed pressures

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## Session 6: Outdoor Soil Health Assessment with a shovel

By Ian Mot  
i.mot@vitalsoils.com.au  
Agronomist



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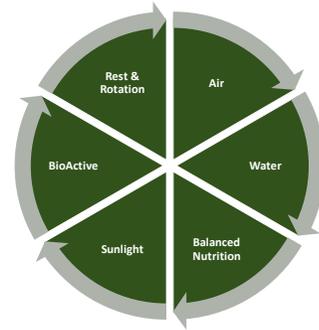
Location & website tool kit:

**Soil Health Principles**  
→  
[vitalsoils.com.au/Soil-Health-Principles](http://vitalsoils.com.au/Soil-Health-Principles)

**Sample collection instructions** →  
[vitalsoils.com.au/How-to-submit-a-soil-sample](http://vitalsoils.com.au/How-to-submit-a-soil-sample)

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