

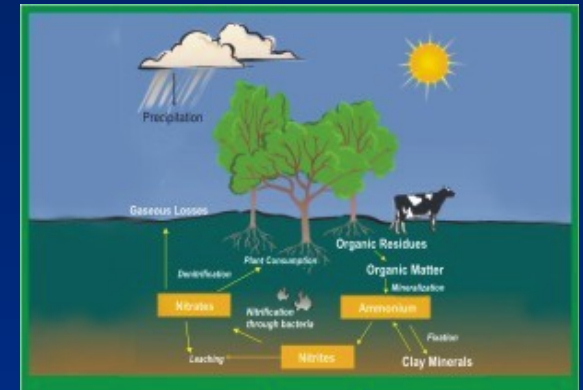
**Welcome to
All Delegates
In
Conference of
Anil Nutrients Ltd.
Ahmedabad**

Gujarat

Jayesh Jagirdar

FARMING

- Ancient practice.
- Captive consumption.
- Recycling.
- Population in farming.
- Biological balance.



CHANGING SCENARIO



- Growth in population
- Industrial and economic development.
- Population increase- Lesser population in the agriculture.
- Need to increase production
- Enhanced removal comparative to addition.
- Natural equilibrium disturbed.
- Threat to sustainability in agriculture.

Present Scenario

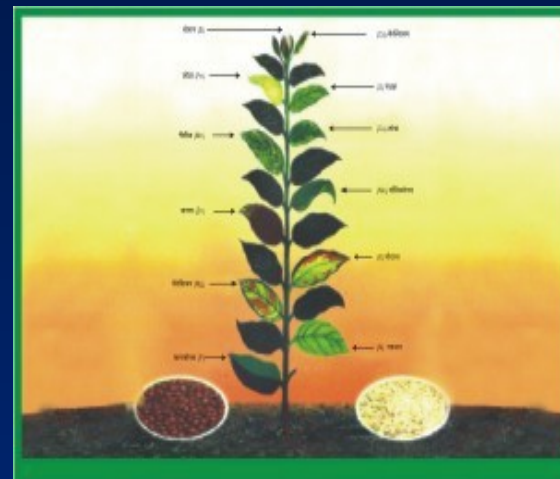


- Identification of major nutrients.
- Introduction of Chemical Fertilizers
- Green revolution- Started on a soil rich in organic carbon and the responses to applied fertilizer spectacular.
- Indiscriminative use of Chemical Fertilizers, Pesticides ,Weedicides.
- Passage of time green revolution showing symptoms of fatigue-response dwindling.
- Decline in food production.



REQUIRMENTS OF NUTRIENTS IN THE CROP

- Carbon
- Hydrogen
- Oxygen
- Nitrogen
- Phosphorous
- Potash
- Sulphur
- Calcium
- Magnesium
- Zinc
- Manganese
- Boron
- Molybdenum
- Chlorine
- Vanadium
- Cobalt
- Silicon
- Iron
- Copper



IMPACTS OF CHEMICAL BASED PRACTICES



- Compaction of soil texture.
- Low organic matter content in soil.
- Poor water holding capacity of the soil.
- Increase in the soil salinity and alkinity.
- Adverse effects on soil flora and fauna.
- Detoriation in quality of produce.
- Increased hazards and outbreak of pests and diseases.

OTHER IMPACTS

- Plants not selective in absorbing the essential nutrients for their growth.
- At times they absorb elements that are toxic.
- Increase in concentration - Not absorbed but affects that of other nutrients.
- Excess of nitrogen and phosphorous reduces impact of other macro and micro nutrients in plants.

DEFICIENCY OF CHEMICAL FERTILIZERS

- Required in large quantity because of leaching and fixation in soil.
- Availability is hardly 7 to 30 % of the contents.
- Bio availability is hardly 10% of available contents.
- Due to fixation, affects absorption of other nutrients.
- Hazardous chemicals - absorbed by plants.

ADVANTAGES OF USING ORGANIC NUTRIENT SOURCES

- Excellent in maintaining soil health in terms of physical conditions (structure) and biological health that is better growth of beneficial microorganisms.
- Balanced nutrition.
- Organic and biological sources are the best for supplying micro nutrients as any small deficiency causes deficiency syndrome and a small excess can cause toxicity syndrome- difficult to manage through chemical fertilizers
- Improved crop health- resistance to pests and diseases
- Better quality.
- Better human health.

CONCEPT OF IPNM

- Use of optimum combination of organic, inorganic and biological nutrient sources in specific crop, cropping system and climatic situation.
- To achieve and sustain the optimum yield.
- To improve or maintain the soil's physical, biological and chemical properties.
- Such a crop nutrition package has to be technically sound, economically attractive, practically feasible and environmentally safe.

According to food and Agriculture Organization , "Organic farming is a holistic management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity." This is accomplished by using, where possible agronomic ,biological and mechanical methods as opposed to using synthetic materials, to fulfill any specific function within the system.

DEVELOPMENT OF BIOTECHNOLOGY IN AGRICULTURE INPUTS

- Bio Technology – Ancient Practice
- Currently In Use – Organic Farming
 - FYM
 - Wormi Compost
 - Crop Residues
 - Others
- Bio Fertilizers
 - Rhizobium
 - Azosprillum
 - Azotobacks
 - Azola
 - PSB
- Sea Weed Extracts.
- Limited Use.
- Toxicity Impact not cleared.

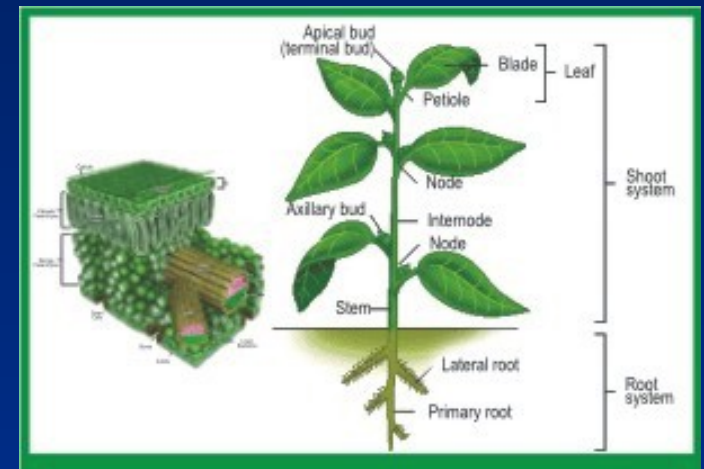
LATEST DEVELOPMENT IN BIOTECHNOLOGY

- Recycling of Agriculture Produce.
- Protein Hydrolysate Technology.
- Gluconate Technology – Development by CSIR (RRL JAMMU) Govt. of India.
- Toxin free
- Inputs as per requirement.
- Totally Bio Available.
- No Residues.
- Sustained Release.

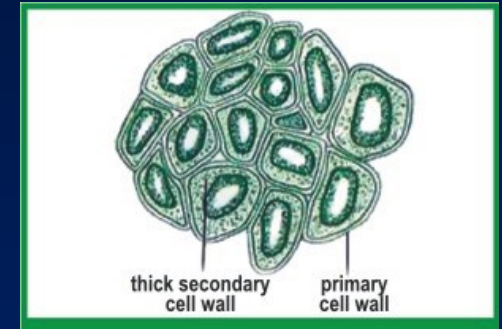


PLANT STRUCTURE

- All living things have certain characteristics.
- They Reproduce.
- They take in nutrients.
- They Respire.
- They Grow.
- They Move.
- They are sensitive.
- They are made of cells.

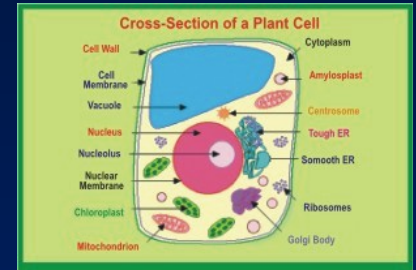


CELLS



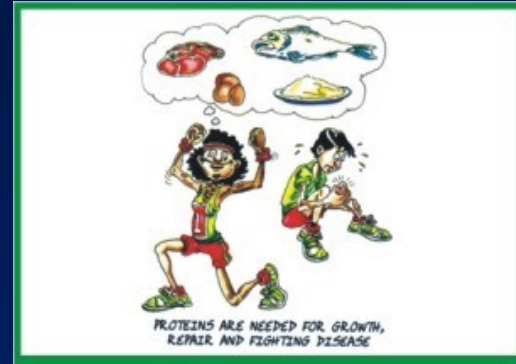
- Similar **CELLS** are grouped to form **Tissues**.
- **Tissues** to makeup **Organs**.
- **Organs** makeup **systems**.
- **System** makeup **Organisms**.

PLANT CELLS AND GLUCOSE



- Wall made of cellulose – Group of Substance called polysaccharides.
- Glucose is simple sugar – **Sucrose** complex sugar - **Starch** is **Polysaccharides**.
- **Starch** and sugar are **Carbohydrates**.
- Energy from **Carbohydrates**.

PROTEINS



- Proteins are chain of Amino Acids.
- Contain Nitrogen & Small amount of sulphur.
- Proteins are soluble – Such as haemoglobin – Others insoluble like Keratin. Hair and fingernails are made of Keratin.
- Proteins are used for growth & repair.
- Fights with bacteria & viruses.
- Enzymes are also Proteins.

HOW PLANT FEEDS

1. Photosynthesis is a Process

Sunlight

carbon dioxide ——— glucose + oxygen +
water

Chlorophyll

2. Chlorophyll molecule makes plant green and absorbs sunlight to make chlorophyll plant need nitrogen and magnesium obtained from soil.



3. Plant leaves are food factories

a. obtains carbon dioxide from the air

b. water from soil by root hair and carries up to the leaf

c. sunlight

4. Energy may be released from glucose in the leaf

5. Glucose may be turned into starch and stored in the leaf

6. Glucose may be used to make other organic substance

a. starting point

b. to make protein – needs nitrogen

c. 78% Nitrogen in air but use less plants to be supplied as nitrate ion

or in ammonical form through root hair

d. Nitrate ions combine with glucose to make amino acids which stung together to form Protein Molecule.



PRESENTS
INNOVATIVE
BIO FERTILIZERS
ORGANIC MANURES
BIO CROP PROTECTORS

Nutrimin

- Totally Bio Available – Protein Hydrolysate.
- Amino Nitrogen
- 25 Amino Acids.
- Recycled from Agriculture Produce.
- Toxin Free.
- Increased Yields.

Nutrimin Composition :-

- Protein Hydrolysate - 30%
- Nitrogen (DB) - 12 -14%
- Organic Carbon > 50%
- Other Nutrients 1-2%
- (K, Mg, Fe, B, Cu, Mn & Zn)

NUTRIMIN PHOS -13-14 %

- Chelated Phosphorus with Proteins Hydrolysates.
- Totally Bio Available – Fully Absorbed.
- Replacement of Chemical Phosphatic Fertilizers.
- Toxin Free.
- Increased Yields.

NUTRIMIN PHOS COMPOSITION

- Phosphorous (DB) - 13 - 14%
- Nitrogen (DB) - 5 - 6%
- Protein Hydrolysate : 40%
- Organic Carbon: - > 50%
- Other Nutrients: - 1 - 2%
- (K, Mg, Fe, B, Cu, Mn & Zn)

Dosage For Nutrimin Phos

- Under normal conditions depending on variety, 1 ton of wheat yielded requires 2 kg. Of phosphorous from soil.
- For this farmer has to give 24 kg. Of phosphorous in chemical forms.
- Reasons: -
 - (a.) Availability is less App 20% of applied due to fixation.
 - (b.) Bio availability is 40% of availability in DAP & 30% is SSP.

Calculation For DAP

DAP 18-46-0 100 kg.

i.e. 9-23-0 Per bag of 50kg.

Availability 4.80.2-0 Per bag of 50kg.

Bio Availability 1.92 Per bag of 50kg.

With N. Phos 3.50 Per bag of 25kg

with Amino Nitrogen &
Protein Hydrolysate.

Calculation for SSP

SSP 16% 100 Kg.

Availability 6.4 Kg. Per 100 Kg.

Bio Availability 1.92 kg. Per 100 Kg.

Hence for normal practice:

1 Bag Nutrimin Phos – 1 Bag DAP or 2 Bag
SSP.

NUTRIMIN POTASH – 14% ++

- Potassium Gluconate.
- Totally Bio Available.
- Replacement of Murate of Potash.
- Toxin Free.
- Increased Yields.

Dosage For Nutrimin Potash

Availability 30 to 35% of Applied

Bio Availability 7 to 10% of availability

Composition :-

Potash (on DB) - 14%

Protein Hydrolysate - 30%

Organic Carbon - > 50%

Other Nutrients - 1-2%

(Mg, Ca, S, Fe, B, Cu, Mn & Zn)

Calculations

Muriate of Potash 60% K_2O In 100kg.

Availability 21 kg. In 100kg.

Bio Availability 1.4 kg. In 100kg.

Nutrimin Potash 3.5 kg. In 25kg.

Nutrimin Zinc – 12% ++

- Zinc Gluconate.
- Totally Bio Available.
- Replacement of Zinc Sulphate & Chelated Zinc.
- Toxin Free.
- Increased Yields.

Calculation For Nutrimin Zinc

Zinc Sulphate	21%	In 100 kg.
Availability	40%	i.e. 8.4 kg.
Bio Availability	15	i.e. 1.2 kg.
Nutrimin Zinc	12% in 5kg. Bag	i.e. 0.60 kg.

Nutrimin Mineral Mix

- Total Nutraceutical Solution.
- Contains –
 - Organic Calcium
 - Organic Magnesium.
 - Organic Essential Nutrients.
 - Organic Micro Nutrients.
- Totally Bio Available.
- Toxin Free.
- Important for cell growth and division.
- Increase in Yield - fruit / grain size.

NUTRIMIN MINERAL MIX COMPOSITION

- Protein Hydrolysate - 30%
- Calcium (On DB) - 12 - 14%
- Magnesium (On DB) - 40%
- Zinc (On DB) - 3.0%
- Organic Carbon: - > 50%
- Other Nutrients: - 3 - 4%
- (Fe, B, s, Cu, Mn & Mo)

RAPIDMIX ORGANIC MANURE

- Nutrient value of FYM.
- Contains all essential & Micro Nutrients.
- Toxin Free.
- Improves Soil flora.
- Increase in Yield.

Analysis of Rapidmix organic Manure

PARAMETER	SLUDGE
PH (1:10)	6.5 -7.5%
EC (1:10)	3.412
OC (%)	20 -25 %
Total N (%)	1.86%
C:N ratio	13 -15%
Total P ₂ O ₅ (%)	4.21%
Total K ₂ O(%)	1.87%
Total Ca (%)	10.71%
Total Mg (%)	7.86%
Total S (%)	4%
Total Fe (mg /kg)	5300 P.P.M.
Total Mn ((mg /kg)	900 P.P.M.
Total Zn (mg /kg)	450 P.P.M.
Total Cu (mg /kg)	200 P.P.M.
Total B (mg /kg)	270 P.P.M.

THANK YOU