



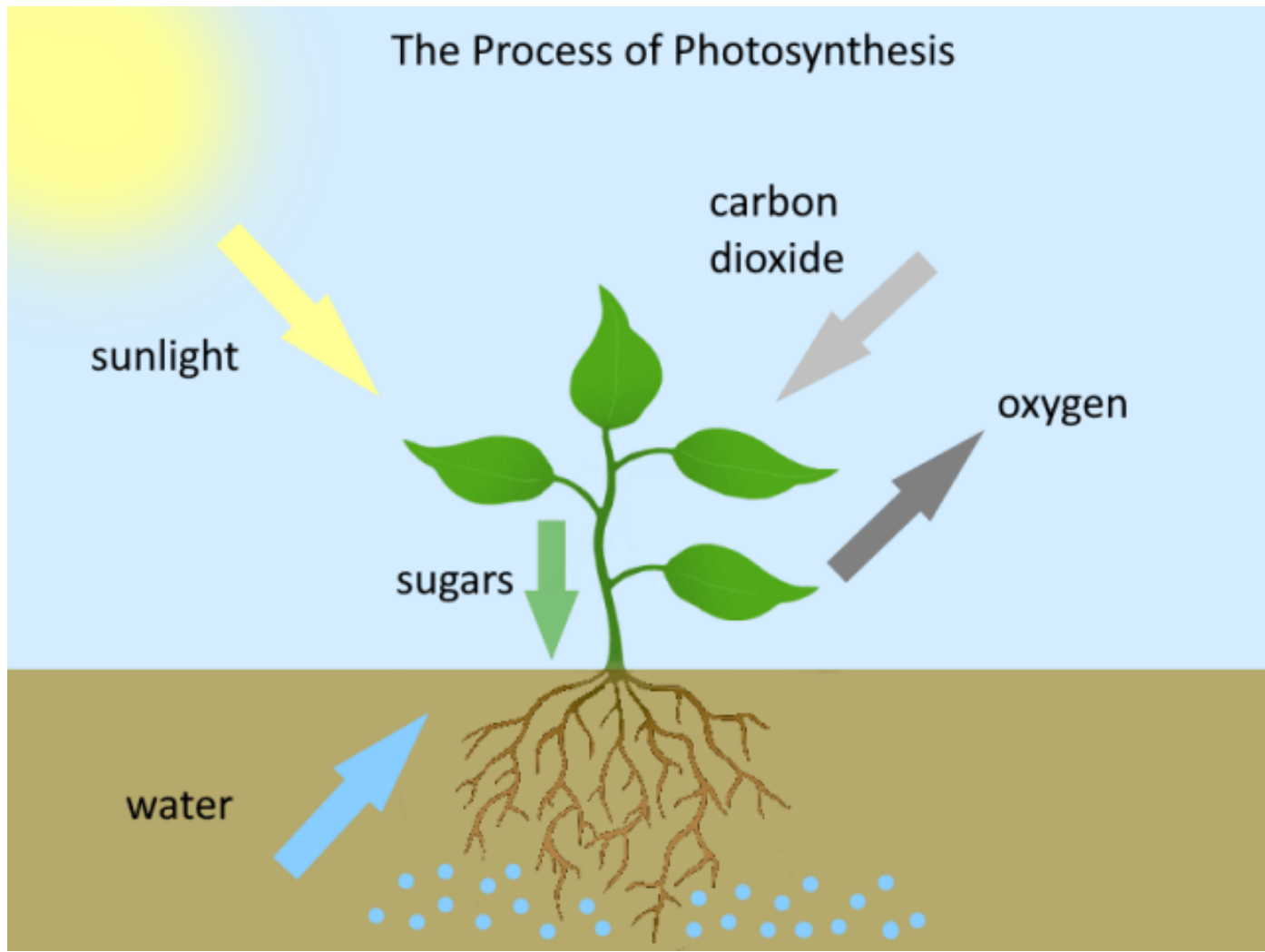
IPPS Annual Conference 2025

How Balanced Nutrition & Soil Health
Leads to Success

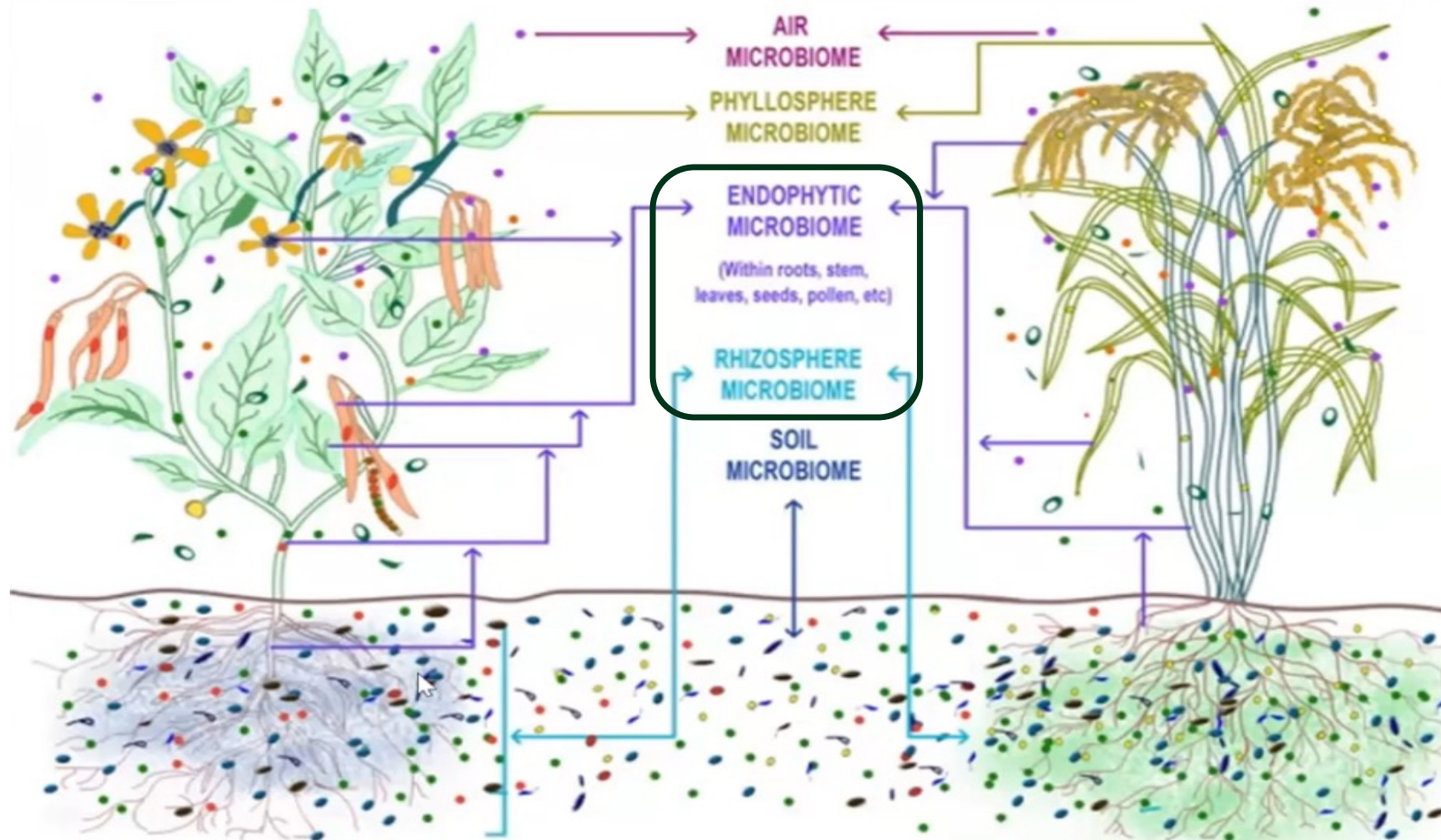
Robert Jeffery – 27/03/2025

Talborne Organics
Growing Health

The Process of Photosynthesis



Microbiome of Soil and Plants

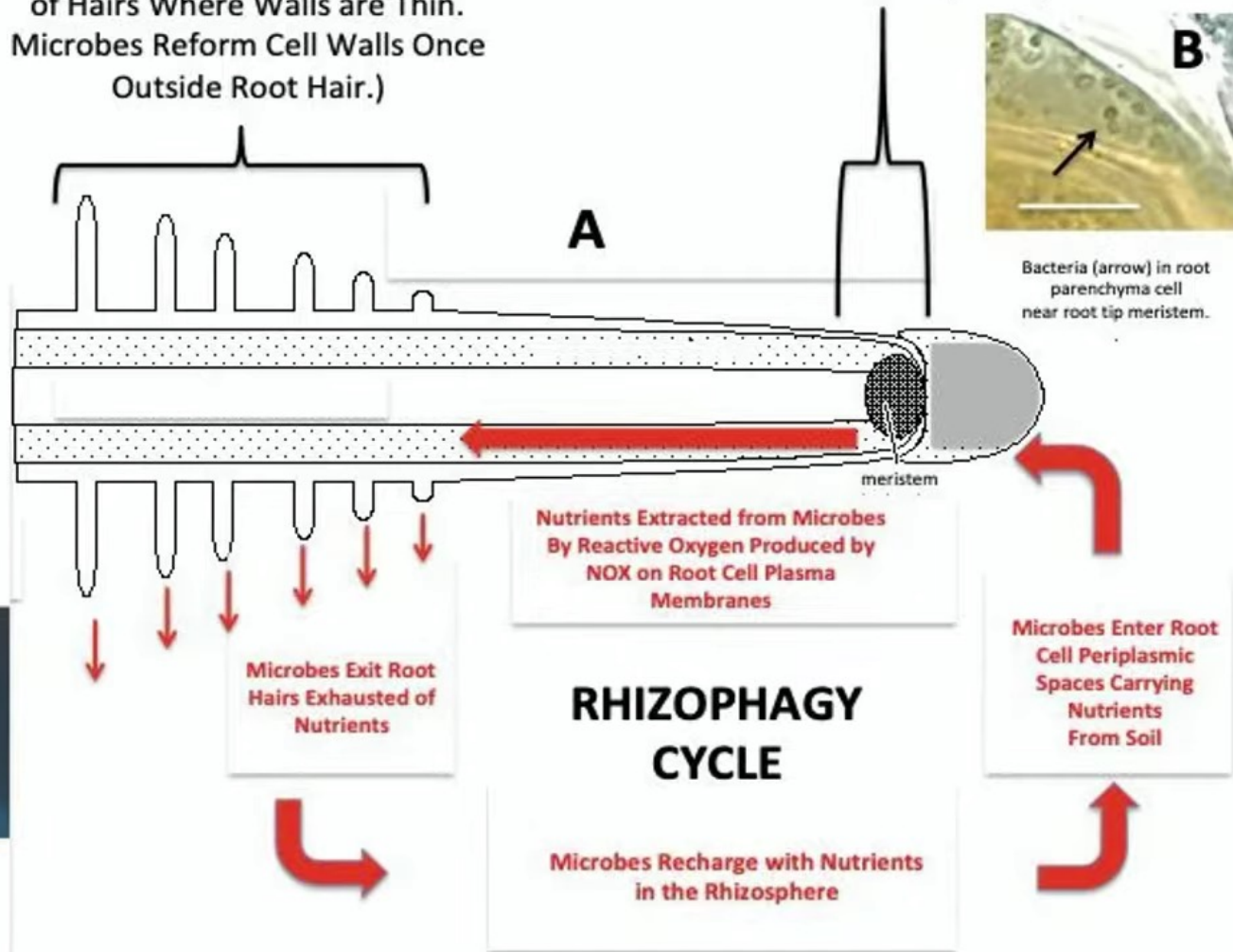


Gopal, M., & Gupta, A. (2016). Microbiome Selection Could Spur Next-Generation Plant Breeding Strategies. *Frontiers in Microbiology*, 7, 1971. <https://doi.org/10.3389/fmicb.2016.01971>

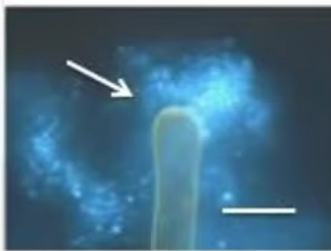
1

Microbe Exit Zone
(Microbes Stimulate Elongation of Root Hairs and Exit at the Tips of Hairs Where Walls are Thin. Microbes Reform Cell Walls Once Outside Root Hair.)

Plant Cell Entry Zone
(Microbes Become Intracellular in Meristem Cells as Wall-less Protoplasts.)



C



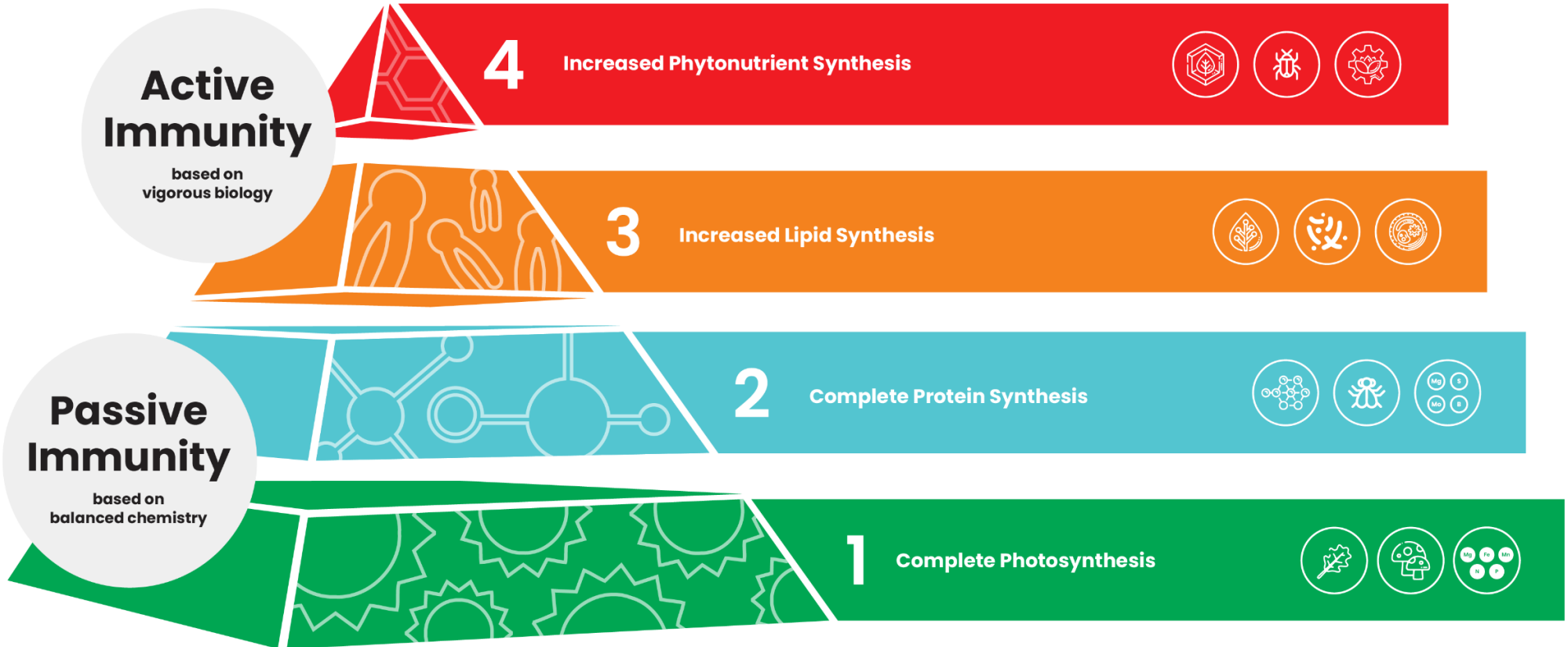
Bacteria (arrow) emerging from root hair tip of millet seedling.



Advancing Eco Agriculture

Plant Health Pyramid

“Healthy plants can become completely resistant to diseases and insects.” –John Kempf



Level 1 – Complete Photosynthesis

- Increase Photosynthates by 4x = feed the microbial population
- Resistance to soil borne fungal pathogens

• Mg **Fe** **Mn** N P

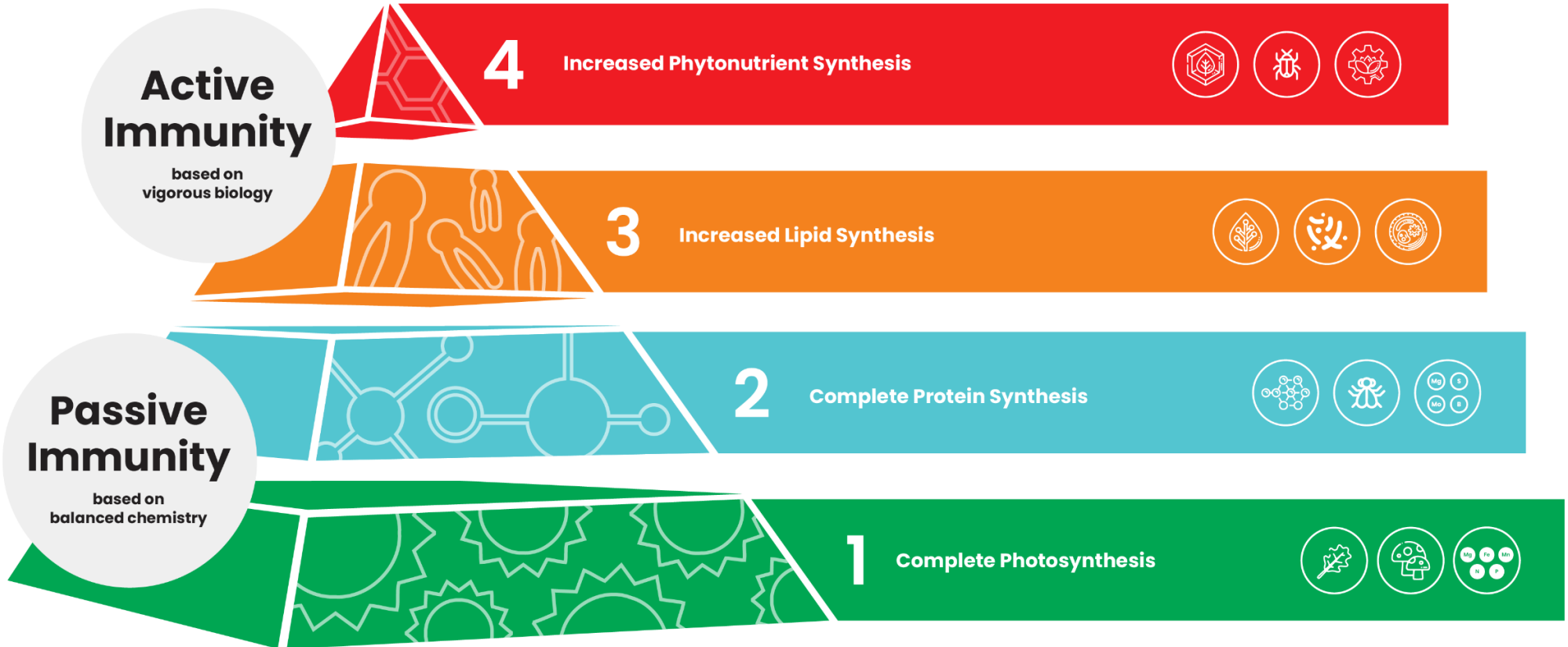




Advancing Eco Agriculture

Plant Health Pyramid

“Healthy plants can become completely resistant to diseases and insects.” –John Kempf



• Level 2 – Complete Protein Synthesis

- All forms of N converted to Proteins
- Resistance to insects with simple digestive systems
- Mg S Mo B



Nitrogen Utilization Efficiency

Building a House

Nitrates > Ammonium > Amino Acids > Peptides > Proteins



1. Organic Nitrogen – amino acids, peptides, proteins
2. Urea
3. Ammonium
4. Nitrates – large amounts of Energy + Water`



need vigorous biology

- **Level 3 – Lipid Synthesis**

- Energy surplus – stored as lipids (fats)

- **Level 4 – Increased Phytonutrient Synthesis**

- Plant immune compounds (Essential Oils) – plant protectants



In Summary

- Photosynthesis is key – start here
- Organic forms of nutrition are the most energy efficient forms of plant nutrition

“Plant nutrients should be available, but not soluble”

William Albrecht



Thank You for your Attention

Contact: 013 933 3172

Email: info@talborne.co.za

For further information please come talk to us
or visit our website at:

www.talborne.co.za



Talborne Organics
Growing Health