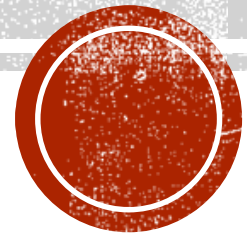


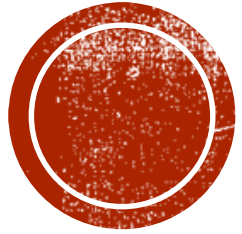
# APPLICATION OF SCIENCE & TECHNOLOGY TO NATURAL FARMING & ORGANIC AGRICULTURE SYSTEM

- Ramon D. Peñalosa Jr.



## DEFINITIONS:

**NATURAL FARMING:** An ecological farming system: The avoidance of manufactured inputs & equipment. It works with the natural bio-diversity of an area.

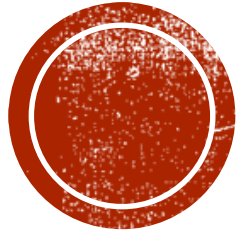


### 5 Principles of Masanobu Fukuoka (1913-2008)

1. No tillage (no plowing)
2. No fertilizer
3. No pesticides or herbicides
4. No weeding
5. No Pruning



# ORGANIC FARMING:



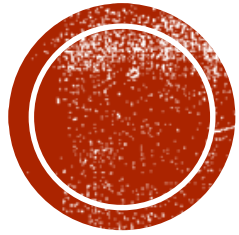
is a system that promotes environmentally, socially, and economically sound production-marketing of agriproducts and excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, livestock feed additives and genetically modified organisms.

In the Philippines our basis will be Republic Act 10068 of 2010.

COMMONALITY:

IT IS PRO-ENVIRONMENT, PRO-LIFE, AGAINST SYNTHETICALLY MANUFACTURED INPUTS.

# IN THE PHILIPPINES SETTING, WHAT ARE THE COMMON CONCERNS FOR NATURAL & ORGANIC FARMING AS RELATED TO SCIENCE & TECHNOLOGY:



1. Bias against agriculture : Agriculture is the poorest sector of the Philippine economy.
2. Low research priority: There are testimonial evidence for natural & organic farming but few science & evidence based studies.
3. Skill level of extension workers: The Wholistic Approach is neglected.
4. Consumer economy: No national food security policy.
5. Certification system: 1<sup>st</sup> party & 2<sup>nd</sup> party certification is prevalent. 3<sup>rd</sup> party organic certification has low patronage.



# APPROACHES:

## NATURAL & ORGANIC FARMING

### PHILOSOPHY

- A way of life

### ART

- Relational and  
Ecosystems Approach

### SCIENCE

- Set of knowledge  
& skills

### BUSINESS

- Profitability &  
productivity

### Criteria:

1. Doability
2. Sustainability
3. Replicability
4. Visibility
5. Measurability



A BUSINESS MODEL FOR SUSTAINABLE  
AGRICULTURE TRANSFORMATIONAL  
AGRIPRENEURSHIP

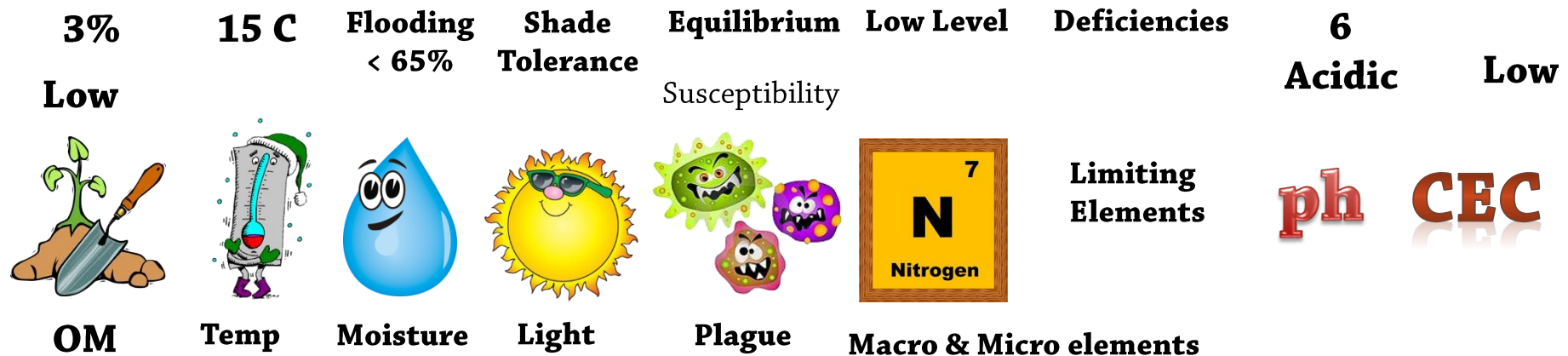
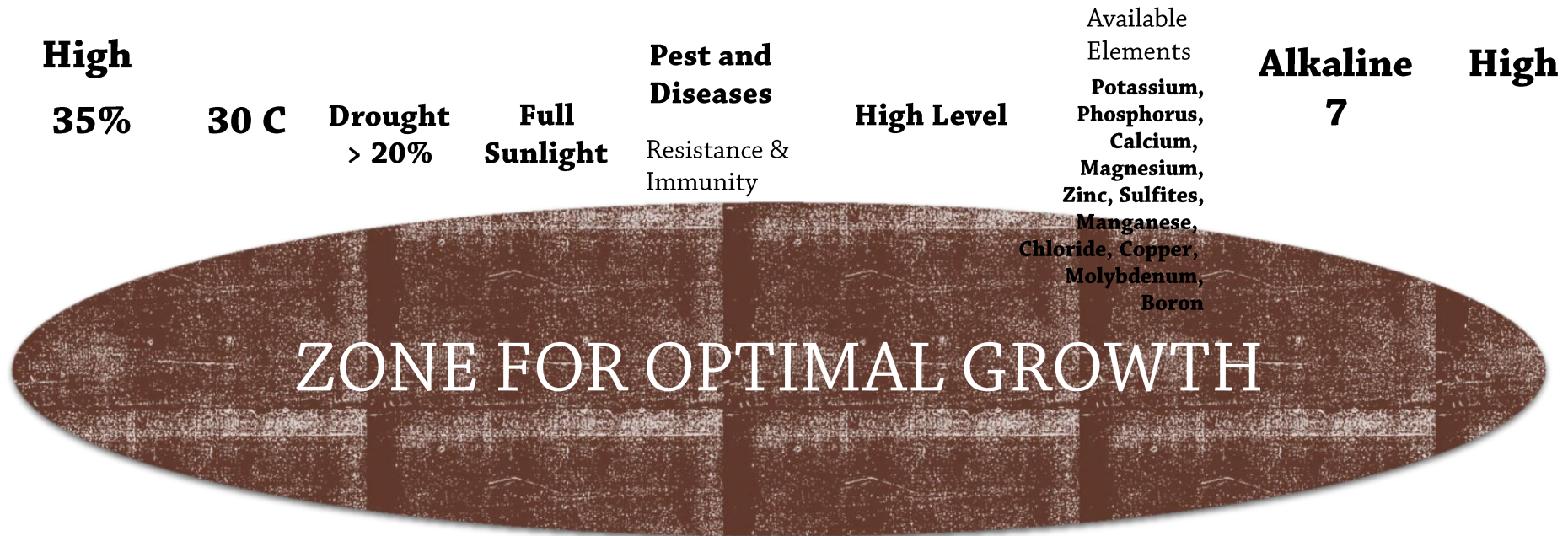
Identifying S&T convergence points in  
the application of Natural  
& Organic Farming



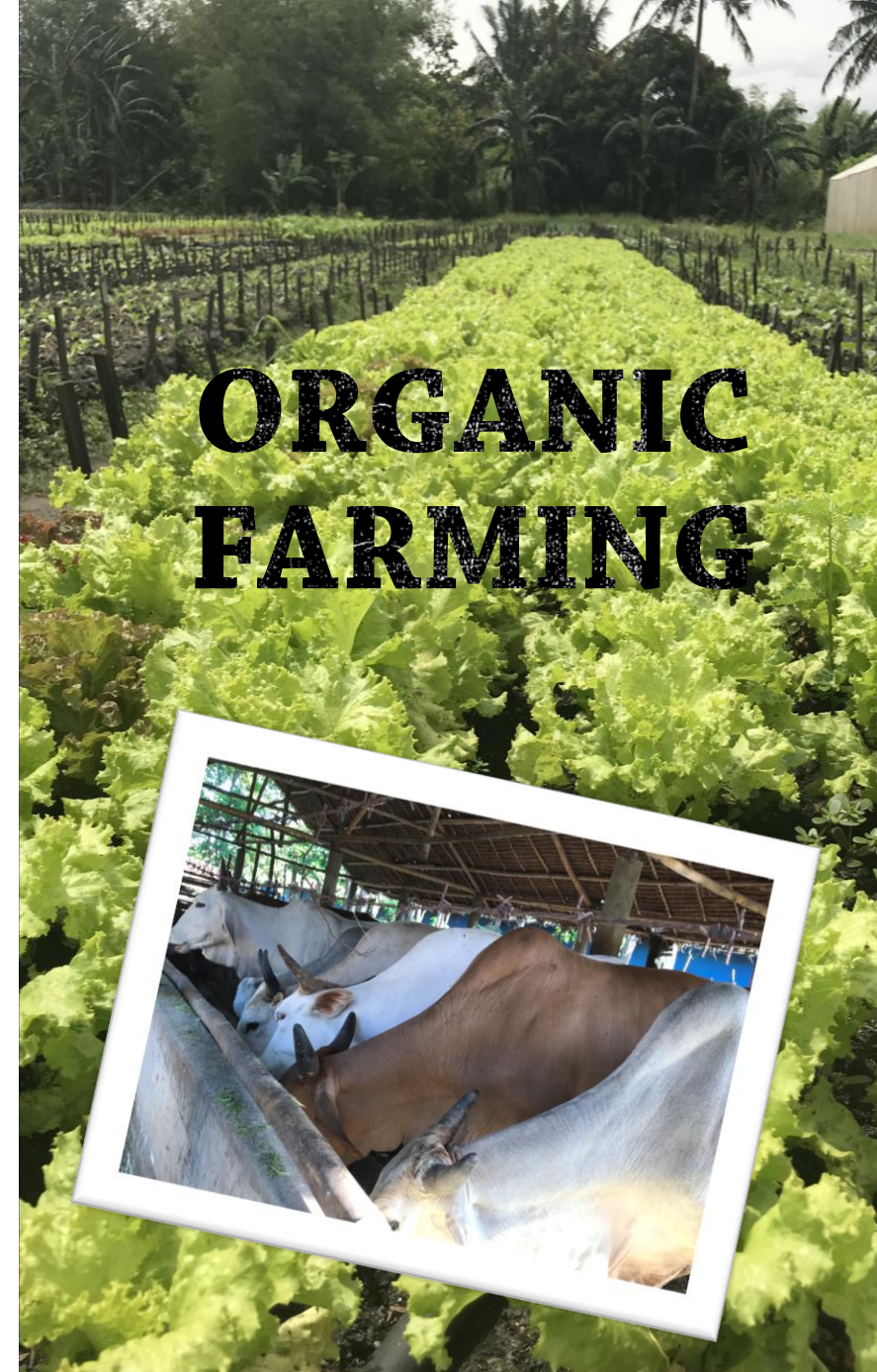
Organic  
Farming



# OPTIMUM GROWTH CONDITIONS



- Language of the Soil
  - - the production of compost, super compost, vermi, super vermi, tea and other organic fertilizer that is crop specific and nutrient uptake based. Needed microbials.
- Language of the Plants
  - - the production of indigenous plant based hormones such as auxins, gibberellic acids, cytokinins, abscisic acids & ethylenes that are stage specific & botanical based.
- Language of the Animals
  - - the production of job specific probiotics such as amino acid & lactic acid producing bacteria, odor control, competitive exclusion, decomposers and insect control.
- The Art of War
  - - the production of pest & disease control natural pesticides, such as bio-controls, contact pesticides, repellants, fungicides, bactericides, nematicides, acaricides, etc.

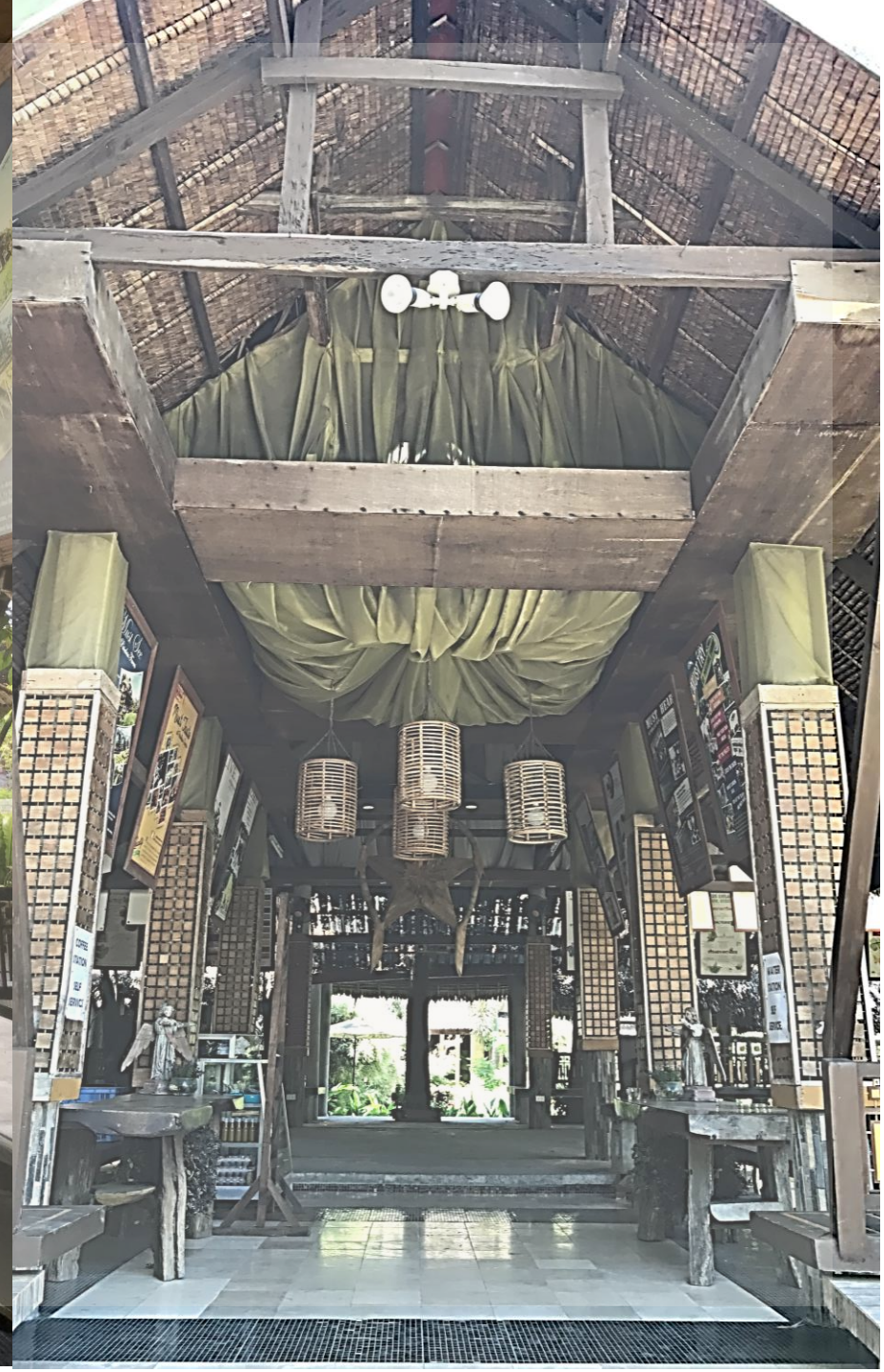




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AGRIPRENEURSHIP

Intergrated  
Farming

Organic  
Farming





The synergy & complimentarity between crops, livestock, forestry, aqua & farming systems to create a zero waste, self controlled ecosystem, characterized by vertical and horizontal relationships.

1. Biodiversity Conservation
2. Sustainable Development
3. Climate Change Mitigation & Disaster Risk Management
  - A. Closed Loop Systems
  - B. Multi Stage Systems
  - C. Uni Integration System

# INTEGRATED FARMING



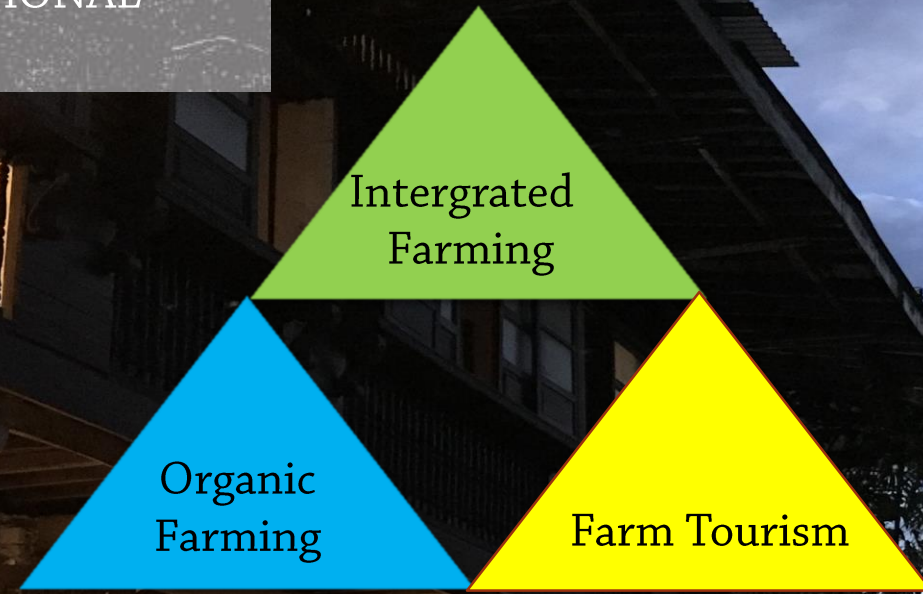
Risk = Hazard x Vulnerability

Where vulnerability is a function of exposure, susceptibility & present Capacity.





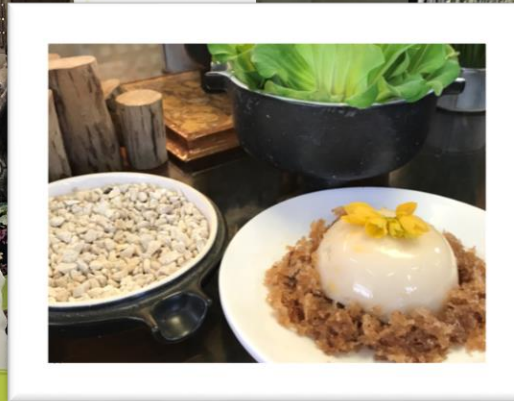
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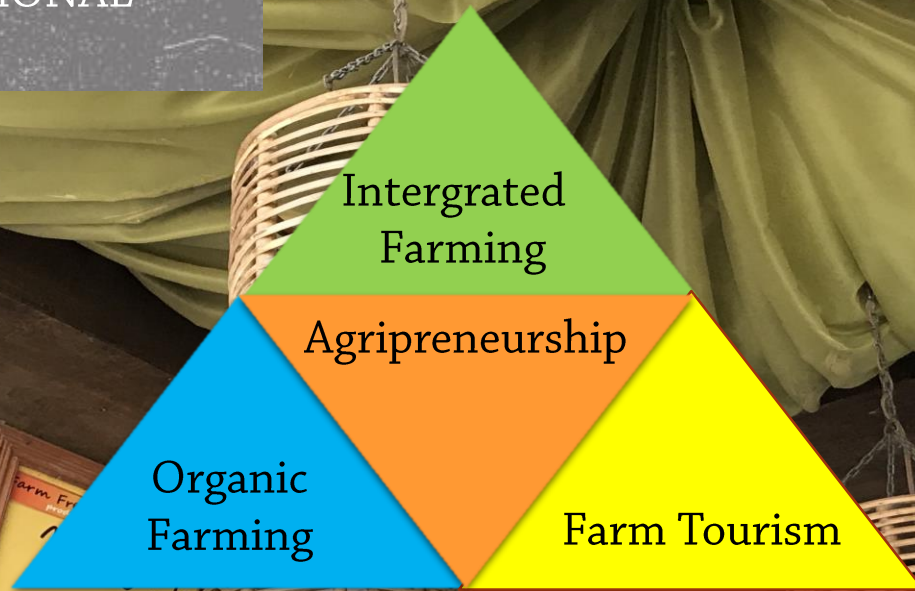
# FARM TOURISM

1. Proof of Concept
2. Learn & Earn Productivity Center
3. Point of Convergence for Multi-Disciplinary Approach





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*Must See*  
at Penalosa Farms

- Forest infrastructures for different animals
- Feedmilling process
- natural type incubator
- agricultural designs
- learning hall
- 300 crop species
- vertical gardens
- hanging garden
- rainwater garden

Quality of an organic farm is determined by the people who manage it, by the animals that live in it and the plants that thrive in it.

at Penalosa Farms, explore every nook and cranny. Live, love, learn and laugh at the farm.

Quality  
ORGANIC FEED

Helping it's a contributing with the government's expansion and what's in it. Our mission is to serve you fresh from our farm. Whether it's at the supermarket, or at the table enjoy the what we share. Let's eat!

LIVE...  
at Penalosa Farms

Imagine a place where mother nature and farmer business can work side by side with an integrated mix of crops and livestock. It's beautiful here.

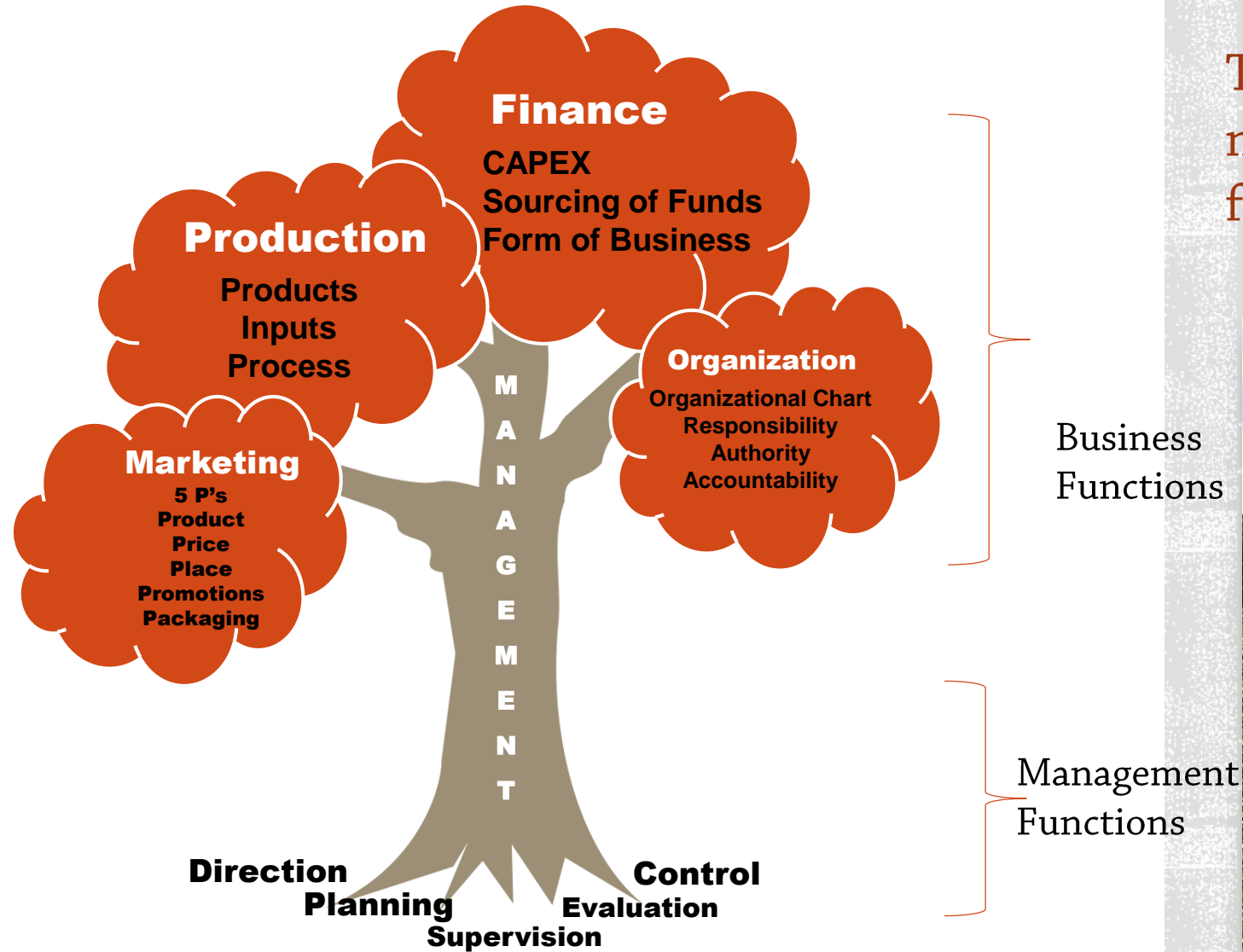
LEARN...  
at Penalosa Farms

TABLES...  
at Penalosa Farms

ORGANIC FEED...  
at Penalosa Farms



# The Business Tree



# AGRIPRENEURSHIP

The art and science of maximizing resources for a given purpose.

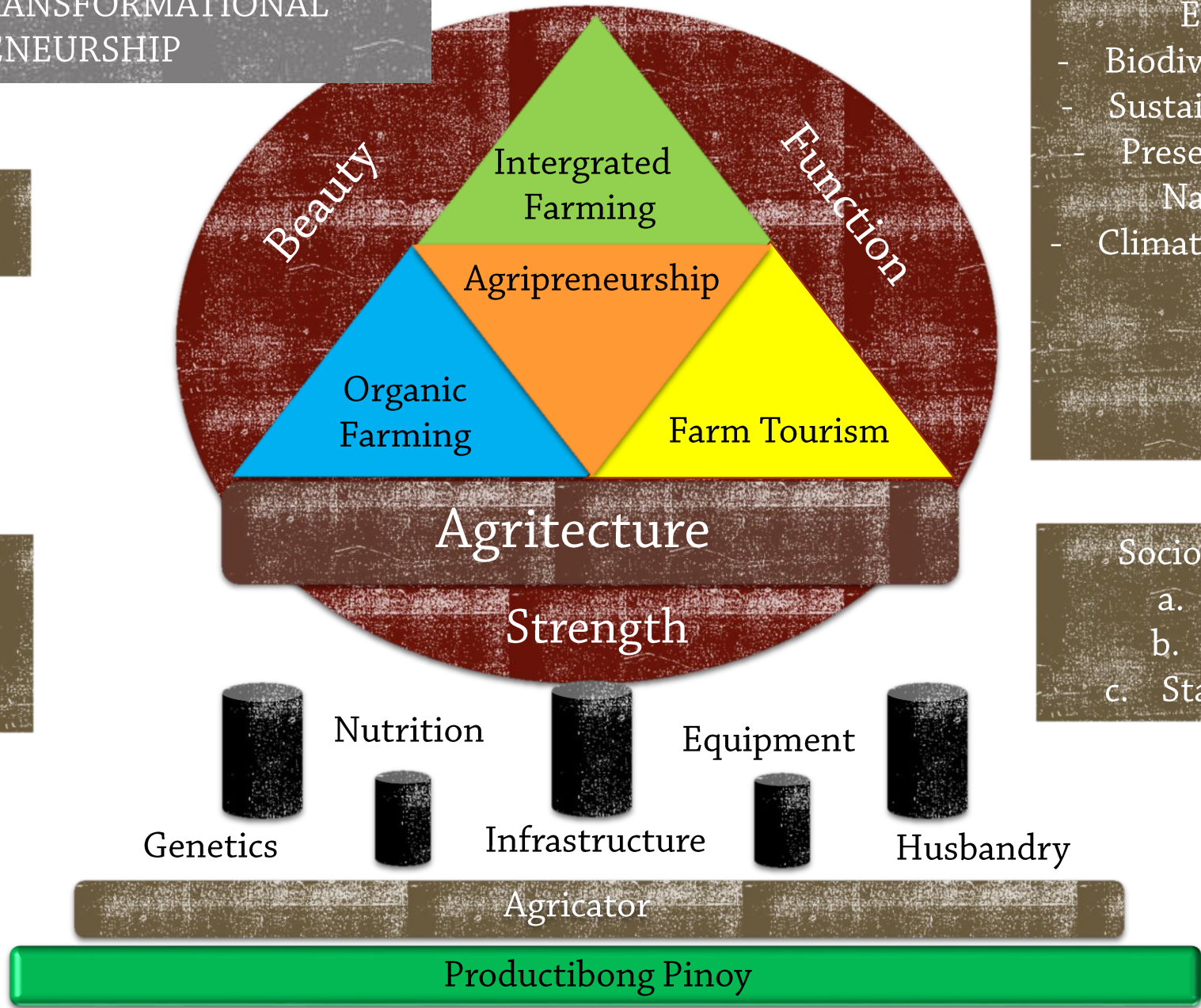




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AGRICULTURE TRANSFORMATIONAL  
AGRIPRENEURSHIP

Health  
-the theory of aging

Economics  
- Project Statistics  
& Case Studies  
- Income Profiles



Environment

- Biodiversity Conservation
- Sustainable Development
- Preservation of Cultural Natural Heritage
- Climate Change Mitigation & DRM

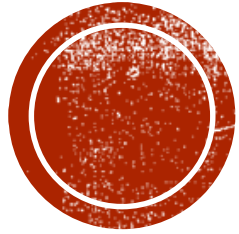
Socio-Political Impact

- a. Demography
- b. Quality of life
- c. Statement of giving



# SUMMARY:

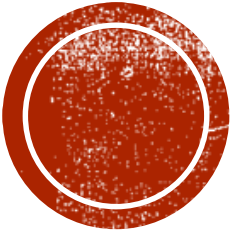
The use of Science and Technology will improve productivity, mitigate climate change, institutionalize disaster risk management, etc. but it has to be:



- a. Relevant to Business Needs
  - science & market encounters etc
- b. Available to the common people
  - does not gather dust in academic circles
- c. Pass the Criteria
- d. Proof of Concept
- e. Correct biases against agriculture
- f. Improve the standard of living, quality of life, and income of the 60% of our population dependent on agriculture.



# CONCLUSION:

- 
- A. Science & Technology per se cannot provide solutions:
- My People suffer because they lack knowledge. **Hosea 4:6**
  - Let it be done to you according to your FAITH. **Matthew 9:29**

Man is the problem & man is the solution.

B. The Philippine agricultural context is not just a sectoral problem, it has to be elevated together with the environment as a national security issue. It affects our nationhood. It will dictate our future.



THANK YOU & GOD BLESS!

