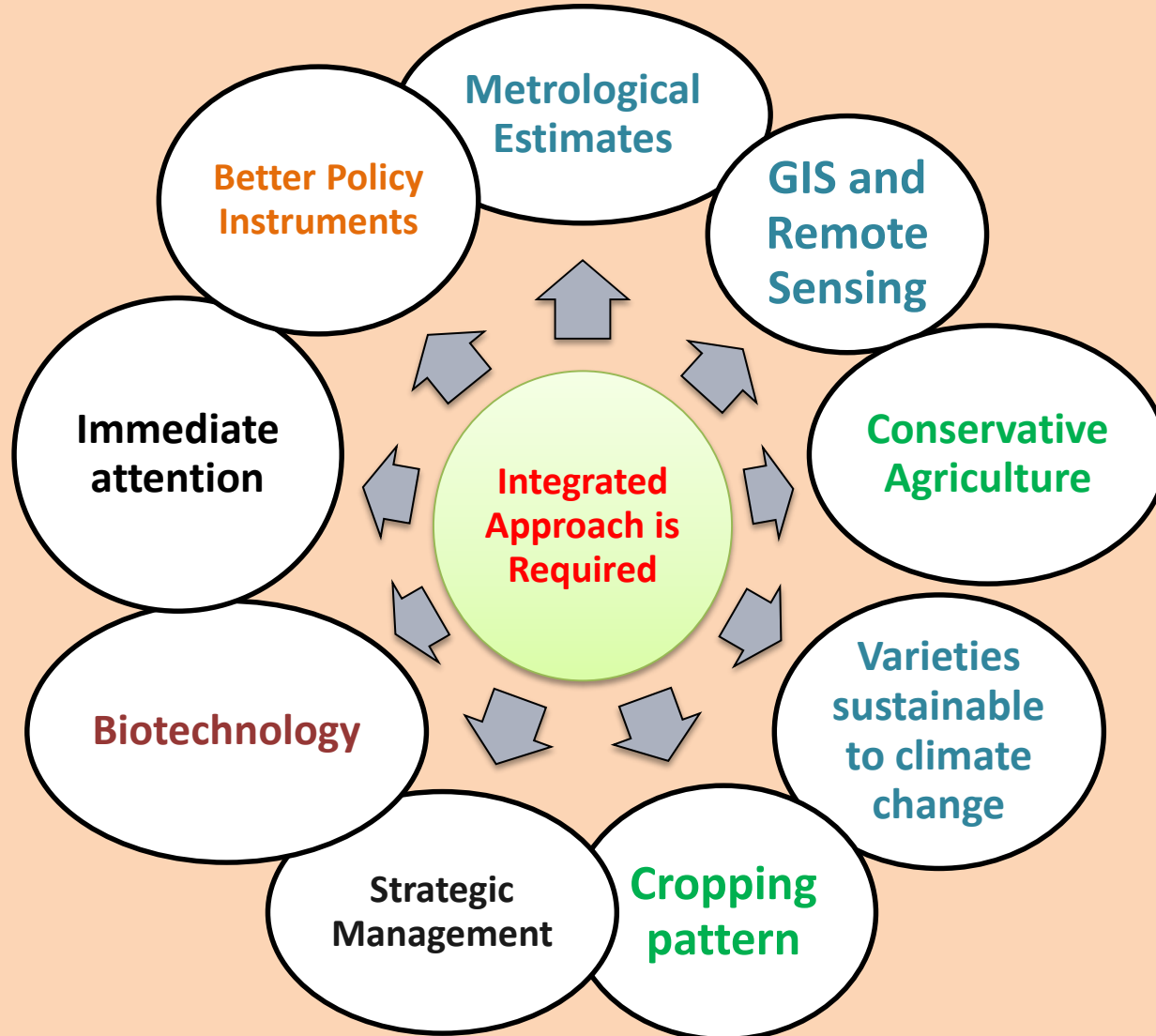


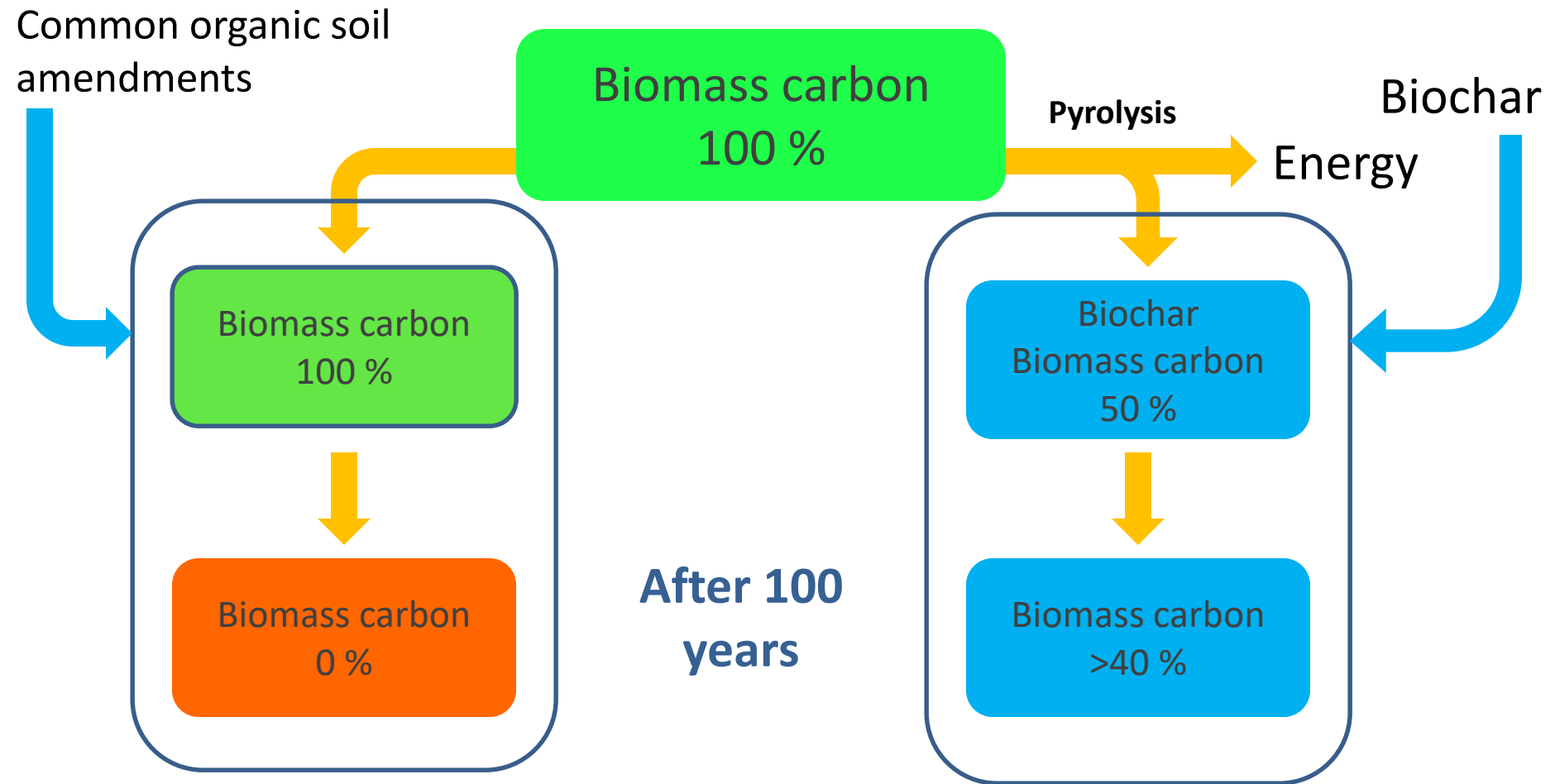
# **Global Warming and Climate Change**

# CLIMATE CHANGE

Climate change is inevitable and ever-continued. No single approach will be effective, only multi disciplinary integrated approach can work.



# Carbon Sequestration in Soil



Potential to reduce current global carbon emissions by as much as 10%

Woolf et al. (2010)

# Major threats and issue of Pakistan Agriculture



**A) Soil Health**

**B) Farm Inputs**

**C) Climate Change**

**D) Agricultural Credit**

**E) Farm Mechanization**

**F) Agricultural Marketing**

**G) Extension Services**

# A) Soil Health

Salinity/Sodicity

Soil Erosion

Waterlogging

Threats

Intensive  
cropping  
system

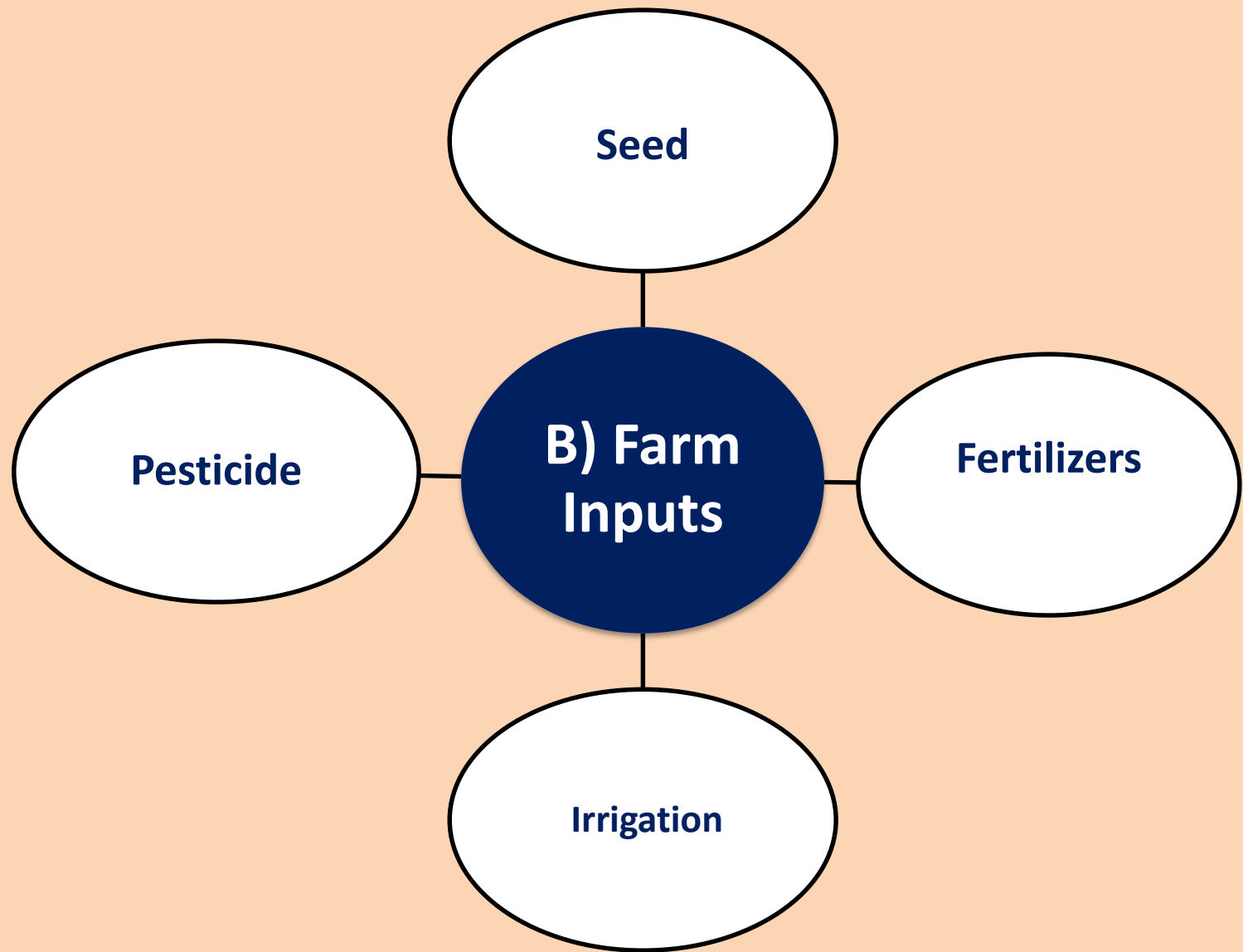
Harsh climate

Poor OM  
content

Over  
Mechanization

Poor  
Quality water

Poor soil health is threat to Food Security



**Proper use of inputs is a key to food security/  
Sustainable soil management**

**1. SEED**



**Quantity**

**Seed Production is the most ignored aspect**

**Quality**



**Timely availability/Cost**

# Variety Development

Development of new varieties is pre-requisite for enhancing agricultural growth & food security

Non-integration  
of conventional  
& modern  
techniques of  
breeding

**Narrow  
genetic base**

**Long time  
duration  
required**

**Lack of funding  
and  
government  
policies**

**Professional  
dishonesty**

Complicated  
variety  
approval  
system



## 2. Fertilizers

**Imbalance Use**

**Soil degradation**

**Fertilizer Use efficiency**

**Urea / phosphorus**

**Excessive use of nitrogen**

**Timely availability**

# 3. Irrigation

**Less amount available**

**Cropping pattern for WUE**

**Water harvesting**

**Poor quality**

**Water saving**

**Recycling wastewater**

**WUE**

**Tube-well water**

**Lack of planning**

# 4. Pesticide

**Quality issue**

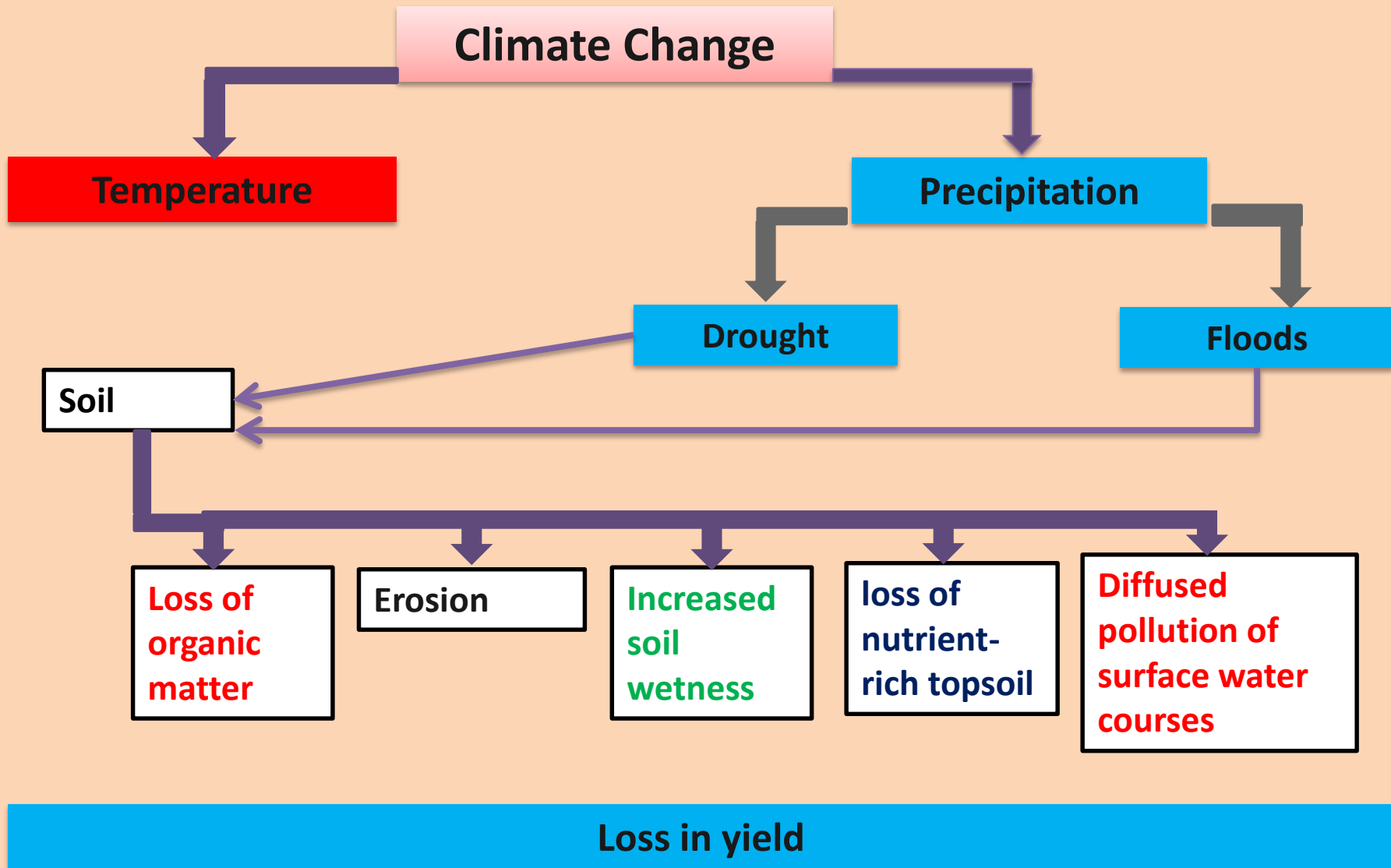
**Cost issue**

**Environmental issue**

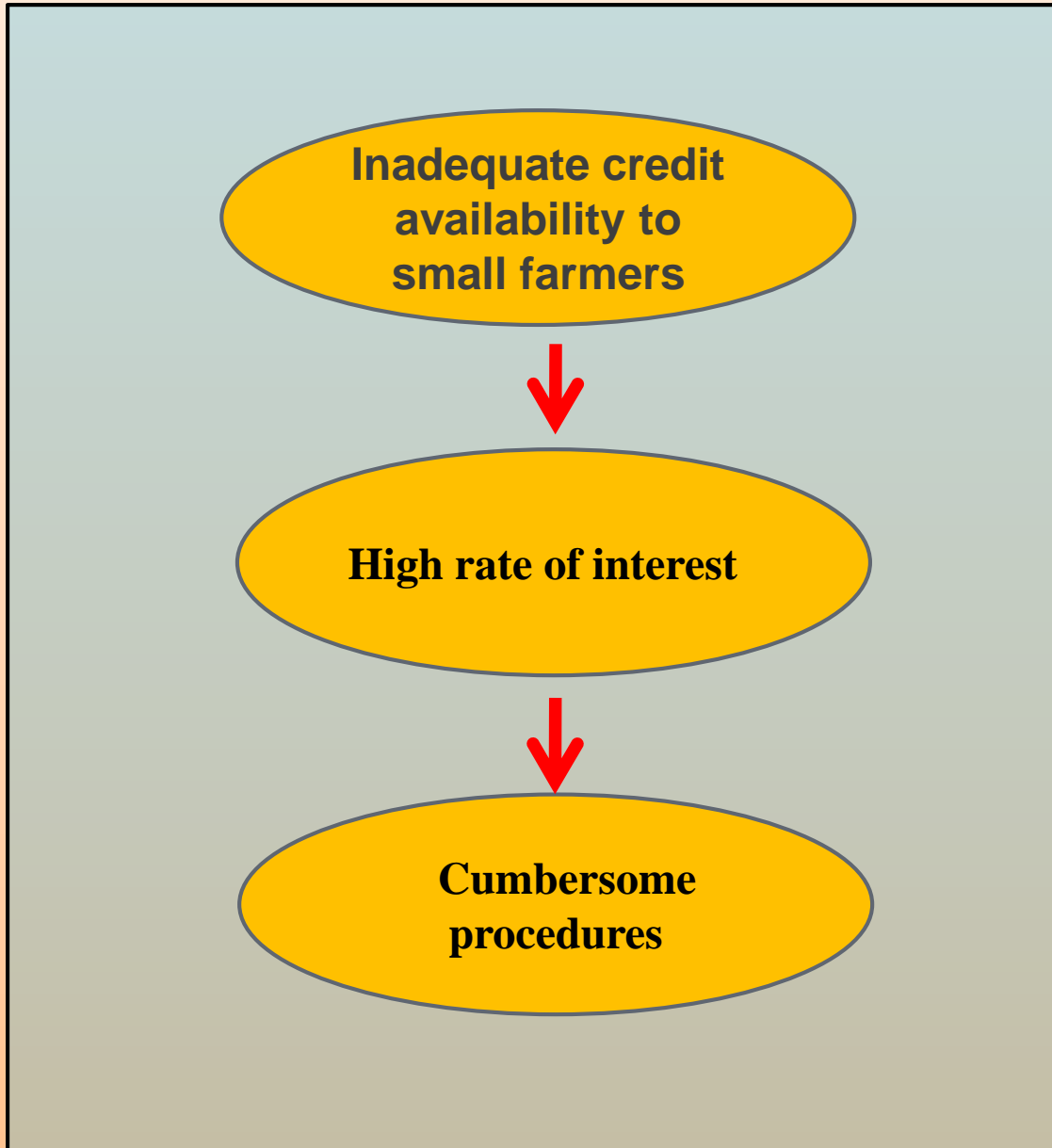
**Bio-control**

**Govt. policies**

# C) Effects of Climate Change on Soil



**D)  
Agricultural  
credit**



**Farmers  
Face  
Problems**



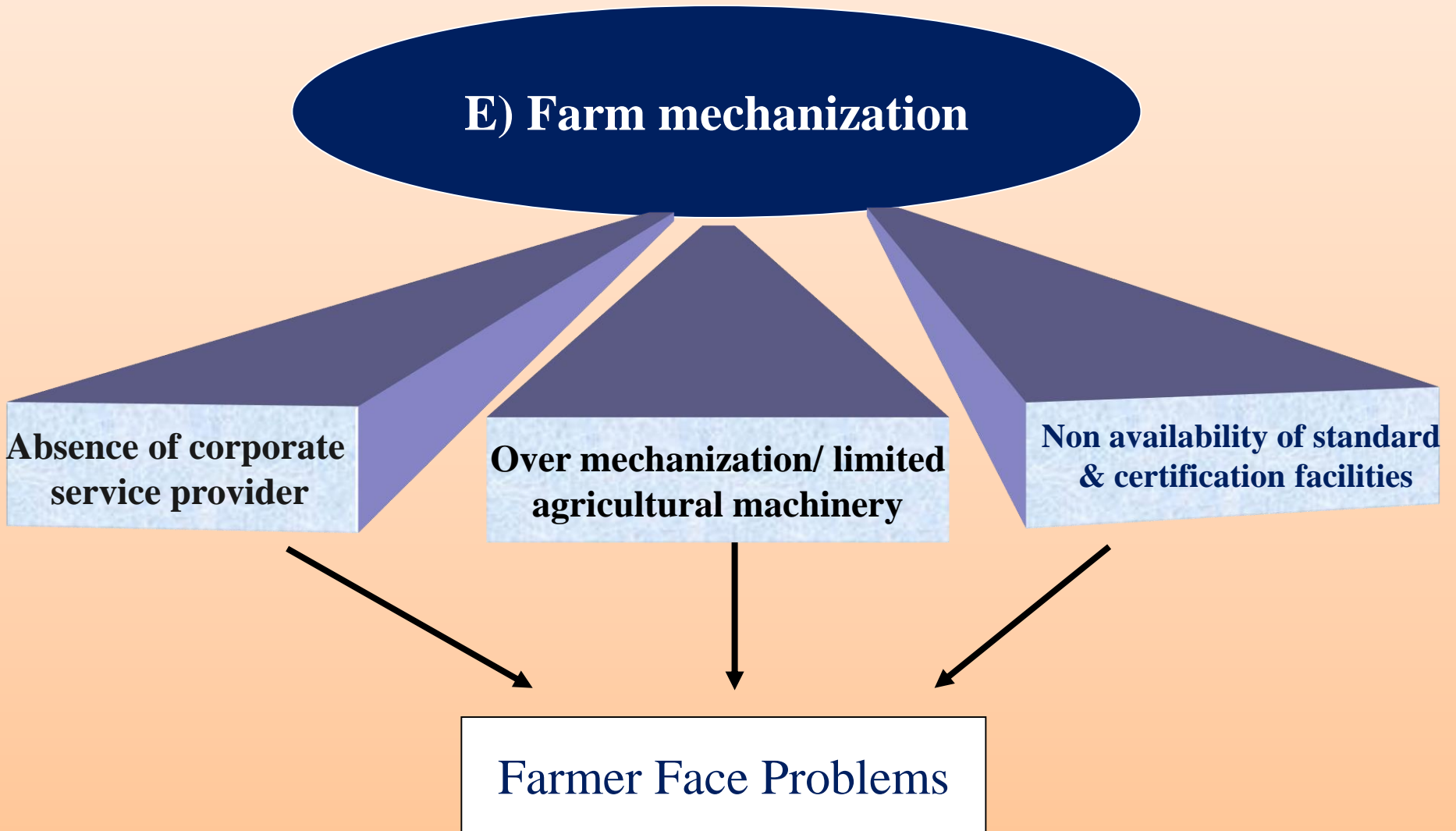
## **E) Farm mechanization**

**Absence of corporate  
service provider**

**Over mechanization/ limited  
agricultural machinery**

**Non availability of standard  
& certification facilities**

**Farmer Face Problems**



# F) Agriculture marketing & forecasting

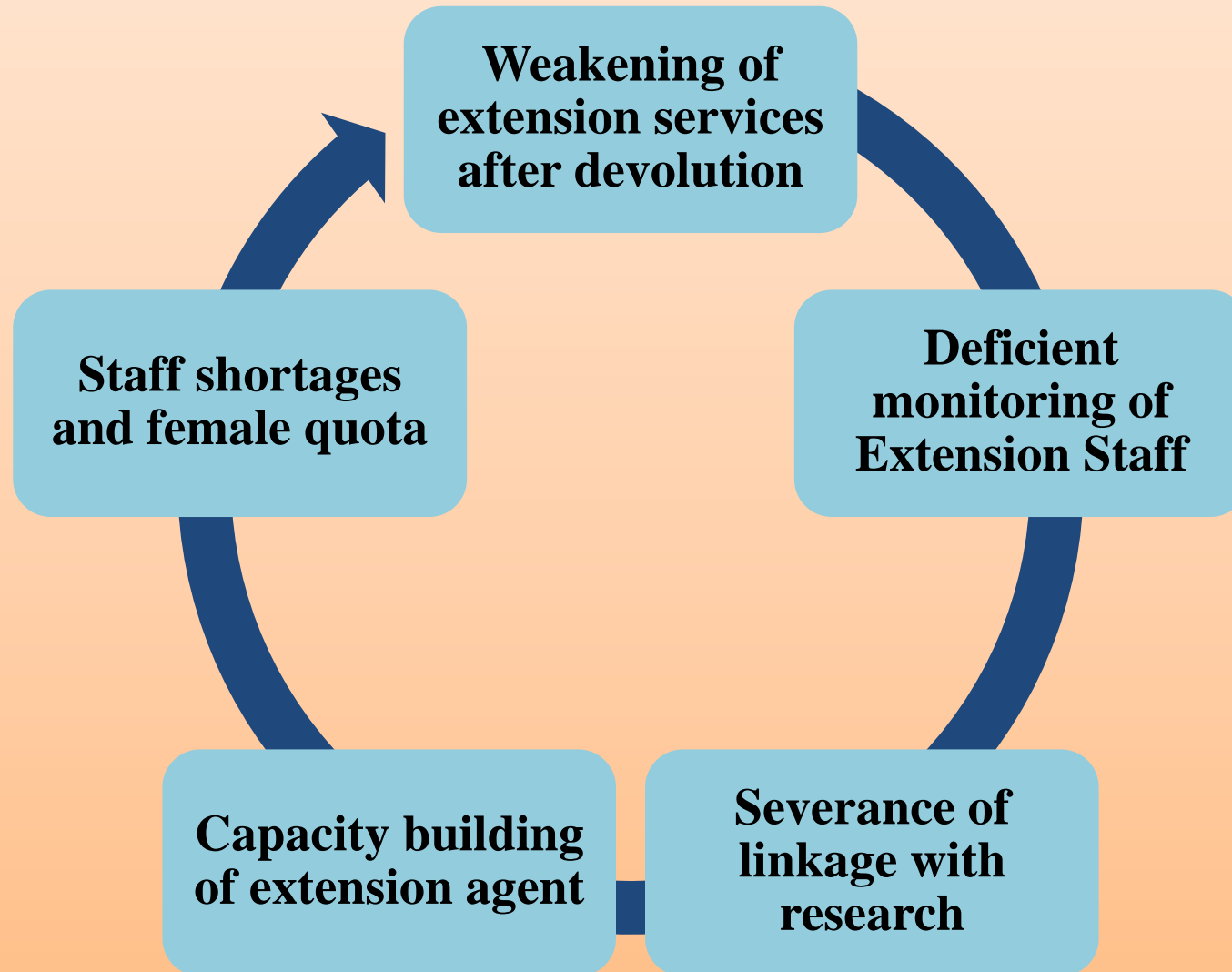
**Inefficient and corrupt market committees system**

**Exploitative role of the middleman**

**Volatility in prices of essential commodities**

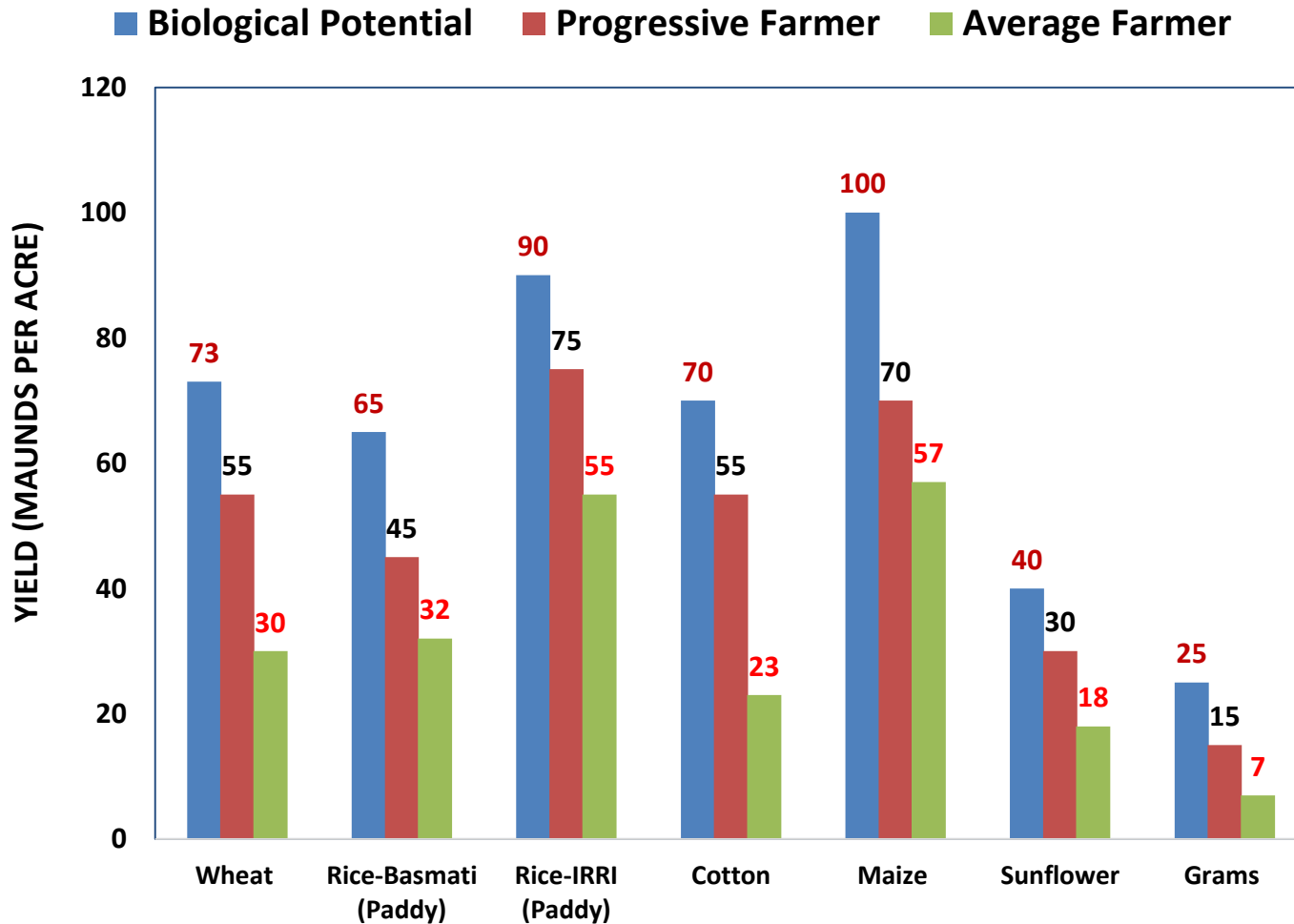
**Poor forecasting system**  
**No system for grading and quality premium**

# G) Farm Extension Services





# BRIDGING THE YIELD GAP – THE CHALLENGE

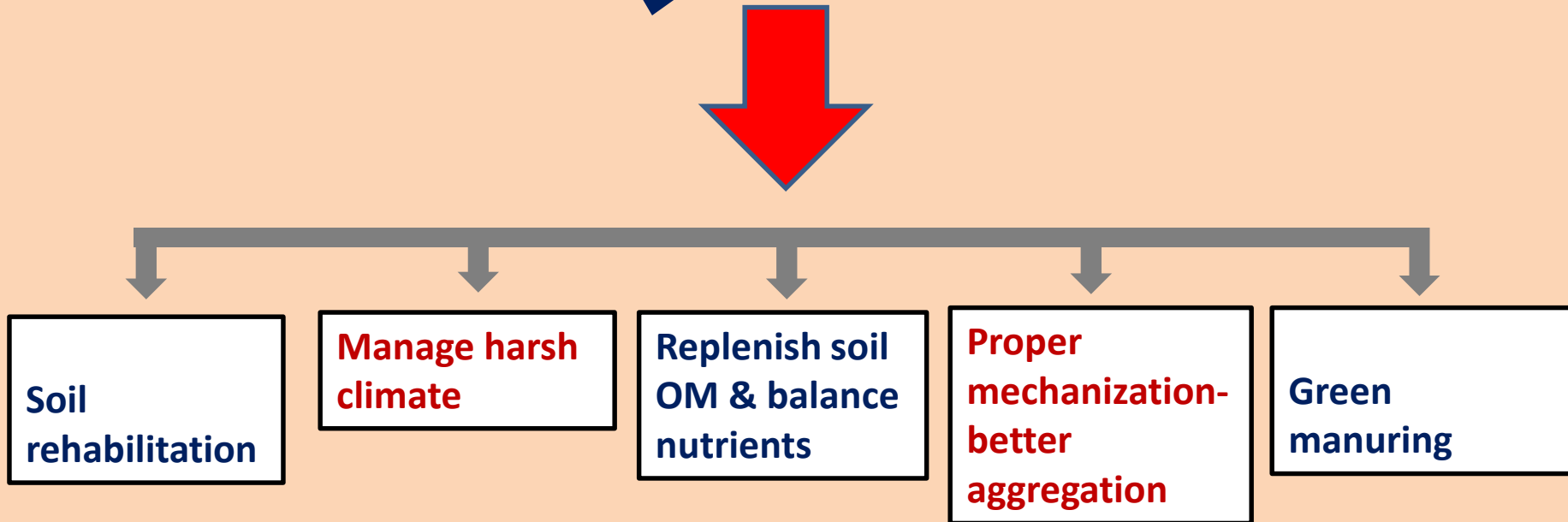


## Progressive Farmers

Better information	Optimal inputs
Proactive management	Timely actions
Better networks	Quality inputs
Bigger farms	Mechanized farming
Greater economic base	Maximum efficiency

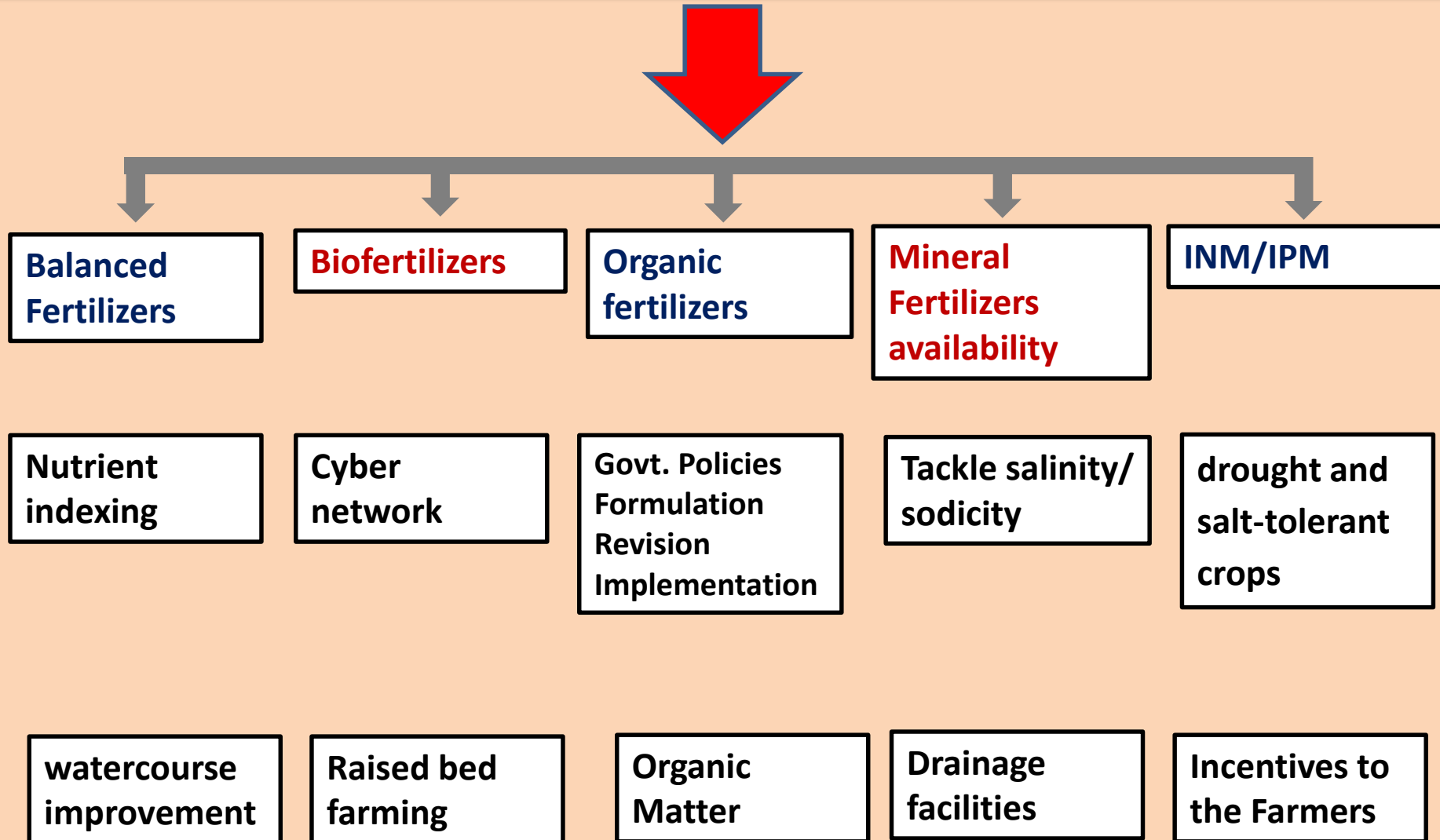
The relevant gap that can be narrowed

# National Priorities for Sustainable Soil Management



**Sustainable soil health management is key to food security**

# On going activities for sustainable management and protection of soil resources



# **Bridging the yield gap between the potential and the present level of productivity through**



**Acceleration of  
seed  
production**

**Timely supply  
of inputs**

**Innovative  
products**

**Time of  
application**

**Method of  
application**

**IPM/INM**

**Best agronomic  
practices**

**National  
Policies**

**Farmers visits  
and training**