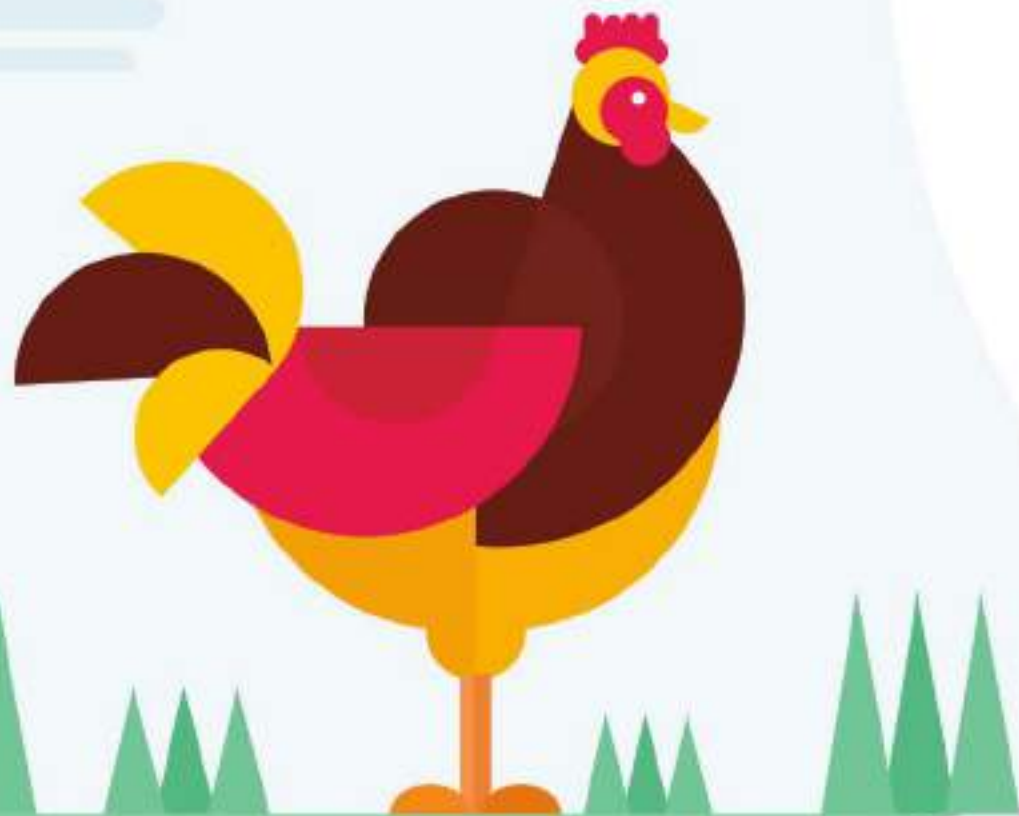




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16th Poultry

Kn**wledge**
Day 26 NOVEMBER

**SHAPING
THE FUTURE**
OF INDIAN POULTRY SECTOR

Why is proper manure management important?



Handling problem

- Storage and transportation issues
- Additional cost for disposal



Smell, biosecurity issues

- Diseases spreading from one farm to another
- Uncontrollable spread of AI due to insufficient manure treatment



Major environmental impacts

- Valuable nutrients runoff (NPK)
- Water contamination
- Greenhouse gas emissions



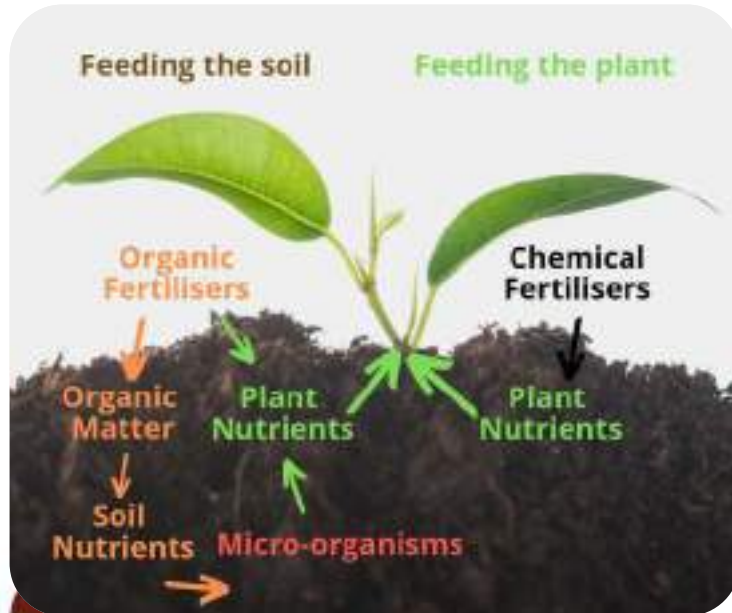
Authority Enforcement

- Awareness and proper handling knowledge



Long-term effects of intensive agriculture

The high use of synthetic fertilizers leads to nitrogen and phosphorous runoff, contributing to **water pollution** and **eutrophication in the ecosystem...**



Biodiversity loss



Overuse of pesticides



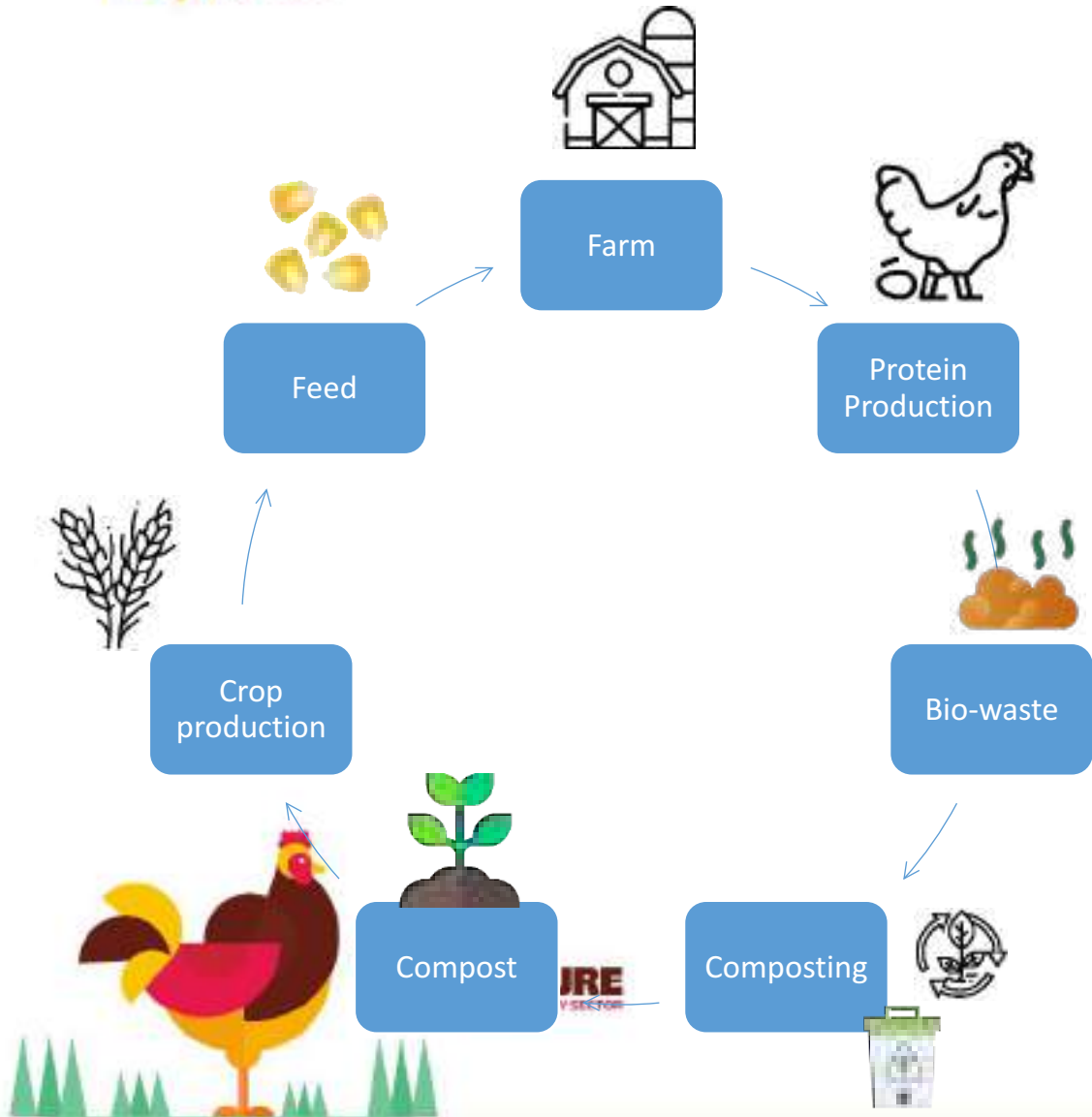
Soil degradation



Water scarcity



Circular Economy & Sustainable Farming

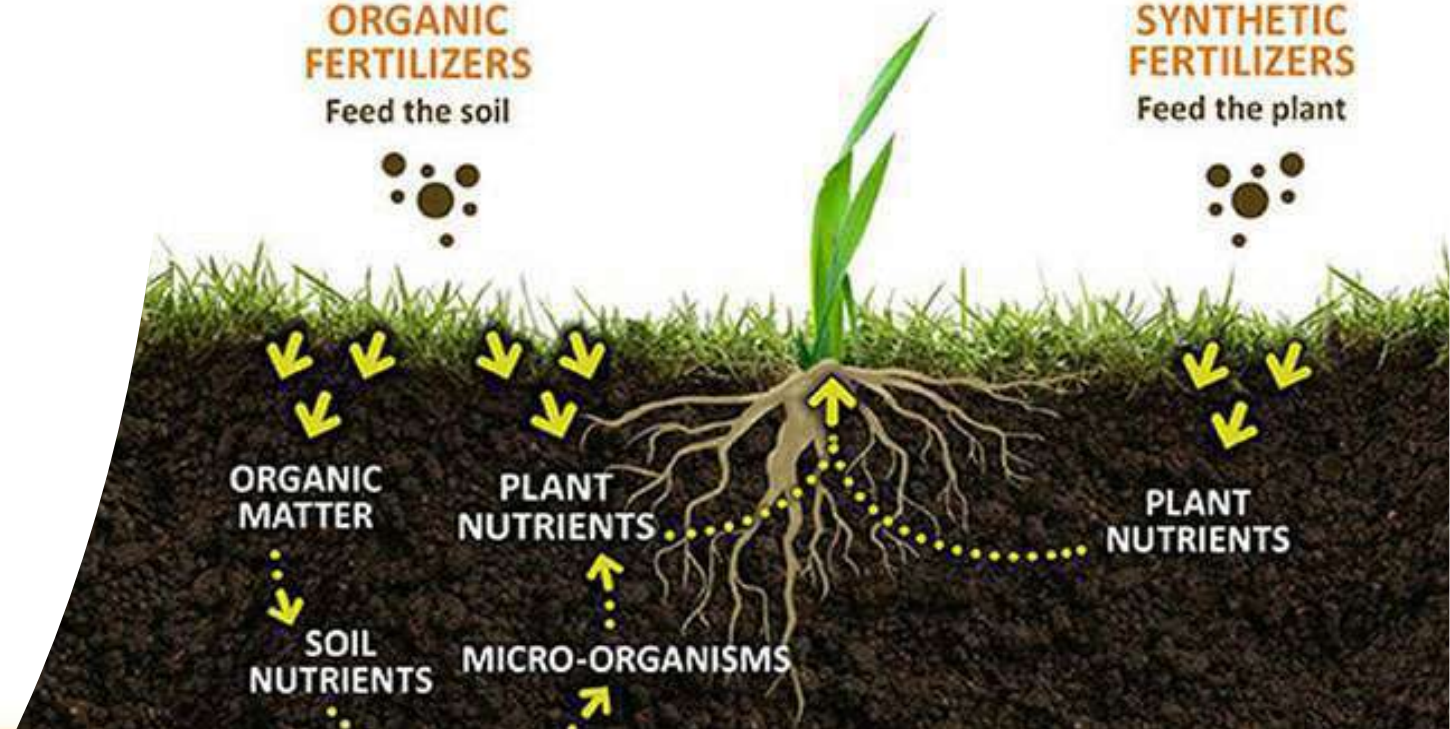


MANURE IS NOT
JUST WASTE.
IT'S A **SOURCE OF**
SOIL AMENDMENT

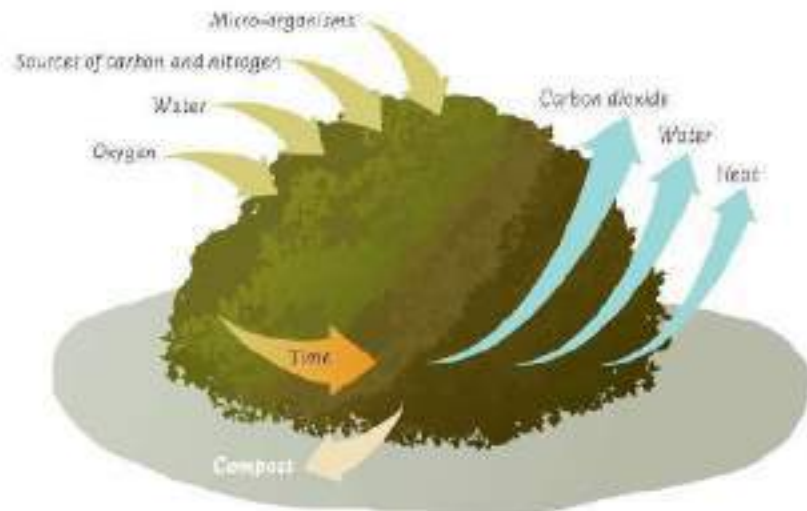


ORGANIC FERTILIZERS
Feed the soil

SYNTHETIC FERTILIZERS
Feed the plant



What is composting?



Composting is a biological decomposition of organic materials by **aerobic bacteria** under oxygen-rich conditions.

| Important factors for efficient composting:



1) Optimum Moisture content (or Dry matter content):
Input MC 55 – 65 % (DMC 35 – 45 %)



2) Aerobic fermentation:
Supply of oxygen



3) Temperature (core mass):
60 – 70 °C



Types of composting



1. Traditional Windrows

- Open Manure piles arranged in rows
- Requires agitation frequently using a front end loader.
- Low initial investment
- Large footprint required
- Long processing time (weather dependent)
- Odours are difficult to manage.
- Fly infestations will occur



Types of composting



1. Horizontal Composters

- Mostly Open Manure piles in rows or semi closed.
- Mechanical agitators required to continuously agitate.
- Moisture adjustments are required. Saw dust or other materials.
- Medium investment since concrete construction, building and agitators are required.
- Long processing time (weather dependent)
- Odours are difficult to manage.
- Fly infestations will occur



Types of composting

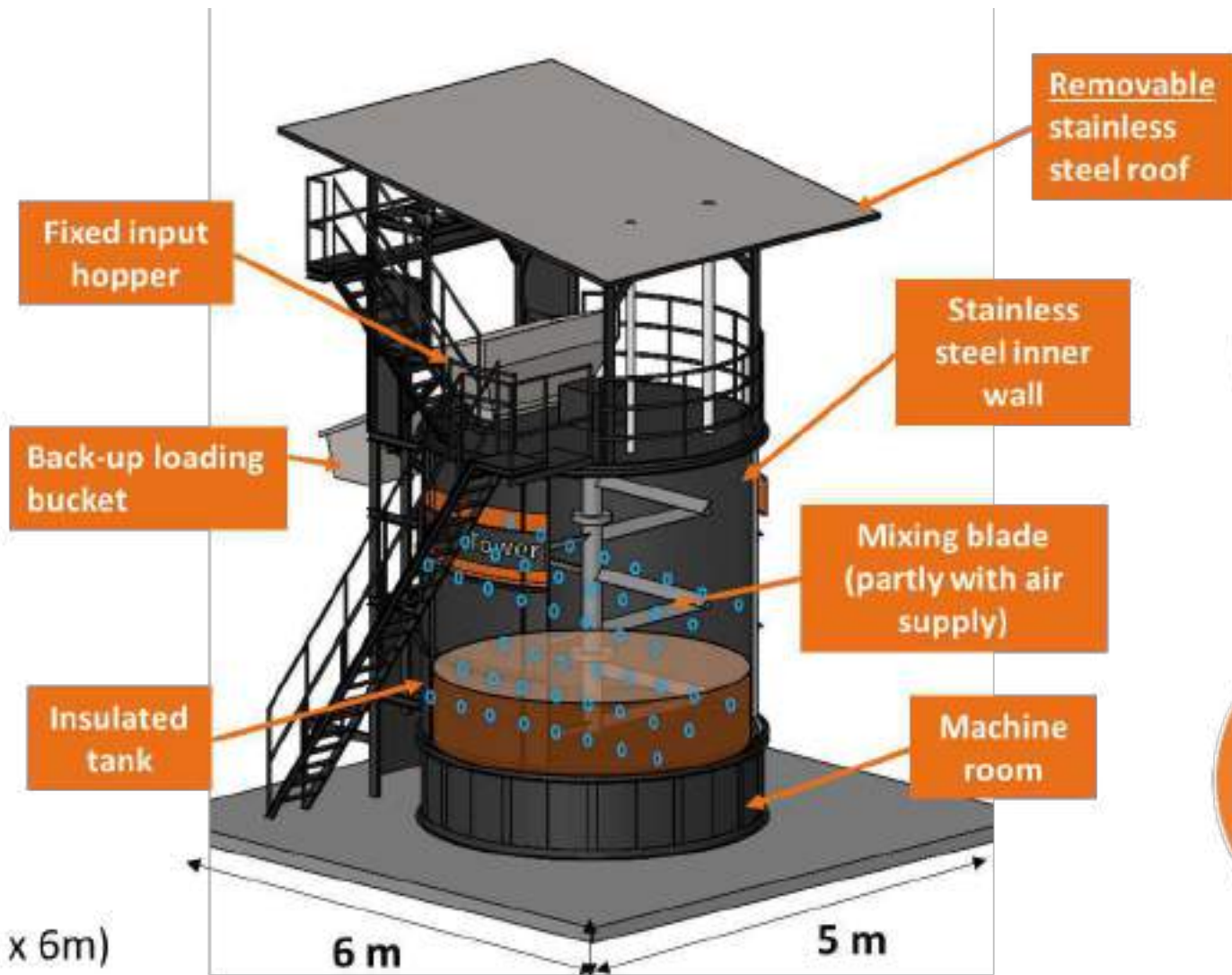


1. Invessel type Composters

- Enclosed vertical system
- Aggitators and blowers continuously running
- Mositure adjustments are not required. Everyday add manure and withdraw compost.
- High initial cost.
- Short processing time (not weather dependent)
- Odours are easy to manage.
- Fly infestations will not occur
- Bacterial heat production sustained by tank insulation



9.1 m (w/ roof)
8.5 m (w/o roof)



Modular

Small Footprint







30 m² footprint (5m x 6m)

1 m height



Thermal Inactivation of Pathogens

- **Maintaining a temperature of 60°C for more than an hour** can kill disease-causing pathogens including salmonella and E-coli.
- Final products are pathogen-free and safe to use

Pathogen	Animal	Inactivation Temp. (°C)	Time (min)
E. coli		55°C	60
		60°C	20
Salmonella		55°C	60
		60°C	20
Listeria		55°C	12
		60°C	3
African Swine Fever (ASF)		60°C	20 - 30
Avian Influenza		60°C	30
Swine Vesicular Disease (SVD)		60°C	15



Optimal temperature for composting

- High Temperature (60-70°C)
- Water evaporation
- Pathogen elimination



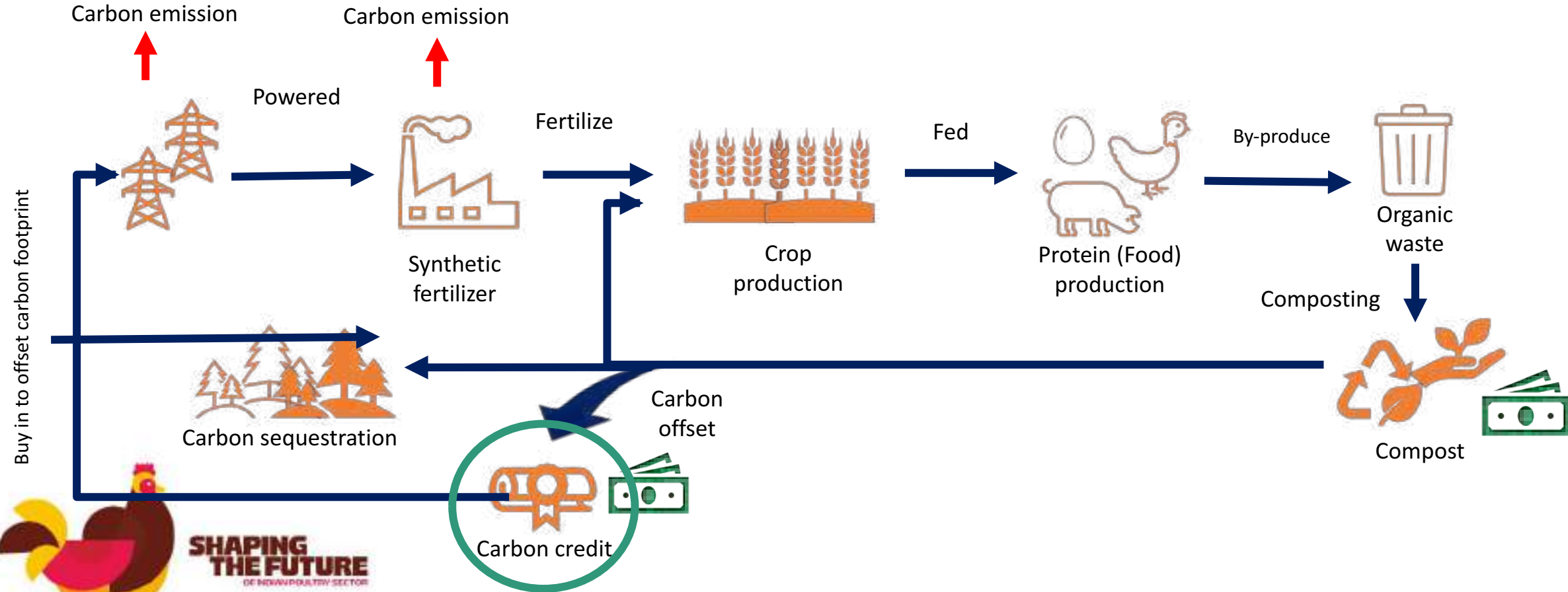
Operation Video



Layout suggestion with compost storage warehouse



Building Circular Economy

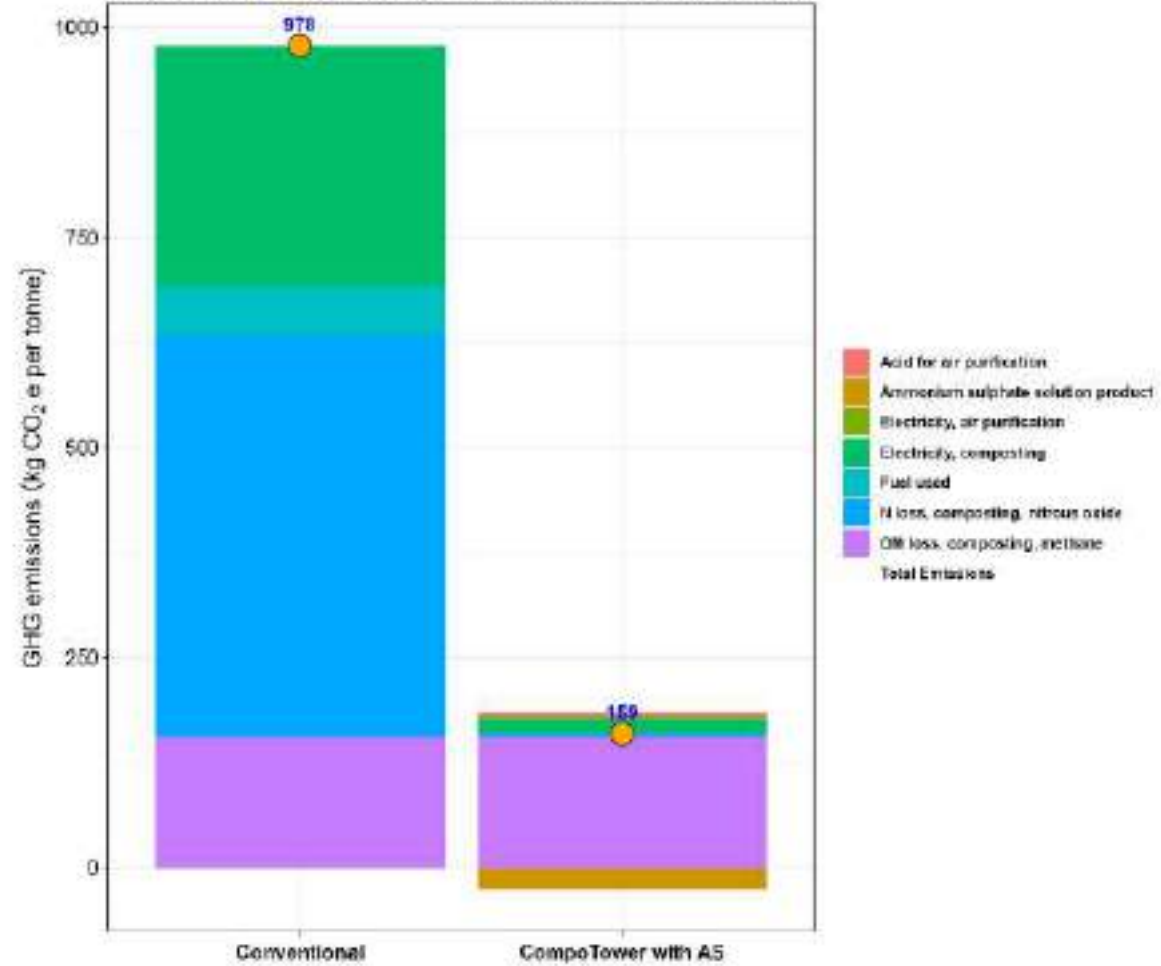


LCA Result



GHG emissions of compost from poultry manure by Sources

The reported emissions were calculated for the Composting and Air Purification stages.





Thank you for
Your attention!

HATCHERY House

BREEDER House

DISINFECTION Room

MAIN OFFICE

PULLET HOUSES

LAYER HOUSE

BROILER House

COTAPDTOWER

EGG Room

PELLETBOX

AIRCLEANER

MANURE Storage Bin

OPTIPLATE / OPTISEC Room