

SEMINAR ON

AGRICULTURAL WASTE MANAGEMENT



BY

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M-TECH 1ST YEAR (ENV)

Guided By

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INDEX :-

- 1) Meaning of agriculture and waste management.
- 2) Management process
- 3) Types of agricultural waste
- 4) Treatment process
- 5) Concerns about agricultural waste management
- 6) Benefit of agricultural waste management
- 7) Implementation waste management
- 8) References

AGRICULTURAL WASTE MANAGEMENT

Agriculture :-

- Agriculture is the largest contributor of any resource sector, to the economy.
- It is also a large generator of waste materials.
- Agriculture is also called as farming which is the cultivation of animals, plants, fungi, and other life forms for food, fiber, biofuel, drugs and other products used to sustain and enhance human life.

Agricultural waste :-

Agricultural waste is composed of organic wastes (animal excreta in the form of slurries and farmyard manures , spent mushroom compost , soiled water and silage effluent)

Include :-

- Natural waste
- Animal waste
- Plant waste

- **Field Wastes**

- Weeds
- Straws



- **Animal Wastes**

- Animal Dung
- Dead Bodies

- **Agro-Industrial Wastes**

- Sugar cane: Molasses, Peels



Waste management :-

- If wastes are not properly handled they can pollute surface and groundwater and contribute to air pollution.
- The proper management of waste from agricultural operations can contribute in a significant way to farm operations.
- Waste management helps to maintain a healthy environment for farm animals and can reduce the need for commercial fertilizers while providing other nutrients needed for crop production.
- The waste which is reduce , recycle and make it usable for different purpose is a waste management.

MANAGEMENT PROCESSES

- Source
- Generation
- Collection
- Transportation
- Treatment processes
- Disposal

Generation:-

- India is one of the richest country in agricultural resources.
- Presently in India, annually 350 MT are organic wastes from agricultural sources.
- The major quantity of solid waste generated from agricultural sources are sugarcane baggage, paddy and wheat straw and husk, waste of vegetables', food products, tea, oil production, jute fibres, groundnut shell, wooden mill waste, coconut husk, cotton stalk, etc.

Collection :-

- Waste like fruit and vegetable waste are collected from houses called domestic waste
- Waste collected from road street or side .
- Collected waste like dry refuse and green waste , animal dung from agricultural field.

Transportation process :-

- Waste collected from the side of roads , agricultural field all are transported to dicomposed site and for further treatment by trucks , trailers , carts.
- Different types of waste are collected and then transported for further treatment and the waste which is not used is directly disposal to the sanitary land.
- Waste are not burn in open air so it is then transported to incineration.



Straw and stubble waste



Green waste



Dry waste from farm



Roadside and vegetable market waste



Treatment process :-

Various treatment process are performed on agricultural waste are as follows :-

- When dealing with agricultural waste , we must follow health and safety regulations .
- We should provide written instructions for storing and disposing of each type of waste we produce.
- We must dispose of waste if we have determined that we can not use prevention , preparation for reuse , recycling or any other recovery method.

Treatment process :-

- Composting
- Recycling
- Incineration

COMPOSTING :-

Composting is a method in which organic matter present in agricultural waste is decomposed by aerobically / anaerobically through a biochemical process and converted into humus .



Composting is divided into-

- Three step operation:
 1. Preparation of agricultural waste
 2. Decomposition
 3. Product preparation & marketing

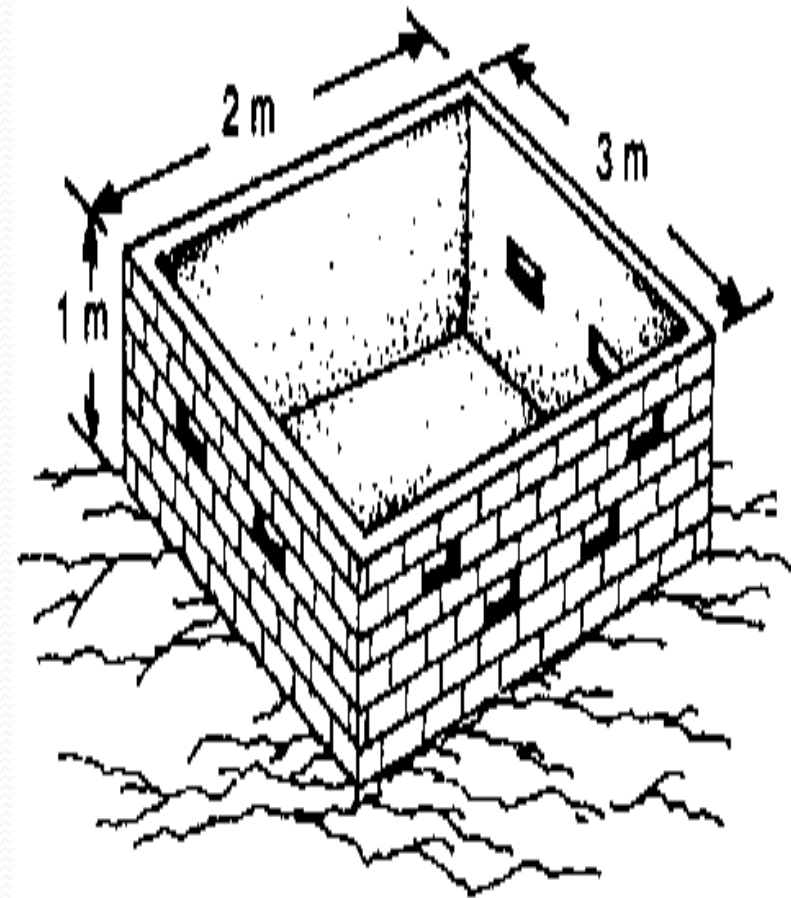
Preparation of agricultural waste :-

- Shall be free of material that is not produced in agricultural field.
- Shall be reasonably free of dirt , soil and visible surface
- Shall be arranged so that it will burn with a minimum of smoke.

Decomposition :-

Waste is decomposed by three way-

- Nadep system
- Vermiculture decomposition
- Anaerobically decomposition





Vermi compost Unit



Anaerobic digester

Landfill :-

- A landfill site (rubbish dump or dumping ground) is a site for the disposal of waste materials by burial
- have been most common method
- Some landfills are also used for waste management purposes, such as sorting, treatment, or recycling

Sanitary landfill

- Waste is compacted
- & covered with soil
- When disposal site has reached its capacity-a final layer of 2ft is applied

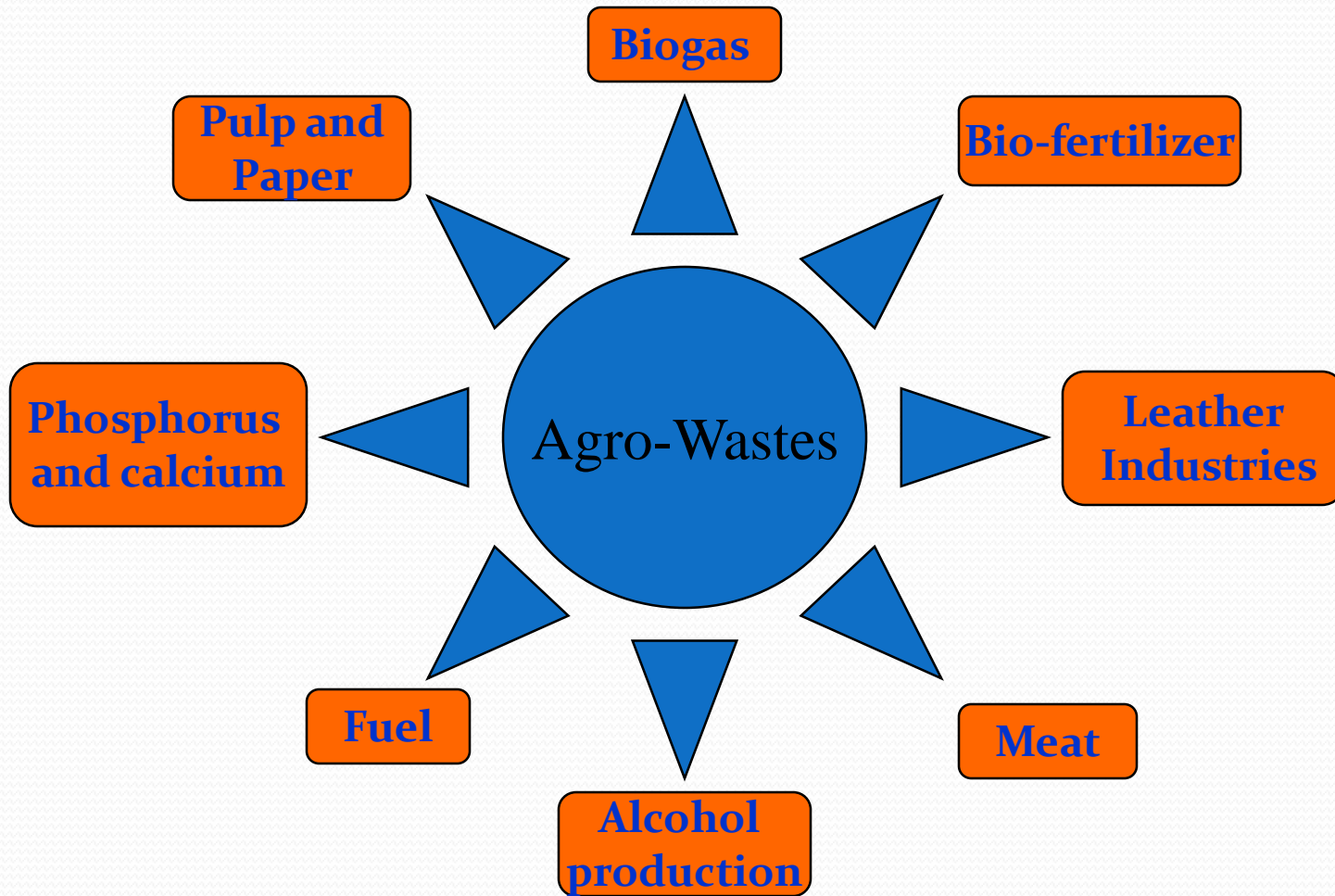
Sanitary land fill



Recycling

- Process to change waste into new products
- Prevent waste of potentially useful materials, reduce the consumption of fresh raw materials, reduce energy usage
- Reduce air pollution from incineration and water pollution from land filling
- Lower greenhouse gas emissions
- Key component of modern waste reduction and is the third component of the "Reduce, Reuse, Recycle"

Management of Recycling agro-wastes



Biogas Production



Animal Dung



Biogas plant



Fuel



Light



Biofertilizer

Bio-fertilizers production



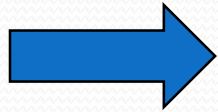
Agro-wastes



Biogas



Vermiculture



**Dugging with various
microorganisms
Cyanobacteria and other
nitrogen fixating MO**



Leather and Meat Industry



Old animals



Slaughtering



Slaughtering



Leather



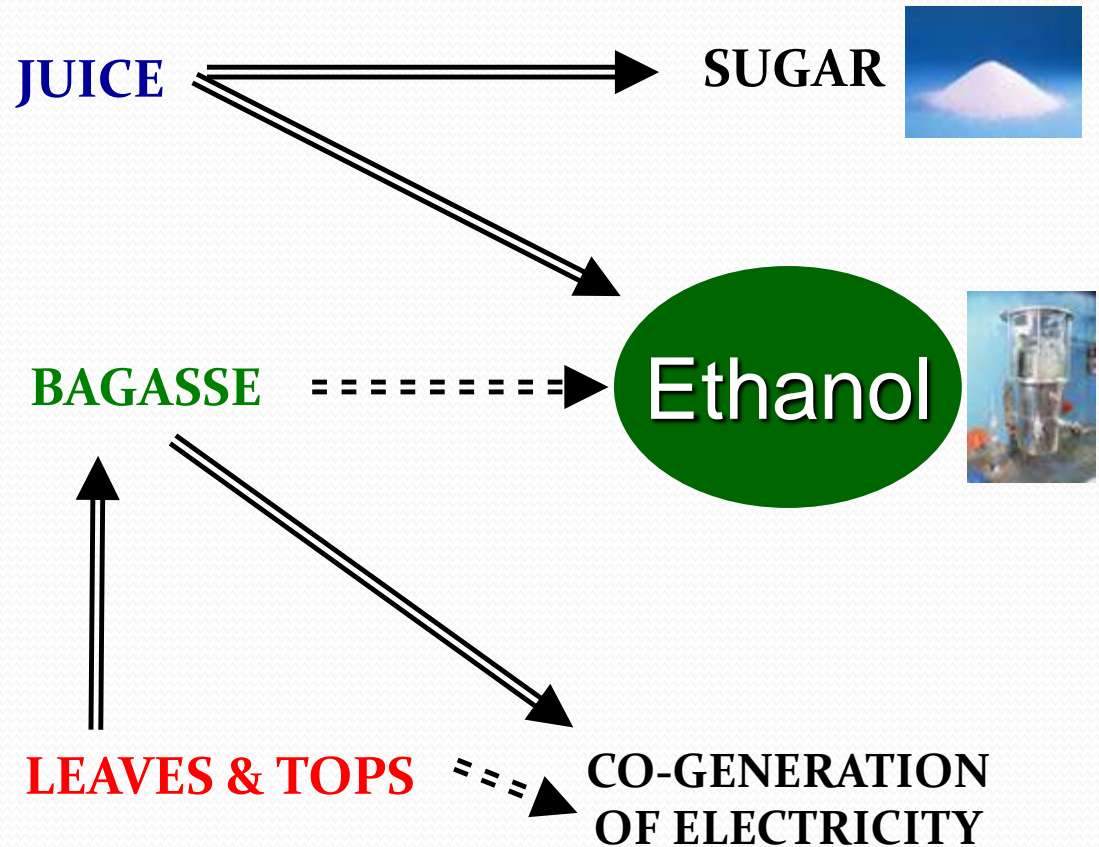
Meat



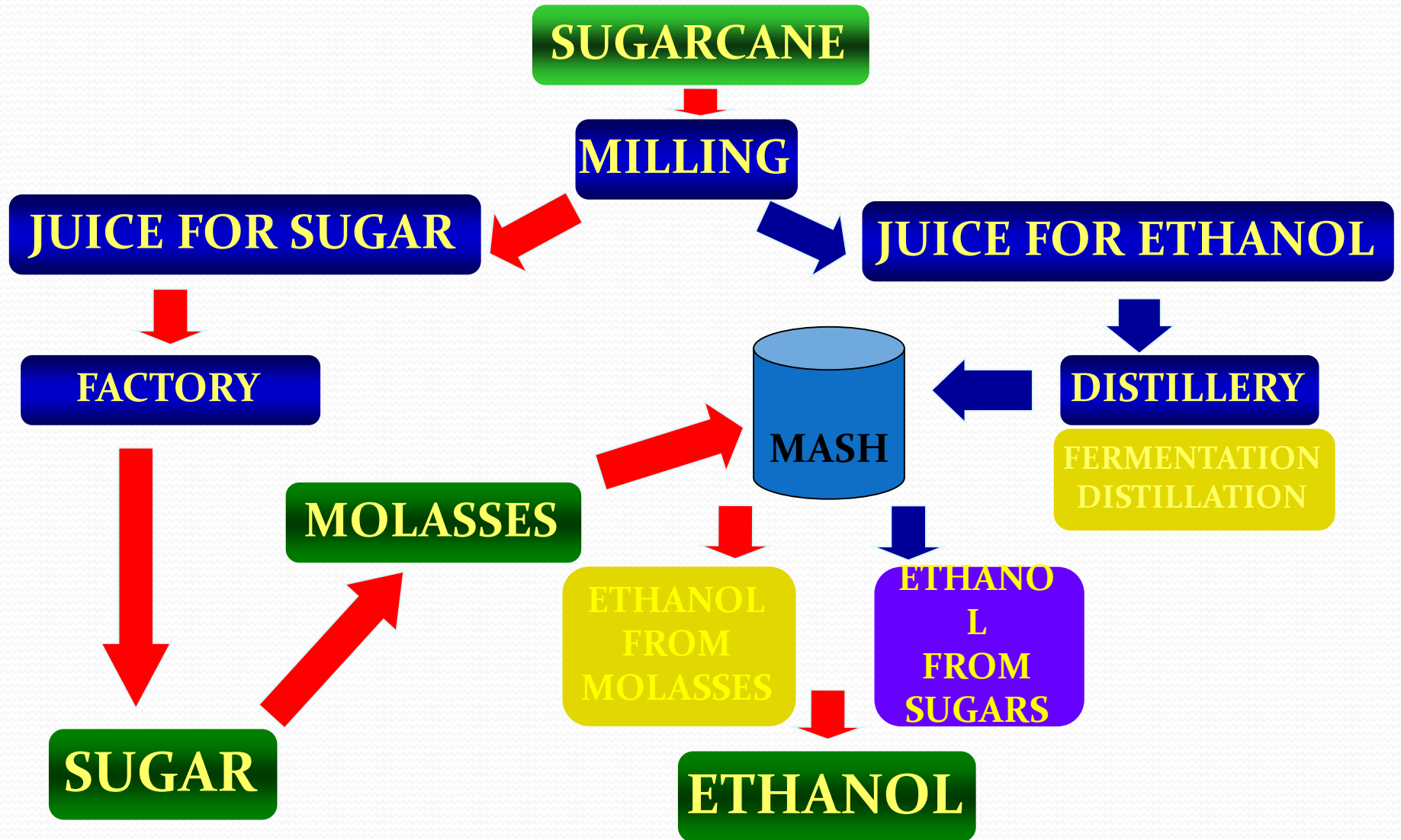
Bone utilization



Sugarcane – Source of Green Energy



Ethanol from Molasses and Juice



Straws and peals used for Pulp and Paper Production



Straws and peals



Paper



Wood/ Ply



Pulp

Incineration :-

- Incineration is a modern and most hygienic method of disposal of dry refuse.
- It is widely used in western countries , like , USA , UK , etc. and in INDIA this it is gradually popular especially for large cities.
- The method consist of burning the dry refuse in incinerator.

Uncontrolled incineration



Controlled incineration



Concernes about agricultural waste management :-

- If not managed properly, agricultural waste can pollute the environment.
- The degradation of water quality can impact adjacent waterways and groundwater both onsite and offsite.
- This degradation reduces the ability of these resources to support aquatic life and water for human and animal consumption.
- Nitrates can found in fertilizers and agricultural waste runoff, can seep into groundwater.
- Well water contaminated with nitrates is hazardous to humans, as it results in oxygen depletion in the blood.

Drawbacks of Improper Agro-Waste Management



Global warming



Field filling



Mosquito generated diseases

Environmental Pollution in Craft Villages

Soil pollution
and degradation



Solid wastes in Lacquer village



Solid wastes in paper recycling
village

Loss of
cultivation
capacity

Benefits of agricultural waste management :-

- The reuse of animal waste in farming operations can reduce the quantity and hauling costs of commercial fertilizer.
- The contribution of animal waste increases the organic matter content of soils, which increases nutrient availability for crops and improves the water holding capacity.
- Good waste management reduces the instances of well water contamination and minimizes surface water pollution.

Thank you!
James!

