Organic Waste

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AGENDA

- Objective
- Introduction
- Organic Waste Recycling
  - Natural aeration
  - Forced aeration
  - Passive aeration
- Co-Composting
- Conclusion
OBJECTIVE

The main objective of this presentation is to develop a suitable sustainable organic waste recycling system to approach organic farming.
INTRODUCTION

• The problem of farming in Egypt is very challenging because of:
  – Use of chemical fertilizer
  – Use of pesticides
  – Unhealthy & low quality farming products
  – Soil degradation
  – Very expensive

• The solution is to replace (totally or partially) the chemical fertilizer to organic fertilizer and approach organic farming
Organic Waste Recycling

• Organic waste should be treated with special attention because it may attract all types of flies and mosquitoes.
• Burning organic waste may cause air pollution and health hazardous
• Recycling of organic waste can take place through Aerobic or Anaerobic Fermentation
• Recycling of organic wastes can provide millions of job opportunities (green jobs)
Organic Waste Recycling (Cont’d)

1. Aerobic Fermentation
   - Composting,
     a) Natural Aeration
     b) Passive Aeration
     c) Forced Aeration
   - Vermi Composting
   - Co-Composting

2. Anaerobic Fermentation
Time-temperature patterns for composting: general (top) and typical (bottom).
Windrow composting with an elevating face windrow turner.

Bucket loader

Windrow-turning machines

Typical windrow shapes and dimensions.
Turning windrows using a bucket loader.
Push-type, self-powered (diesel engine) rotary drum with flails

Tow-behind, PTO-powered rotary drum with flails

Tractor-assisted windrow turners.
Aerated static pile layout and dimensions.
Individual cell

Cover layer of finished compost

Pile 1

Old cell being removed

Pile height $H = 5-8$ feet

Cell width $W = H$

1/3 $W$ to 1/4 $W$

Pile 2

Newly constructed cells

Pipe spacing $H$

Extended aerated static pile layout and dimensions.
Passively aerated windrow method for composting manure.
Composting Plant
CONCLUSION

• Getting rid of organic waste constituted a severe problem:
  – Depletion of resources
  – Pollution
  – Loss of job opportunities

• Organic waste recycling proved to be the most feasible for the Egyptian community since it is the most economic choice in four different levels.
Thank you