

# Planning and setting up a composting operation, including business and operational models

**Matt Cotton**

Principal Consultant/Owner  
Integrated Waste Management Consulting

1

## **Planning and Setting Up a Composting Operation**



**A Brief Review of the Needs and Options**

2

## **Fundamental Questions:**

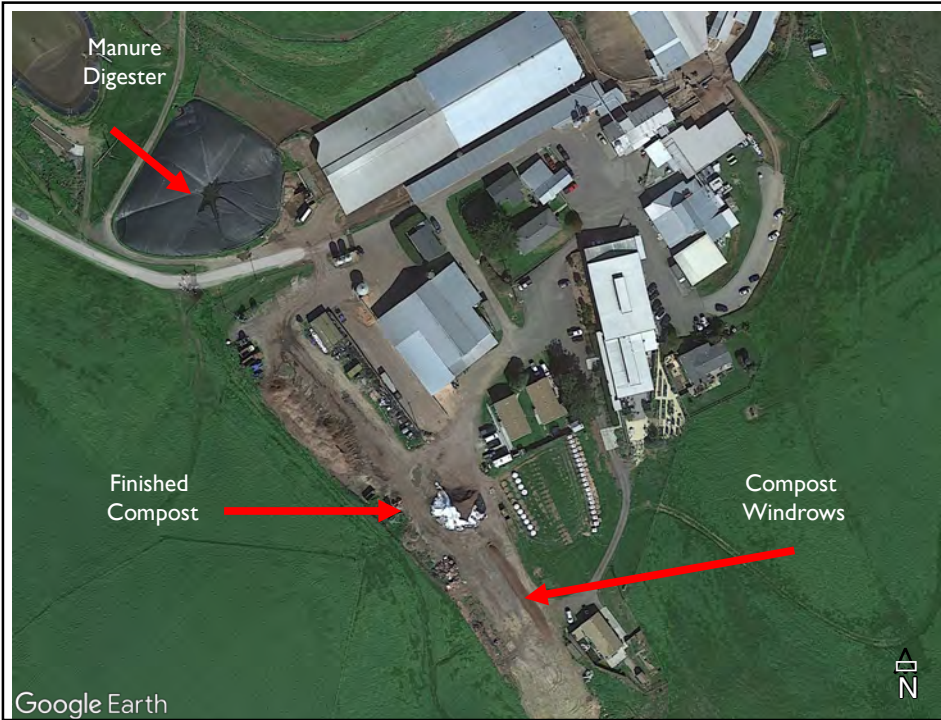
- WHAT are you going to compost?
- HOW MUCH?
- WHO is going to compost it?
- WHERE are you going to compost it?
- WHAT are you going to do with the compost?

3

## **Site Selection EVALUATION**

- Is it even possible to develop a compost operation on your farm?
- How many cubic meters can be processed?  
(How many cubic meters do we have?)
- Can a good business case be made?
- Do we have enough space?
- What equipment can be used?

4



**Giacomini Dairy**

Pt. Reyes Station, CA

Working dairy

Cheese-making

Dairy solids used for bedding

Manure flushed to digester

Solids used for compost

Methane runs a generator that powers dairy and cheese plant

5



**Burroughs Farm**

Organic Dairy

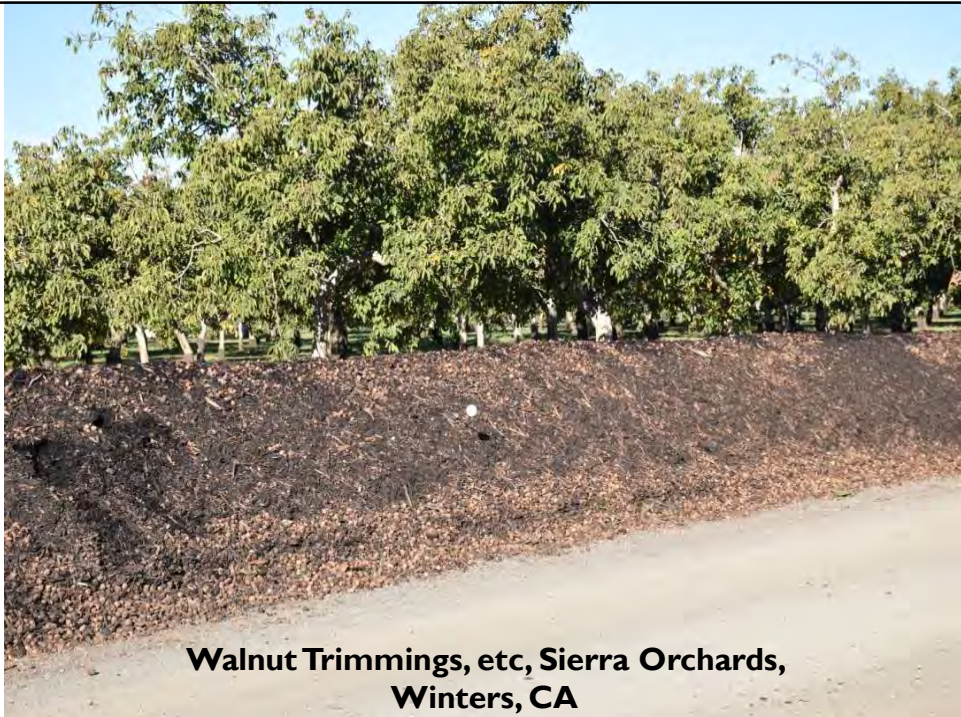
Organic Almonds

Regenerative Practices

Almonds, chickens (eggs & meat), sheep, beef, dairy, etc.

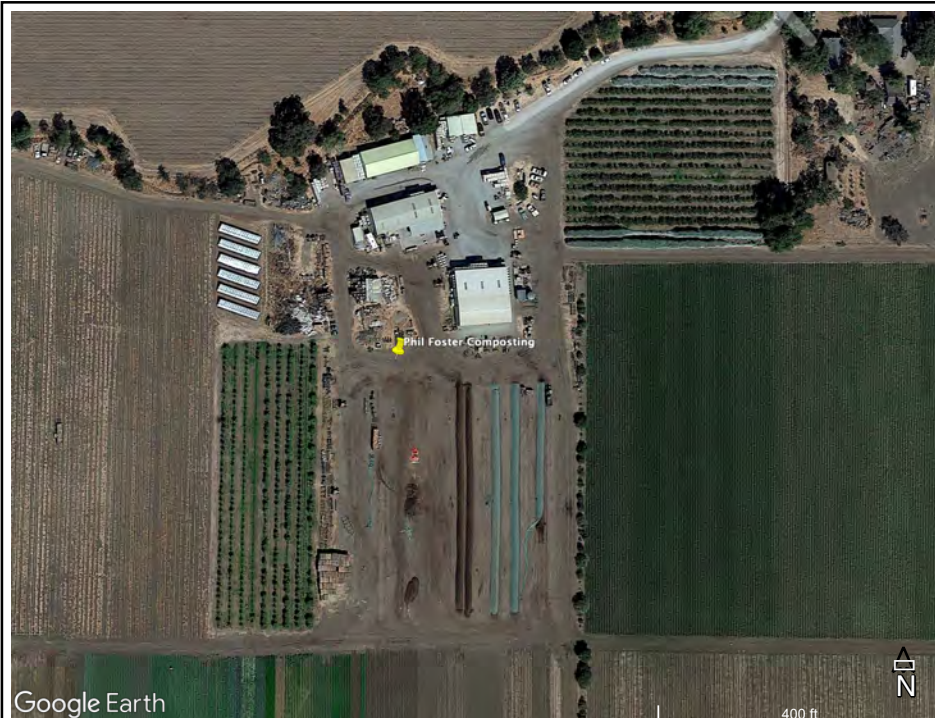
Roughly 3 hectares

6



**Walnut Trimmings, etc, Sierra Orchards,  
Winters, CA**

7



**Phil Foster Ranch**

Mixed vegetables

Wheat straw for bulking, also adds manure, etc.

Simple windrow

All used on farm

Roughly 1.5-  
hectares of 100-  
hectare farm

8



## **Diestel Turkey Ranch**

Major Turkey Farm

Manure, feathers, wood

Simple windrow process

8 Hectares off-site composting

9

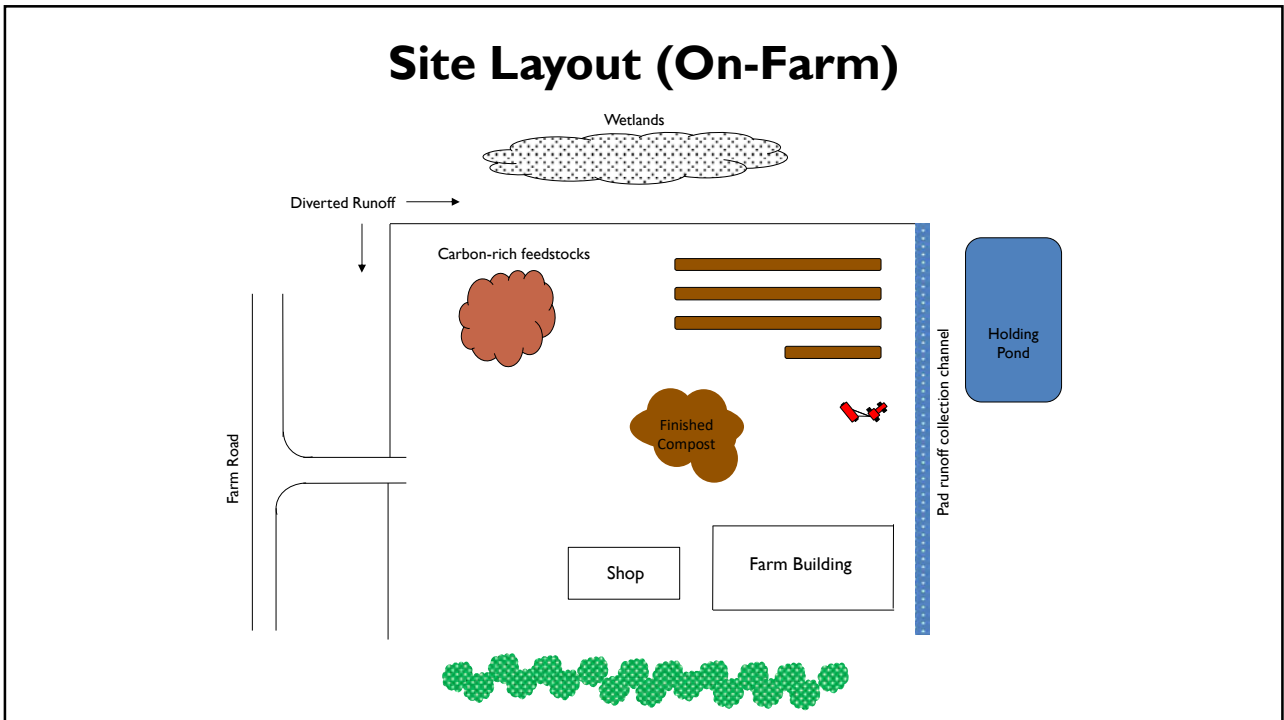


Photo Courtesy Karl Hammer, Vermont Compost Company

10



11



12

## Layout Objectives

- Minimize: material handling, system delays, backtracking, bottlenecks, *inefficiency*
- Maintain flexibility
- Separate feedstocks, finished products
- Ease of housekeeping and maintenance
- Control access and security
- Every time you “touch” costs money

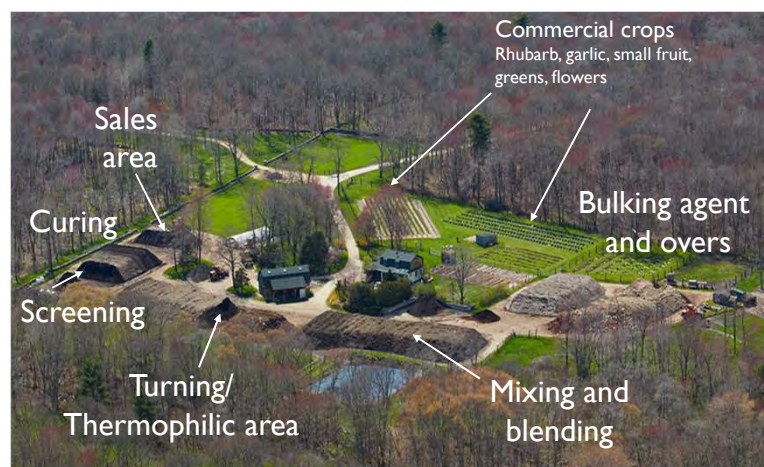
13

## Space – The First Frontier

Need room (area):

- To compost
- To do other things
- For storage
- To move around
- For access and activities
- To handle water
- To breathe
- To manage inventory

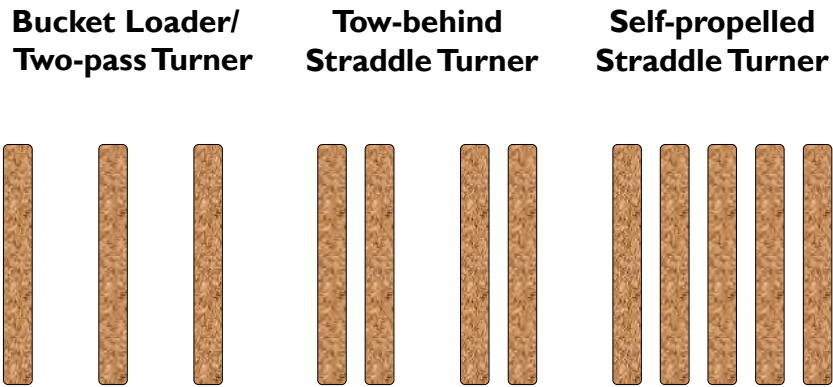
Earth Care Farms, Rhode Island



12-hectare farm / 1.2 hectares for compost

14

## Effect of Turner Type on Space



15

## “Compost Technology”



Static pile



Small windrows with covers



Forced aeration

16



17

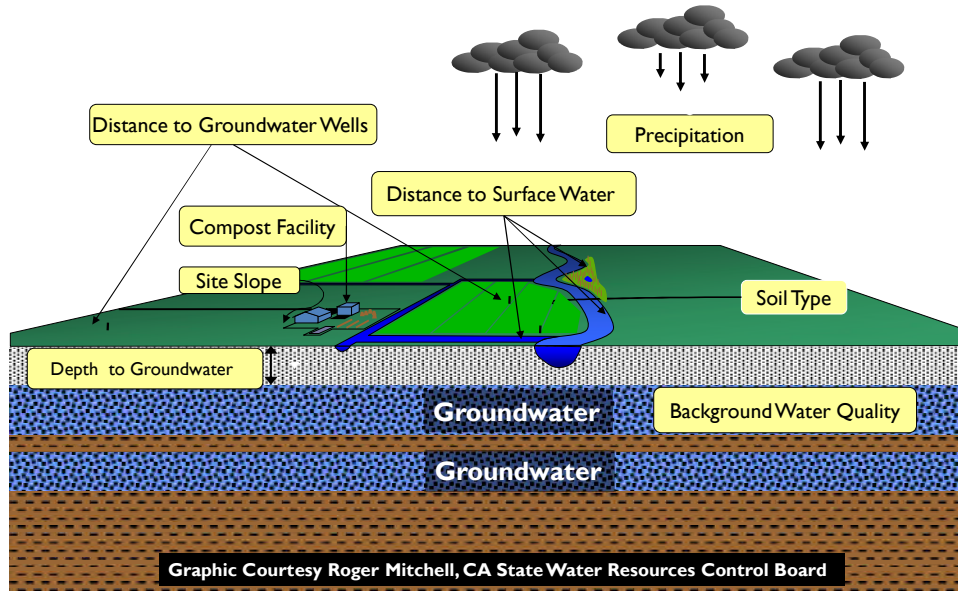
## What now?



Windrow composting is largely a matter of determining when and how often to turn (in addition to managing moisture).

18

## Factors That Influence Potential to Impact Water Quality



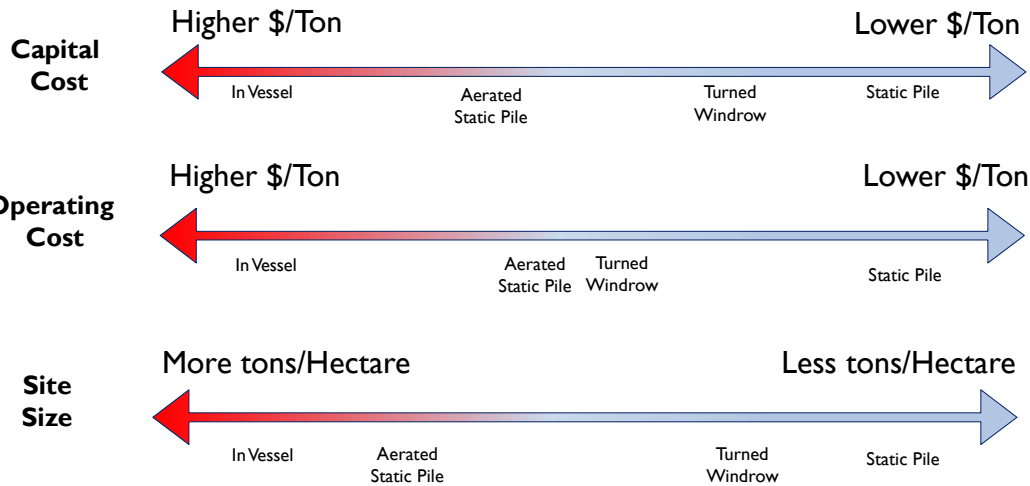
19

## Site Design and Management

- **Prevent run-on**
  - Berms or swales or structures
- **Direct runoff**
  - Away from composting feedstocks if possible
  - Minimum of 2% slope
  - To infiltration or storage ponds
- **Maintain firm, smooth pad surface**
  - Perform inspections and repair regularly
- **Control features**
  - Berms, ditches, pads, ponds, etc.
- **Remove sediment from runoff**

20

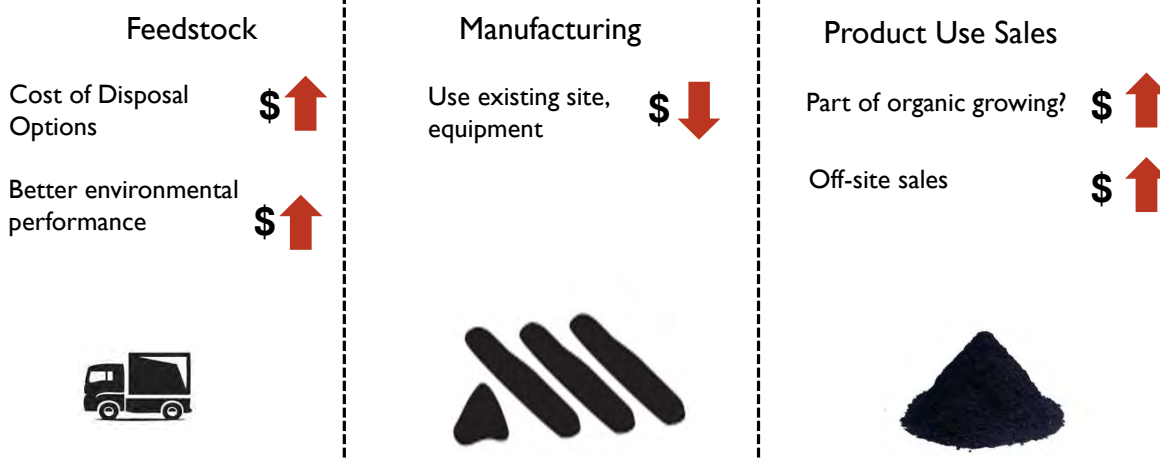
## Composting Comparisons



\*YKMV

21

## On-Farm Compost Equation



22

|               | <b>3,000 TPY</b>  | <b>30,000 TPY</b>               |
|---------------|-------------------|---------------------------------|
| Approach      | Small static pile | Turned windrow                  |
| Land          | > 1 hectare       | 5 hectares +                    |
| Labor         | 1 part-time       | + 3 - 5 people                  |
| Equipment     | Tractor           | Tractor<br>Turner<br>Dump truck |
| Permitting    | Maybe not         | Most likely                     |
| Capital Cost* | Minimal           | \$100,000's to<br>\$1,000,000s  |

\*not including land costs

23



## Other cost considerations

- Can we use existing equipment?
- Do we have enough bulking agent?
- Do we need specialized equipment?
- Do we have adequate staff?
- Do we have to improve the site?
- Are permits required?

24

# Site Development Checklist

- Build a Team
- Identify potential sites
- Develop a cost estimate
- Identify end users, customers, or fields for application
- Investigate planning approvals (if needed)
- Consider operator training
- Purchase equipment
- Set up the site
- Identify staff responsibilities
- Start small**
- Identify monitoring responsibilities

