University of Idaho Extension

APPROACHES TO COMPOSTING SAFELY

Making, purchasing and using compost in accordance with the Produce Safety Rule

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University of Idaho Extension, Southern District

Made in collaboration with the Idaho State Department of Agriculture Produce Safety Program

IDAHO STATE DEPARTMENT OF AGRICULTURE

These resources were made possible by Grant Number 5U18FD005916 from the Idaho State Department of Agriculture. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the FDA.

WEBINAR HOUSEKEEPING

Close all other programs running on your computer

Check your sound – problems with clarity, speed, etc. switch to the phone

Call-in number provided in the welcome email

Mute computer sound when using phone

Type in questions for speakers (or for help with viewing & sound) into question box

Handouts are available to download on your computer

This webinar and Q&A will not discuss COVID-19-related produce safety questions

OBJECTIVES

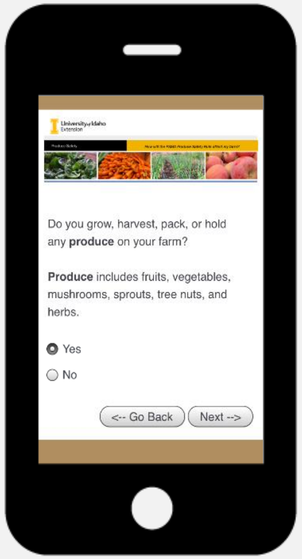
After this webinar, you should have a better understanding of:

- How Biological Soil Amendments of Animal Origin (BSAAO) and their use are defined in the Produce Safety Rule (PSR)
- How to determine whether a BSAAO is considered treated or untreated according to the PSR
- Thermophilic composting practices that comply with the PSR
- Documents related to the procurement, processing and application of BSAAOs on your farm
- Additional resources to assist you

FOOD SAFETY MODERNIZATION ACT

THE BASICS

- The Food Safety Modernization Act, or FSMA for short, was signed into law on January 4, 2011
- Gives the FDA the authority to regulate food from farm to fork
- First sweeping food safety regulation overhaul in the United States since 1938
- The Produce Safety Rule (PSR) establishes science-based minimum standards for safe growing, harvesting, packing and holding of fresh fruits and vegetables for human consumption
- All farms foreign and domestic must comply with the Produce Safety Rule and other aspects of FSMA where applicable
- In Idaho, Idaho State Dept. of Agriculture holds regulatory authority, conducts inspections of covered farms, verifies exemptions
- Not all farms are subject to the Produce Safety Rule (PSR)
- http://bit.ly/psrdecisiontool **will help you determine coverage**



WILL YOUR FARM BE COVERED?

SUBPART F (§§112.50-60)

BIOLOGICAL SOIL AMENDMENTS OF ANIMAL ORIGIN AND HUMAN WASTE

Determining the status of a biological soil amendment of animal origin, handling, conveying, and storage of soil amendments, prohibitions for use of human waste, acceptable treatment processes, microbial standards, application requirements and intervals, recordkeeping requirements.

AMENDMENT RISK TABLE

	Least			Most
Type	Non-Biological (e.g., elemental)	Non-Animal Origin	Animal Origin	Human waste
And where contamination is known to exist, the likelihood of contamination is a function of the following factors:				
Treatment	Pasteurized (heat, chemical, physical)	Composted		Untreated/Raw; Partially treated; Re-contaminated
Application timing	Further from harvest		Close to harvest	
Application method	No contact with harvestable portion	Effort made to minimize contact		Contact with harvestable portion

- David T. Ingram, Division of Produce Safety Fresh Produce Branch Division of Produce Safety, CFSAN

TREATED VS UNTREATED

WHAT'S THE DIFFERENCE?

A BSAAO is considered **treated:**

- If it has been processed to completion to reduce microorganisms of public health significance.

May be used on covered produce crops at any time during the growing season.

A BSAAO is considered **untreated:**

- If it has not been processed, has become contaminated, has ben combined with an untreated BSAAO.
- Is or contains a component of untreated waste that may be contaminated or has been associated with foodborne illness.

May NOT be used on covered produce crops at any time during the growing season.

WHAT IS TREATMENT?

A scientifically valid controlled **physical** (like heating), **chemical** (like high alkaline pH), or **biological** (like composting) process or a **combination of the above** that has been validated to satisfy the microbial standard set by the rule for *Listeria monocytogenes, Salmonella* species, and *E. coli* O157:H7.

WHAT ABOUT AGRICULTURAL “TEAS?”

AGRICULTURAL TEA MAY BE CONSIDERED TREATED IF:

- Treated compost is used to brew the tea
- No untreated surface water is used
- Water used has NO detectable E. coli per 100ml
- No microbials or agricultural tea additives are used (like molasses, sugar, yeast extract or algal powder)

WHAT ABOUT VERMICOMPOST?

The PSR does not directly address vermicomposting.

Since vermicompost is generally not heat treated, it is best to use worm castings as an untreated amendment.

OPTIONS:

USE UNTREATED
TREAT IT ON FARM
PURCHASE TREATED PRODUCTS

TREATED ON FARM

- COMPOST MANURES ON-FARM USING A SCIENTIFICALY VALIDATED METHOD
- APPLY TO CROPS AT ANY TIME
- KEEP PROCESS RECORDS

UNTREATED

- DO NOT USE AT ALL
- USE ON NON-FOOD CROPS
- USE WITH APPROPRIATE APPLICATION INTERVALS
- KEEP APPLICATION RECORDS

COMMERCIALLY TREATED

- PURCHASE COMPOSTED MANURE PRODUCTS FROM A SUPPLIER USING A SCIENTIFICALY VALIDATED METHOD
- APPLY AT ANY TIME
- OBTAIN DOCUMENTS FROM SUPPLIER

USING UNTREATED MANURES

If your farm is subject to the rule and you use untreated manures or composts that lack documentation, you **should*** keep records of when and how these materials were applied, as the inspector will likely ask you how you have used them.

***this is not required but can make it easier to verify that you are complying with the PSR from the untreated soil amendment perspective.**

APPLICATION INTERVALS (UNTREATED)

FDA AND USDA CURRENTLY CONDUCTING ASSESSMENTS TO:

- Evaluate the risk of human illness associated with consuming produce grown in growing areas amended with untreated BSAAO potentially contaminated with enteric pathogens such as E. coli O157:H7 or Salmonella.
- Evaluate the impact of different agricultural and ecological conditions and certain interventions, such as use of a time interval or intervals between application of untreated BSAAO and crop harvest, on the predicted risk.

IN THE MEANTIME...

FOLLOW THE NATIONAL ORGANIC PROGRAM STANDARD (NOP)

The FDA, the regulatory body of FSMA, has not currently established an application interval for raw manure, pending further research. However, growers following the NOP requirements may continue to do so until further guidance is provided.

USDA ORGANIC REGULATIONS FOR MANURES AND MANURE-BASED COMPOST

7 CFR § 205.203(C)

Raw animal manure must be composted unless it is:

- Applied to land used for a crop not intended for human consumption
- Incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or Incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles.

120 DAYS

WAIT 120 DAYS BETWEEN MANURE OR UNTREATED COMPOST APPLICATION AND HARVEST FOR PRODUCE THAT CONTACTS THE SOIL

90 DAYS

WAIT 90 DAYS BETWEEN MANURE (OR UNTREATED COMPOST) APPLICATION AND HARVEST FOR PRODUCE THAT **DOES NOT** CONTACT THE SOIL

WHAT'S THE DIRT ON COMPOSTING?

OPTIONS FOR DOING IT YOURSELF

Farms can use any treatment process or processes that have been validated to meet the relevant microbial standard in § 112.55 without the need to test the end products.

§ 112.55 MICROBIAL STANDARD

OR, WHAT'S *NOT* IN THE FINISHED PRODUCT

21 CFR § 112.55(a)	The microbial standard is -
L. monocytogenes	Not detected using a method that can detect one colony forming unit (CFU) per 5 gram (or milliliter, if liquid is being sampled) analytical portion.
Salmonella species	Not detected using a method that can detect three most probable numbers (MPN) per 4 grams (or milliliter, if liquid is being sampled) of total solids.
E. coli O157:H7	Not detected using a method that can detect 0.3 MPN per 1 gram (or milliliter, if liquid is being sampled) analytical portion.

- David T. Ingram, Division of Produce Safety Fresh Produce Branch Division of Produce Safety, CFSAN

CURRENTLY VALIDATED PROCESSES

TURNED OR STATIC THERMOPHILIC COMPOSTING

Two scientifically validated BSAAO treatment processes that have already been validated to meet the microbial standards in §112.55(b) are codified in the Produce Safet Rule.

If your operation follows one of these two examples of a biological treatment process (i.e., turned or static composting), then you would not have to do any process validation.

THANK YOU, MARIO & DR. CHEN

Lide Chen, Extension Waste Management Engineer, University of Idaho Twin Falls Research and Extension Center

Mario E. de Haro-Martí, Extension Educator, University of Idaho Extension, Gooding County

Dairy COMPOSTING

DAIRY COMPOST PRODUCTION AND USE IN IDAHO CIS 1179

CONTENTS

NATIONAL ORGANIC STANDARDS BOARD DEFINITION OF COMPOST

The product of a managed process through which microorganisms break down plant and animal materials into more available forms suitable for application to the soil. Compost must be produced through a process that combines plant and animal materials with an initial C: N ratio of between 25:1 and 40:1. Producers using an in-vessel or static aerated pile system must maintain the composting materials at a temperature between 131°F and 170°F for three days. Producers using a windrow system must maintain the composting materials at a temperature between 131°F and 170°F for 15 days, during which time, the materials must be turned a minimum of five times.

University of Idaho Extension

The Composting Process

by L. Chen, M. de Haro Marti, A. Moore, C. Falen

INTRODUCTION

With a herd of 546,000 cows in 2009, Idaho dairies produce an estimated 15.7 million tons of raw dairy manure (feces and urine) each year. One of the greatest expenses associated with raw manure disposal is the cost of transporting it from dairies to sites where it will be applied as fertilizer. Composting typically reduces manure volume by 30 to 50%, which makes the material significantly more affordable to transport and provides many other benefits.

While many people have a basic understanding of the composting process, few people understand its complexity. Yet the better people understand the composting process, the better the decisions they can make for effective and efficient composting. This publication explains what composting is, how it happens, and how it is affected by various factors.

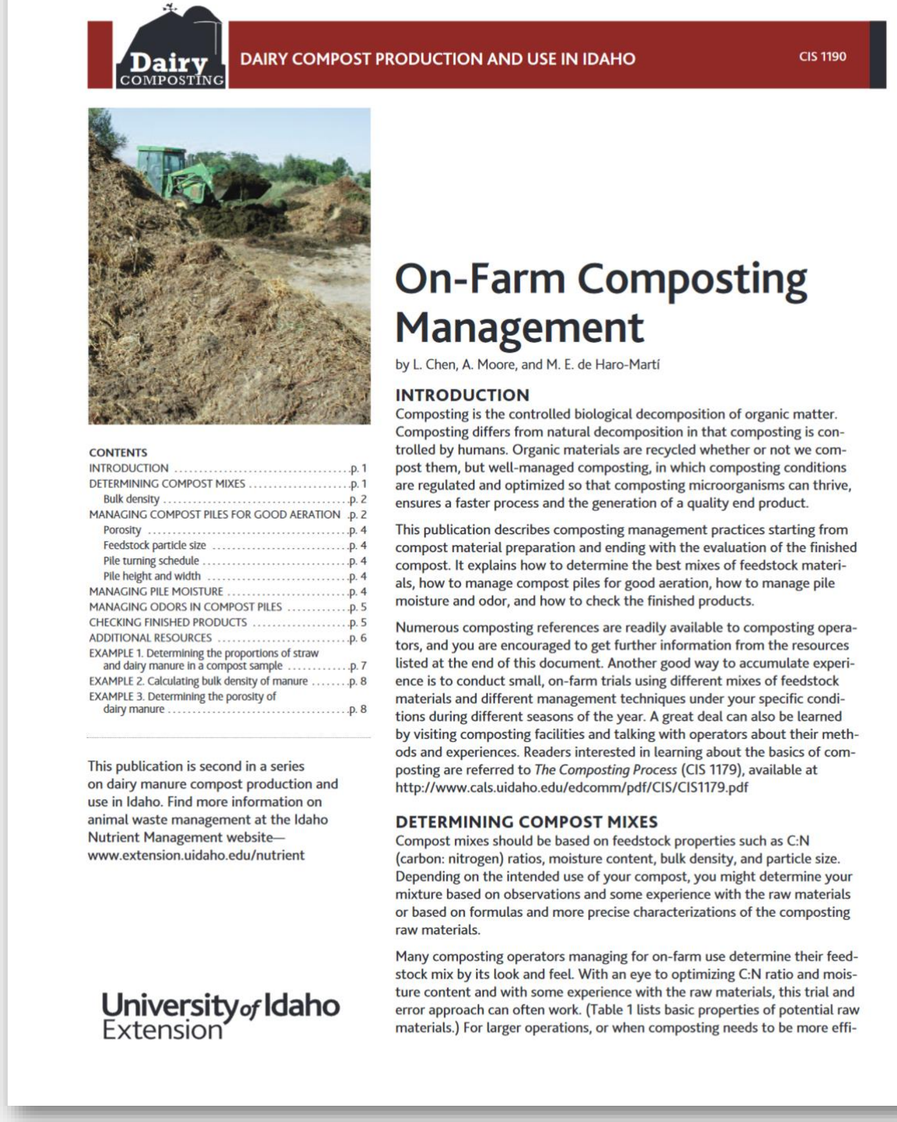
WHAT IS COMPOST AND WHAT IS COMPOSTING?

Compost is the product of the controlled biological decomposition of organic materials. More specifically, compost is the stable, humus-like product resulting from the biological decomposition of organic matter under controlled conditions. Another commonly accepted compost definition is that of the National Organic Standards Board (see at left: NOSB compost definition).

Human control of the biological decomposition process is what differentiates composting from the natural decomposition of organic matter. Organic materials are recycled regardless of whether or not we compost them, but regulating and optimizing conditions ensures a faster process and the generation of a quality end product.

HOW DOES COMPOSTING HAPPEN?

Degradation of organic wastes is a natural process and begins almost as soon as the wastes are generated. Under natural conditions, earthworms, nematodes, and soil insects such as mites, sowbugs, springtails, ants, and beetles do most of the initial breakdown of organic materials into smaller particles, thus increasing their exposure to microbial degradation. Under controlled conditions, composting operators break down large waste particles through grinding or chopping.



Dairy COMPOSTING

DAIRY COMPOST PRODUCTION AND USE IN IDAHO CIS 1190

CONTENTS

This publication is second in a series on dairy manure compost production and use in Idaho. Find more information on animal waste management at the Idaho Nutrient Management website—www.extension.uidaho.edu/nutrient

University of Idaho Extension

On-Farm Composting Management

by L. Chen, A. Moore, and M. E. de Haro-Martí

INTRODUCTION

Composting is the controlled biological decomposition of organic matter. Composting differs from natural decomposition in that composting is controlled by humans. Organic materials are recycled whether or not we compost them, but well-managed composting, in which composting conditions are regulated and optimized so that composting microorganisms can thrive, ensures a faster process and the generation of a quality end product.

This publication describes composting management practices starting from compost material preparation and ending with the evaluation of the finished compost. It explains how to determine the best mixes of feedstock materials, how to manage compost piles for good aeration, how to manage pile moisture and odor, and how to check the finished products.

Numerous composting references are readily available to composting operators, and you are encouraged to get further information from the resources listed at the end of this document. Another good way to accumulate experience is to conduct small, on-farm trials using different mixes of feedstock materials and different management techniques under your specific conditions during different seasons of the year. A great deal can also be learned by visiting composting facilities and talking with operators about their methods and experiences. Readers interested in learning about the basics of composting are referred to *The Composting Process* (CIS 1179), available at http://www.cals.uidaho.edu/edcomm/pdf/CIS/CIS1179.pdf

DETERMINING COMPOST MIXES

Compost mixes should be based on feedstock properties such as C:N (carbon: nitrogen) ratios, moisture content, bulk density, and particle size. Depending on the intended use of your compost, you might determine your mixture based on observations and some experience with the raw materials or based on formulas and more precise characterizations of the composting raw materials.

Many composting operators managing for on-farm use determine their feedstock mix by its look and feel. With an eye to optimizing C:N ratio and moisture content and with some experience with the raw materials, this trial and error approach can often work. (Table 1 lists basic properties of potential raw materials.) For larger operations, or when composting needs to be more effi-

THERMOPHILIC COMPOSTING

HOW AND WHY IT WORKS TO REDUCE PATHOGENS

- Mesophilic organisms, which function at 75˚to 105˚F, initiate the composting process in piles with sufficient size, density, and composition of materials
- Thermophilic microorganisms take over at temperatures above 105˚
- Temperatures can increase to 130˚to 150˚F within 24 to72 hours of pile formation and can remain there for several days to several weeks
- This is the active phase of composting during which decomposition is the most rapid. **In the active, thermophilic phase, temperatures are high enough to kill pathogens and weed seeds**
- During the active phase, oxygen must be replenished through passive or forced aeration or by manually turning the compost pile

METHOD 1: TURNED COMPOSTING

This type of composting involves forming organic waste into rows of long piles called “windrows” and aerating them periodically by either manually or mechanically turning the piles.

Turned compost must maintain aerobic conditions at a minimum of 131˚F (55˚C) for 15 days (can be non-consecutive), with a minimum of 5 turnings and followed by curing.

TURN, TURN, TURN

WHEN TO TURN? IT WILL DEPEND

Pile turning schedules vary depending on:

- Pile compaction
- Temperature levels in the pile
- Consistency of the compost mixes
- Labor and equipment availability
- Season
- Site size
- How soon the compost is needed

The number and frequency of turnings needed to achieve the desired quality of compost is best determined through experience

METHOD 2: STATIC COMPOSTING

In aerated static pile composting, organic wastes are mixed in a large pile. Bulking agents (e.g., wood chips, straw) increase airflow. Piles can be placed over perforated pipes that deliver air into or draw air out of the pile. Air blowers might be used, activated by timers or temperature sensors.

Static composting must maintain aerobic (oxygen) conditions at a minimum of 131˚F (55˚C) for 3 consecutive days followed by adequate curing.

A LOT OF HOT AIR

MAKES GOOD COMPOST

In aerated static piles, the following are critical for establishing sufficient and well-distributed airflow during the composting process:

- Pipe size
- Blower capacity
- Compost pile construction
- Initial mixing of materials
- Particle size

Once an aerated pile has been built, aeration can be adjusted only by controlling blowers - based either on temperature or on a simple time schedule.

CHOOSING A METHOD

WHAT WORKS BEST FOR YOUR FARM?

Turned composting often requires large tracts of land, sturdy equipment, a continual supply of labor to maintain and operate the facility, and patience to experiment with various materials mixtures and turning frequencies.

Static composting requires careful monitoring to ensure that the outside of the pile heats up as much as the core and may require significant cost and technical assistance to purchase, install, and maintain equipment such as blowers, pipes, sensors, and fans.

CONSIDERATIONS FOR EITHER METHOD

PHOTO FROM RODALE INSTITUTE

FACTORS CONTRIBUTING TO EFFECTIVE COMPOSTING

Parameter	Effect
Oxygen	For aerobic composting and results in fast decomposition
Aeration	Helps to distribute heat, moisture, incorporate oxygen and distribute other gases trapped within the composting material
Nutrients (C:N ratio)	Microorganisms need both carbon and nitrogen for energy, protein synthesis and reproduction. An effective C:N ratio is critical at the beginning of the composting process to ensure that thermophilic, pathogen-reduction temperatures will be achieved. The rule-of-thumb is to incorporate feedstock into the compost pile that targets a 30:1 C:N ratio
Moisture	Supports the metabolic processes of the microbes. Water provides the medium for chemical reactions, transport nutrients, and allows the microorganisms to thrive
Porosity, Structure, Texture, and Particle Size	Affects aeration in the compost pile
pH	Aerobic microorganism grow well and most efficiently decompose organic matter around neutral pH of 7.0
Temperature	Temperatures at or above 131˚F are necessary to ensure that pathogen kill is being achieved
Homogenization/Turning	Encourages proper moisture content, aeration and exposure to thermophilic temperatures of every particle in the compost
Time	Measured from the start of the composting process. The monitoring (and record) of degree days above 131˚F is critical to maintaining compliance with FDA standards (*§112.54(b)*)

THE MAKING OF A COMPOST PILE

WHAT GOES IN YOUR PILE?

Your compost mix should be based on:

- Properties of the available materials such as C:N (carbon: nitrogen) ratios, moisture content, bulk density, and particle size.
- How you intend to use your compost
- Your observations and experience with the raw materials OR precise compost recipes calculated using formulas and computer spreadsheets based on the characteristics of available raw materials.

SIZE MATTERS

WHEN WE ARE TALKING ABOUT COMPOST PILES

For a compost pile to heat up and stay hot, the minimum size of the pile should be 1 cubic yard

Beyond that, the ideal height and width of a pile should be based on ambient temperatures, particle size, bulk density*, porosity, moisture content, composting method, and available equipment

Small piles will maintain higher internal oxygen concentrations

Large piles will retain heat better than small piles

*Bulk density refers to ratio of the total weight (mass) of compost to its volume

COMPOST PILE SIZING GUIDELINES

COMPOSTING METHOD	HEIGHT (FEET)	WIDTH (FEET)
Static piles	3–6	12
Passively aerated windrow system	3–6	10
Windrow composting		
Tractor pulled turner	6–8	10
Self-propelled turner	3–9	9–20
Bucket loader	6–12	10–20
Aerated static piles	6–12	10–20

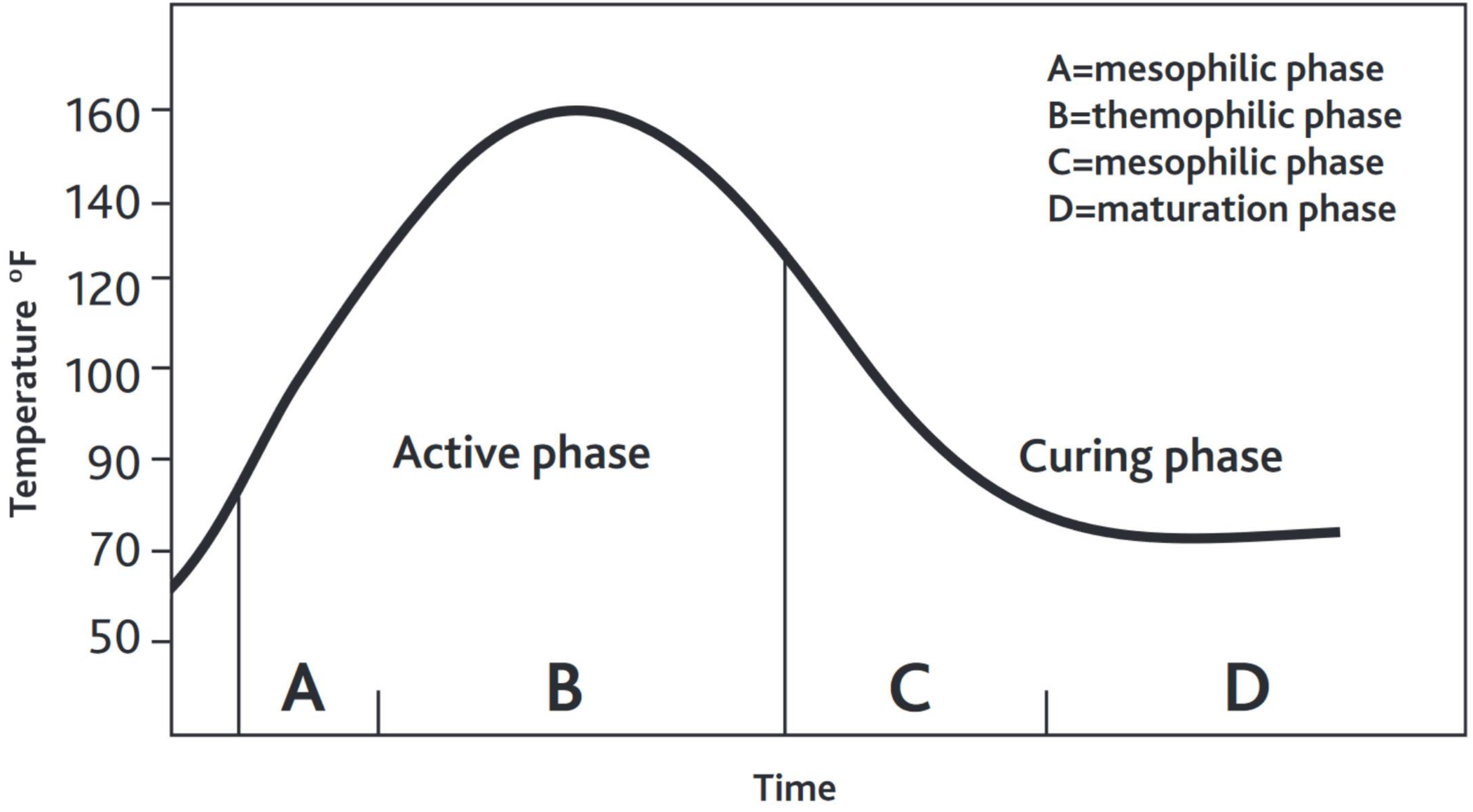
Source: Cooperband, L. 2002. The art and science of composting. Center for Integrated Agricultural Systems, University of Wisconsin-Madison. http://www.cias.wisc.edu/wp-content/uploads/2008/07/artofcompost.pdf (accessed November 28, 2011).

MOISTURE

- **Optimal composting happens when the moisture content is between 40-60% by weight.**
- At lower moisture levels, microbial activity is limited.
- At higher levels, the process is likely to become anaerobic and foul-smelling.
- When turning piles, add water as needed when turning.
- When using static piles, it is best to make initial material blends on the wet side, around 65–70% moisture content.
- Some commercial composters using static aerated systems add moisture by blowing humidified air through pipes into the pile.

CURING PHASE

- When active composting subsides, temperatures gradually decline to around 100℉.
- Mesophilic microorganisms recolonize the pile and compost enters the curing phase.
- Organic materials continue to decompose and are converted to biologically stable humic substances.
- Potentially toxic organic acids and resistant compounds are also stabilized.
- **There is no clearly defined time for curing.**
- Common practices in commercial composting operations range from 1 to 4 months to as long as 6 to 12 months.
- Finished compost will no longer heat up, even after mixing. The initial ingredients are no longer recognizable, and what is left is an earthy smelling substance similar to a rich organic soil.


A=mesophilic phase
B=themophilic phase
C=mesophilic phase
D=maturation phase
160
140
120
100
90
70
50
Temperature °F
Active phase
Curing phase
A
B
C
D
Time

Compost Treatment Record *Template*

Name and address of farm: _____

Type of compost method: *Windrow* **Date piled:** *9-15-2016* **Date finished:** _____ **Row number:** *2*

List all ingredients added to compost: *Poultry litter, kitchen scraps, dried leaves, straw*

Use this record for on farm composting. Record the date piled, turning dates, and the temperatures maintained. Use one sheet for each pile or row.

Date Turned	Temp/Time Test Area 1	Temp/Time Test Area 2	Temp/Time Test Area 3	Temp/Time Test Area 4	Initials
9-25-2016	*135 F/ 2:00 PM*	*138 F/2:01 PM*	*140 F/ 2:03 PM*	*135 F/ 2:04 PM*	*EAB*
9-26-2016	*137 F/ 2:15 PM*	*137 F/2:18 PM*	*138 F/ 2:19 PM*	*137 F/ 2:25 PM*	*EAB*

Proper compost production requires a minimum temperature of 131ºF be maintained for 3 days using an enclosed system OR a temperature of at least 131ºF for 15 days using a windrow system, during which the materials must be turned 5 times (FSMA Produce Rule. 2015. Rule 21 CFR part 112.54(b)).

Reviewed by: _____ **Title:** _____ **Date:** _____

FSMA PSR reference § 112.60(b)(2) Confidential Record

Modified from On-Farm Decision Tree Project: Soil Amendments—v5 7/16/2014
E.A. Bihn, M.A. Schermann, A.L. Wszelaki, G.L. Wall, and S.K. Amundson, 2014 www.gaps.cornell.edu

PURCHASING COMPOST FROM A SUPPLIER

Growers purchasing <u>treated</u> BSAAOs from third-party suppliers are required to document that the soil amendment has been treated, handled, and stored in a safe manner.

These requirements include:

1. The treatment is a scientifically valid process that was carried out with appropriate process monitoring
2. The BSAAO has been handled, conveyed and stored in a manner and location to minimize the risk of contamination by an untreated or in process soil amendment.

Third-Party Soil Amendment Suppliers
Food Safety Modernization Act (FSMA) Produce Safety Rule
Model Certificate of Conformance

{Date, to be renewed annually}

To whom it may concern;

{Company and product name} meets the definition of a treated biological soil amendment of animal origin[1] in the FSMA Produce Safety Rule. This product has undergone a scientifically valid treatment, with appropriate process monitoring, to conform to one of the following microbial standards. {Select one of the following}

- ☐ §112.55(a): No detectable *L. monocytogenes*, *Salmonella* spp., and *E. coli* O157:H7
  - For *L. monocytogenes*, detection limit 1 CFU in 5 g or 5 mL
  - For *Salmonella*, detection limit 3 MPN in 4 g (total solids) or 4 mL (if liquid is being sampled)
  - For *E. coli* O157:H7, detection limit 0.3 MPN in 1 g or 1 mL analytical portion
- ☐ §112.55(b): No detectable *Salmonella* spp., and fecal coliforms <1000 CFU in 1 g or 1 mL total solids
  - For *Salmonella*, detection limit 3 MPN in 4 g (total solids) or 4 mL (if liquid is being sampled)

{If final product was tested, attach a copy of the analysis to this document[2]}

The process used to achieve this treatment status was: {Select one of the following}

- ☐ Aerated static composting with 3 or more days at temperature followed by adequate curing
- ☐ Turned (windrow) composting with 15 or more days at temperature and 5 or more turnings, followed by adequate curing
- ☐ Other: {Write in brief name and description of process. Insert a reference for the validation study(ies) that support this process}

Appropriate control parameters {e.g. time, temperature, pH, moisture, number and timing of turnings, carbon:nitrogen ratios[2]} were monitored throughout the treatment process.

This product has been handled, conveyed, and stored in a manner and location to minimize the risk of contamination by an untreated or in-process biological soil amendment of animal origin. Practices used to minimize contamination risk include: {Select all that apply[2]}

- ☐ Physical separation of in-process product from finished product
- ☐ Storm water and runoff were directed away from finished product
- ☐ Different equipment was used for handling finished product
- ☐ Equipment was cleaned and sanitized before handling finished product
- ☐ Other: {write in description}

{Insert authorized signature/name of company representative}

Notes:

[1] For soil amendments that do not contain materials of animal origin, state regulations may require a separate statement specifying that the product does not meet the definition of a biological soil amendment of animal origin (BSAAO). Soil amendments that do not meet the definition of a BSAAO are not covered by the FSMA Produce Safety Rule. For this reason, it may be useful to describe the compost feedstock in the first paragraph. The FSMA Produce Safety Rule definitions do not include, for example, human waste and pre-consumer vegetative waste as a BSAAO.

[2] FDA's draft guidance for industry (docket number FDA-2018-D-3631) states that:

> *"A farm that receives a treated BSAAO from a third party could keep a record that includes a statement such as: 'A scientifically valid thermal treatment was applied and carried out with appropriate process monitoring to satisfy the microbial standard in 21 CFR 112.55(a). The BSAAO has been handled, conveyed, and stored in a manner and location to minimize the risk of contamination.' In addition, other information related to producing or managing the BSAAO, such as the BSAAO materials used, process parameters monitored and their results, and any applicable test results could be included."* (page 72)

In addition to the FDA requirements, industry representatives have indicated that the FSMA-optional language may be beneficial or required by state regulations, buyer requirements, organic audits, or other programs.

MORE ON THIS DOCUMENTATION

The FSMA Produce Safety Rule requires that this documentation be updated at least annually.

The FDA states in the codified regulation and in draft guidance that a Certificate of Conformance would meet the above recordkeeping requirements.

If a grower cannot obtain the appropriate documentation, one practical solution is to handle and apply the soil amendment as if it were untreated.

Letter of Product Guarantee

Cowgirl Compost LLC is committed to supplying the highest quality of composted cow manure and guarantees that the material offered for sale has gone through the entirety of our composting process.

This process consists of collecting manure and forming rows, monitoring moisture levels and turning manure rows, recording temperatures, and screening. The final product is tested by a licensed laboratory for quality. These tests can be shared by request.

The product is not altered or misbranded. This product is guaranteed as of the date of purchase. Cowgirl Compost LLC is registered with the Idaho State Department of Agriculture and reports all sales.

Additional information can be provided by request. Do not hesitate to contact us if you have questions.

Trent Cummins
Cowgirl Compost LLC

COWGIRL COMPOST LLC ● 6568 S Federal Way, 156 ● Boise, ID 83716
Phone (208) 506-6957 ● Email: info@cowgirlcompostllc.com

Certified Compost™
STA | Seal of Testing Assurance
US Composting Council®

?

WHEN IN DOUBT…

WAIT 120 DAYS BETWEEN MANURE OR UNTREATED COMPOST APPLICATION AND HARVEST FOR PRODUCE THAT CONTACTS THE SOIL

WAIT 90 DAYS BETWEEN MANURE (OR UNTREATED COMPOST) APPLICATION AND HARVEST FOR PRODUCE THAT **DOES NOT** CONTACT THE SOIL

RECORDKEEPING REVIEW

For any biological soil amendment of animal origin you use, you must establish and keep records for:

- A treated biological soil amendment of animal origin you receive from a third party, documentation at least annually that:
  - The process used to treat the biological soil amendment of animal origin is a scientifically valid process that has been carried out with appropriate process monitoring;
  - ii) The biological soil amendment of animal origin has been handled, conveyed and stored in a manner and location to minimize the risk of contamination by an untreated or in process biological soil amendment of animal origin;
- For a treated biological soil amendment of animal origin you produce for your own covered farm(s), documentation that process controls (for example, time, temperature and turnings) were achieved.

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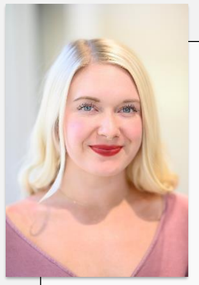
IDAHO STATE DEPARTMENT OF AGRICULTURE

Live Q&A Panel
Topic: Approaches to Composting Safely

Ariel Agenbroad
Area Extension Educator - UI
Community Food Systems and Small Farms



Lu Hauger
Associate Extension Educator - UI Commercial Produce Safety

Casey Monn
FSMA Program Manager
Idaho State Department of Agriculture

Thank you for all that you do.

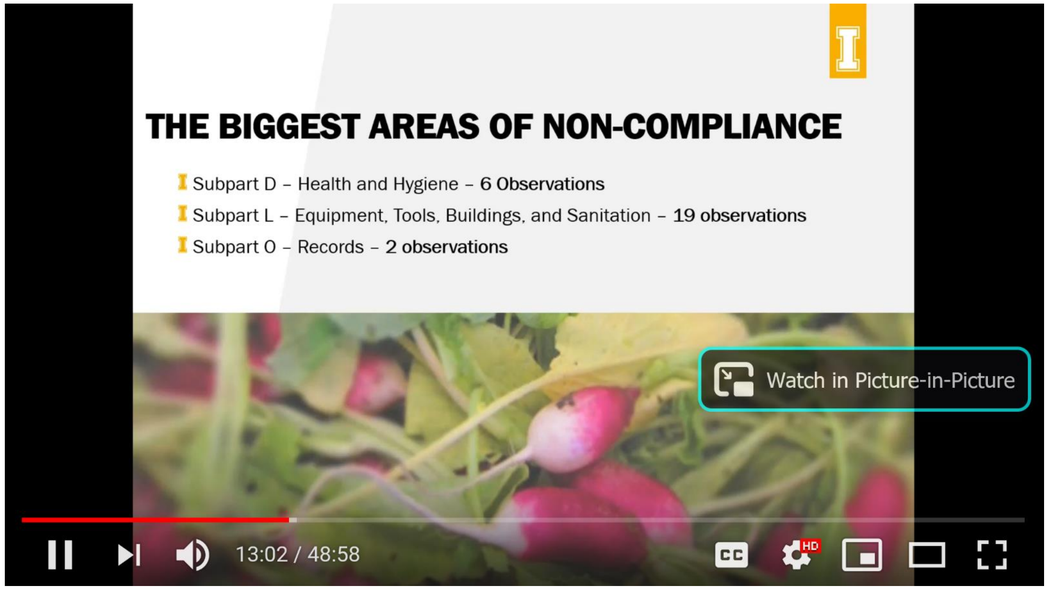
Six webinars designed to prepare growers for successful inspection:

2021

- Why Do I Have to Do FSMA if I Do Gap?
- Be a Bad Neighbor: Making your buildings less attractive to mice and birds
- Approaching Composting Safely

2020

- Creating hygienic habits on the farm
- Sanitation Basics
- Simplifying Recordkeeping



Recordings, resources and handouts available for the above webinar series:

https://www.uidaho.edu/extension/food-safety-for-produce-growers/education/videos