



# COMPOST HAPPENS

Managing Food Safety Risks in Biological Soil Amendments

The webinar will begin promptly at  
11:00 am Pacific / 12:00 pm Mountain







# COMPOST HAPPENS

Managing Food Safety Risks  
in Biological Soil Amendments

With Ariel Agenbrood, University of Idaho Extension






## Webinar Tips



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 webcast 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

## “FSMA?”

- The Food Safety and Modernization Act, or FSMA for short, was signed into law on January 4, 2011.
  - Gives FDA the authority to regulate food from farm to fork
  - Establishes science-based minimum standards for safe growing, harvesting, packing and holding of fresh fruits and vegetables
- First sweeping food safety regulation overhaul in a very, very long time.

## The Produce Safety Rule

- The Produce Safety Rule is one of 7 new federal rules pertaining to food production, processing, transportation and importation
- Other rules include:
  - Preventative Controls for Human Food (processed food)
  - Preventative Controls for Animal Food
  - Sanitary Transportation of Human and Animal Food

## Are you covered by the Produce Safety Rule?

- You will need to know your:
  - Types of produce you grow
  - Average annual gross sales of produce
  - Average annual gross sales of all food
  - Percentage sold directly to a "qualified end user," or:
    - Individual or family
    - Restaurant
    - Local grocery store or retail food store



## "If I'm not covered, why am I here?"

- Many small farms will not be required to comply with all the new federal food safety regulations
- However, all farms are responsible for producing, packing, transporting and selling safe food!
- How the rule will affect you and *your* farm will depend on what you grow, how much you sell, and who your customers are

## "Ok, where do I start?"

- First, know where you fit into the picture.
  - Are you covered? Exempt?
- Second, understand the records you need to keep in order to document and prove your exemption
- Third, realize that the practices outlined in the rule will reduce the risk of produce contamination on farms of any size. Where can you make changes?

## Soil Amendments and Human Waste

- This section of the rule covers the use of biological soil amendments of animal origin, particularly:
  - Manures and Manure Teas
  - Other biological amendments
  - Composts and Compost Teas



## Why should we be concerned?

- Animal manures often contain bacteria, viruses or parasites that can potentially make people sick if:
  - used as a soil amendment in its raw state
  - applied to the edible portion of growing crops
  - it contaminates hands, clothes, shoes, equipment, tools or fresh produce
  - stored in a way that allows for leaching, drift or runoff

## What are your risks on farm?

- **What type of soil amendments do you use?**
  - Raw manure, composted manure, chemical, etc.
- **What crops receive soil amendments?**
  - Fresh produce or agronomic crops
- **When do you apply them?**
  - Days to harvest, time of year
- **How do you apply them?**
  - Incorporated, injected, surface applied
- **How much and how often do you apply them?**
  - Excessive application can lead to environmental impacts





## Manure is a good thing...

- Increases soil tilth, fertility, and water holding capacity
- Turns waste into a valuable resource for integrated crop and livestock farms
- Builds relationships with other farms raising animals
- Widely available and cost effective

*Produce Safety Alliance, Cornell University*

## ...Until it's not a good thing

- All manures can carry human pathogens
- Some animals tend to be reservoirs for certain pathogens
  - Cattle vs. chickens
- Many things can impact the shedding of pathogens in manure

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## Best Practices

- Assess the production, storage and use of animal manures on your farm
- Map the transport and storage of raw manures
- Do not apply raw manures or teas to growing crops
- Protect raw manures from leaching, run off, drift, and accidental transport by equipment, tools, clothing and hands

### Manure Sources and Application Practices

Management Area	Good Agricultural Practices		Practices Requiring Attention	
	Best Practice	Minor Adjustments Needed	Consistent Extra-Ordinary Practice	Needs Improvement, Practices Change Here
Crop residue and pathogen contamination risks on recently manured ground	Only tree fruits, nut berries, field or forage crops, or vegetable crops to be harvested are planted on recently manured land.	Vegetable crops are rotated and rows covered with mulch to reduce risk of contamination from manure in soil.	Low growing fruit or vegetable crops are grown without mulch on recently manured ground.	Lettuce and root crops are planted in recently manured ground.
Manure loss	No manure loss are used.			Raw manure is used in production of foliar fertilizers or "tea" that are applied to soil or grown from soil 500 feet before harvesting the crop.
Steadying crops with manure	No manure is used to steady the produce crop in the field.			Manure is used to steady produce crops during the growing season.
Barriers to reduce manure runoff or leachate to surface water bodies, to minimize risks of pathogen contamination of water used by downstream neighbors	Crop residues or cover crops are always used to minimize manure nutrient leaching or run-off from fields. Cover crops or "straw strips" are always used at field boundaries and along water courses to minimize manure runoff.	Crop residues or cover crops are usually used to minimize manure nutrient leaching or run-off from fields. Cover crops or "straw strips" are sometimes used at field boundaries or along water courses to minimize manure runoff.	Crop residues or cover crops are not routinely used to minimize manure nutrient leaching or run-off from fields. Cover crops or "straw strips" are sometimes used at field boundaries or along water courses to minimize manure runoff.	Cover crops are never used to reduce manure nutrient leaching or run-off from fields. Straw strips are never used along water courses to minimize manure runoff.

Green Self Assessment of Food Safety Risks

Manure Sources and Application Practices-4

### Manure Sources and Application Practices

Management Area	Good Agricultural Practices		Practices Requiring Attention	
	Best Practice	Minor Adjustments Needed	Consistent Extra-Ordinary Practice	Needs Improvement, Practices Change Here
Manure runoff to produce fields	Produce is never grown in fields that might receive manure run-off from other fields or barnyards.	Produce is seldom grown in fields that might receive manure run-off from other fields or barnyards.	Produce is occasionally grown in fields that might receive manure run-off from other fields or barnyards.	Produce is regularly grown in fields that receive manure run-off from other fields or barnyards.
Field status at time of manure application	Manure is never spread on fields that are water saturated, prone to flooding or runoff, and is not spread on frozen or snow covered ground.	Manure is seldom spread on fields that are water saturated, prone to flooding or runoff, and is not spread on frozen or snow covered ground.	Manure is sometimes spread on fields that are water saturated, prone to flooding or runoff, and is sometimes spread on frozen or snow covered ground.	Manure is spread on fields regardless of field condition. During wet periods no attempt is made to avoid fields that are water saturated, prone to flooding or runoff, and fields are never covered for manure applications.
Record keeping of manure use	Detailed records are kept of fields receiving manure, including rates and dates of application.	Records are kept of fields receiving manure, but not rates and dates of application.	No records are kept of manure applications, but manure is applied only in fields to be planted to non-human food crops.	No records are kept of manure applications.

Green Self Assessment of Food Safety Risks

Manure Sources and Application Practices-4

## What about other animal products?

- Non-manure amendments of animal origin should be processed to eliminate pathogens
- Most commercial products will have been processed in this way

BONE MEAL  
BLOOD MEAL  
FEATHER MEAL  
FISH EMULSION







## Non-animal wastes

- Examples include:
  - Produce preparation waste or food products removed from their packaging
  - Yard waste
  - Cull vegetables or fruits
- Should not be considered zero risk because they could still contain:
  - Chemical hazards
  - Physical hazards
  - Biological hazards
- However, these products are not subject to the same rules as manure





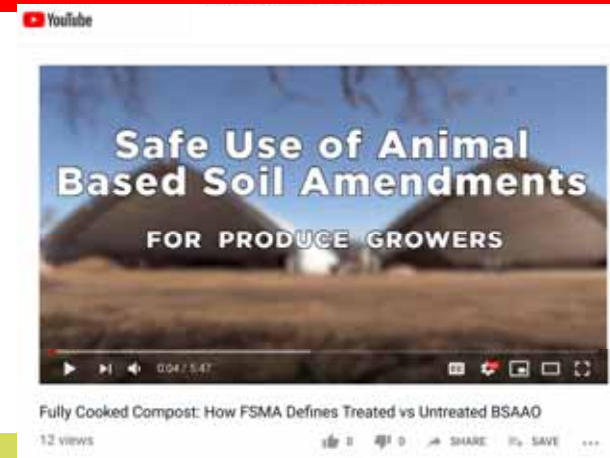
## Talking about compost

- The produce safety rule puts animal waste compost and animal manures into one of two groups:

TREATED	UNTREATED
Composted using a documented, scientifically valid method	Anything else

## Examples of untreated soil amendments

- Raw manure
- 'Aged' or 'stacked' manure
- Untreated manure slurries
- Untreated manure teas
- Agricultural teas with supplemental microbial nutrients
- Any soil amendment mixed with raw manure



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## Why would I want my compost to qualify as “treated”?

- Can apply at any time during the growing season
  - Can apply directly to edible crops
  - Can use in potting mixes and other applications
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## But I buy all my compost!

- What is the method being used by the compost processor?
  - Do they keep records of time and temperature?
  - Can they provide you with these records?
  - If you are not exempt from the rule, you need to keep these records
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## Ok, what if don't have the time/equipment/expertise to compost?

- Consider all your biological soil amendments to be “untreated”
  - Follow the recommendations for applying raw manure (conforms to the National Organic Standard)
    - 120 days prior to the harvest of a product whose edible portion directly contacts the soil surface or soil particles
    - 90 days prior to the harvest of a product whose edible portion **does not** have direct contact with soil surface or soil particles.
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## Changed my mind. I want to compost

### Must use a scientifically valid process:

1. Aerated static composting: aerobic, minimum 131°F (55°C) for 3 days, followed by curing with proper management to ensure elevated temperatures throughout all materials
2. Turned composting: aerobic, minimum of 131°F (55°C) for 15 days, minimum 5 turnings, followed by curing
3. Other scientifically valid, controlled composting processes

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## Tips on storing compost and manures

- Minimize runoff, leaching, and wind drift to reduce contamination of crops, water sources, and handling areas by soil amendments
- Do not store in locations that are likely to experience runoff or areas that are close to water sources
- Keep raw manure and finished compost in separate areas to prevent cross-contamination
- Minimize animal access to compost piles

## Safe handling recommendations

- Designate specific equipment and tools for handling soil amendments
- Develop procedures to clean and sanitize equipment and tools that contact soil amendments and fresh produce
- Direct traffic (foot, equipment) around soil amendment storage or processing areas to reduce the risk of cross-contamination

## Summary: reducing the risk on your farm

- Do not apply raw manures to growing produce crops
- If you use raw manures, allow a time interval of 90-120 days between application and harvest
- Use a scientifically valid method of composting to treat raw manures
- Carefully store, manage, and transport raw and treated soil amendments separately

## Webinar Recording & Resources

**Upcoming Webinars:**  
[www.cultivatinguccess.org](http://www.cultivatinguccess.org)

**Food Safety Resources:**  
<https://www.uidaho.edu/extension/food-safety-for-produce-growers>



## Next Steps

Please complete our post-webinar evaluation!  
<https://www.surveymonkey.com/r/ProduceSafetyRule>

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