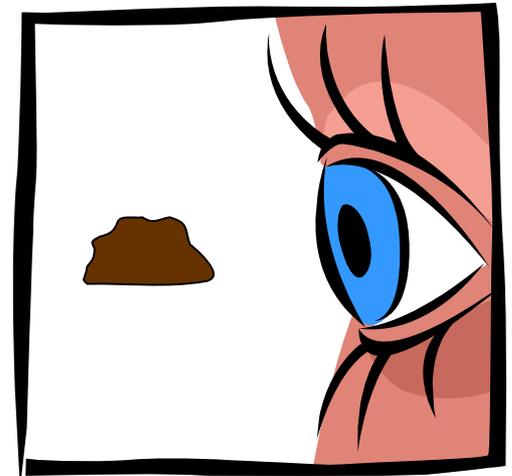


Pennsylvania Recycles Organics - a working vision



PENNSTATE



Robert E. Graves, Professor
Agricultural and Biological Engineering
Department
Richard Stehouwer, Assoc Professor
Crop and Soil Science Department

Penn State is committed to affirmative action, equal opportunity, and the diversity of it's work force.

On Farm Composting in Austria



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On-Farm Composting



What's the Attraction?



Kitchen Waste Pick-up



Recycling Collection Center



A place for everything!



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What does this have to do with
environmental quality in
Pennsylvania?

The PA situation...

- MSW

- We throw “away” 1.9 kg (4.1 lb)/person/day
- 67% of that is organic (food, paper, leaf and yard material, cardboard, wood).

- Each person throws away 0.5 ton/yr of organics (6.2 million tons per year in PA)



The PA situation...

- Leaf and yard waste
 - We have a weak, quasi-ban on landfilling of leaf and yard waste
 - Municipalities are to source separately collect these materials
 - PA DEP has provided millions of \$\$ in grants to municipalities to run composting programs



The PA situation...

- Excess manure
 - Need to move manure off farm
 - Composting is one option
 - Need for carbon rich material for composting



European Union Situation

- EU Landfill Directive (1999)
 - By 2016 the amount of biodegradable waste going to landfills must be reduced to 35% of 1995 levels
- EU Thematic Strategy for Soil Protection
- EU Climate Change Programme / Kyoto Protocol
- EU Biowaste Directive (pending)
 - mandate source separate collection of organic (bio-) wastes

The German Situation

- “Closed loop waste management”

Waste must be:

1. Avoided
2. Subject to material recovery or utilization for energy recovery

- **Mandate: No material with more than 5% organic content may be landfilled**
- - keep landfills safe
- - organics are a resource, not waste
- - return carbon to soil

The Austrian Situation

- “As decentralized as possible, as centralized as necessary”

Waste hierarchy:

1. Waste prevention
 2. Waste reduction
 3. Material recycling
 4. Energy recovery
 5. Disposal of pretreated, stabilized residual waste
- Also allow no more than 5% organic materials in landfill

History

- Stehouwer sabbatical in Austria
- USDA International Science and Education Grant
- 2 groups from PA toured and studied organics handling in EU specifically Germany and Austria
- Combined groups consider what, how and if lessons from Europe can be applied to PA

Procedure (Stehouwer and Graves)

- Secure USDA ISE grant
- Make German and Austrian contacts and organize tour
- Solicit and identify two groups (12-14 members) for tours in 2006 and 2007
- Facilitate meetings and merger of two tour groups
- Participate in, but not direct, activities with two groups and merged group

USDA ISE Grant

- Learn from European systems and experience in organics recycling systems that connect urban and agricultural sectors in mutually beneficial and (more) sustainable carbon flows
- Adapt these systems to the reality in PA
- Create a team of professionals that will become visionaries for improved organics recycling and management and catalysts for change

Stated Project Goals before tours

- Articulate a new vision for organic waste management in PA that reconnects municipal and agricultural sectors in mutually beneficial and sustainable flows of energy, organic matter, nutrients, and capital; and to disseminate this vision to a wide audience
- Develop and implement an action plan

Team Selection

- Newsletters, extension lists, PROP, word of mouth
- Challenge/invite and volunteer
- Geographic, public/private, discipline diversity
- Several sub teams – existing and formed

The Team(s)

- 6 extension educators and conservation district staff
- 3 farmers
- 5 municipal or private sector composters
- 2 regulatory/policy
- 5 county/municipal waste management/recycling officials
- 2 private sector (food distribution/preparation, display gardens)
- 3 graduate students
- 2 faculty

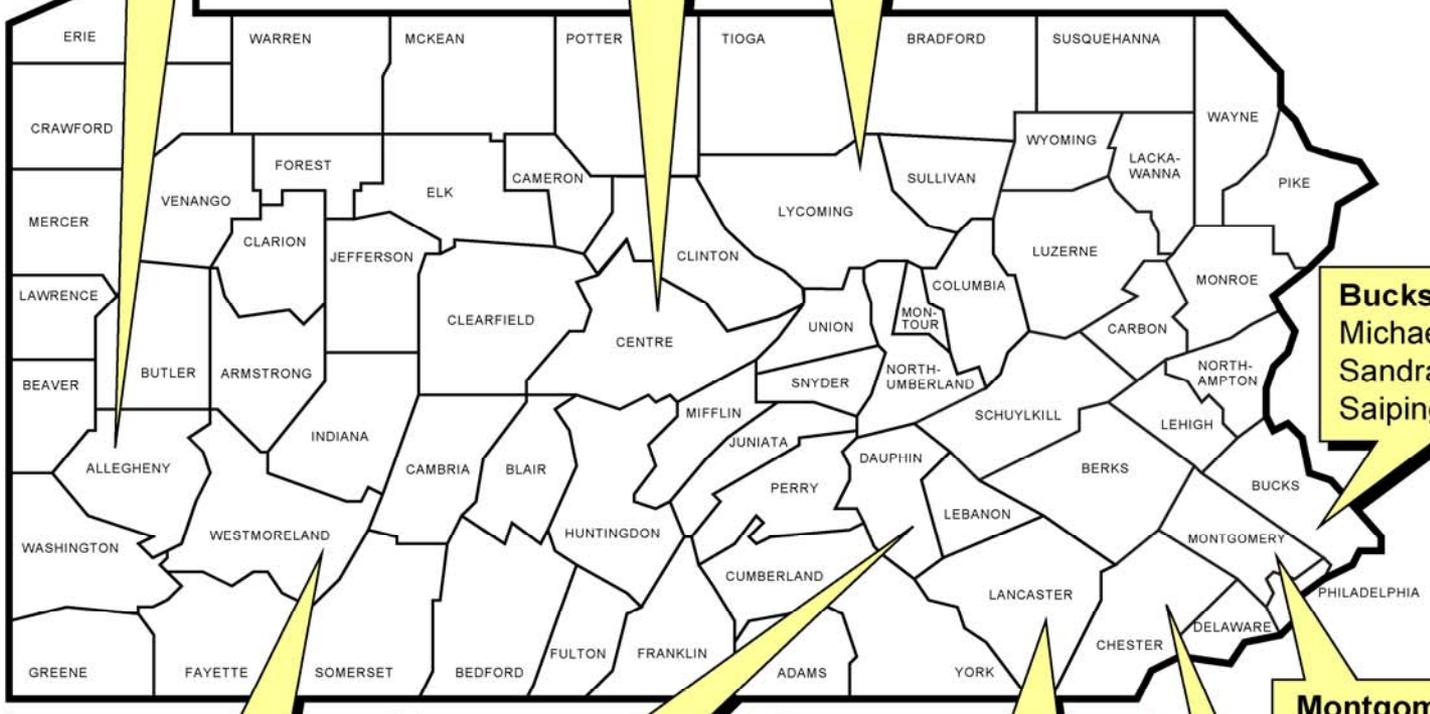
Student Participation

- Student participation not part of proposal
- Funding was put together for up to three graduate students on second trip
- Applications solicited from CAS departments
- Agricultural and Biological Engineering, Soil Science and Public Policy students selected

Allegheny County
Carla Castagnero - 07
Jamie Moore - 07

Centre County
Nadine Davitt - 06
Ashlee Dere - 07
Michael Fortunato - 07
Robert Graves - 06, 07
Joanne Shafer - 06
Rick Stehower - 06, 07
Mark Whitfield - 06
Marlyse Williams - 07

Lycoming County
David Albert - 06
Michael Hnatin - 06
Tom Murphy - 06



Bucks County
Michael Fournier - 06
Sandra Guzikowski - 06
Saiping Tso - 06

Westmoreland County
Daniel Griffith - 07
Phillip Heinnickel - 07
Gary Sheppard - 07

Dauphin County
Jim Close - 06
Kristin Ebersole - 07

Lancaster County
Timothy Breneisen - 07
Jeffrey Graybill - 07
Loren Martin - 07
Ron Miller - 07

Montgomery County
Ned Foley - 06

Chester County
Casey Sclar - 07

Washington, DC
Michele Mahoney - 06

“The Plan”

- Two meetings before trip – get to know each other, background info PA and Europe
- Trip – four focus areas
- Two post trip meetings to develop vision
- First group would also meet with second group
- Groups had choice of combining
- Hoped that some or all would keep working (most have)

Leaders

- Select teams
- Arrange with 3 key people in Europe
- Attend tour and all meetings
- “Responsibility/decision making” turned over to each group
- Facilitate meetings

Germany

- Centralized composting
- Technology intensive
- Value added marketing
- Retail branding
- Agricultural – a lower value use
- Soil quality
- Energy “competition”

Weiterstadt



Austria

- Decentralized
 - Commercial scale
 - Farmer operated
 - Public operated
 - Public/farm partnership
- Tension compost/energy production
- Education commitment
- Holistic view
- Government Policy (economic support, pricing policy, legitimate farm enterprise)

AVEG – transfer/sorting



AVEG Farmer Participant



Models for collecting and processing residential organic materials observed in Germany and Austria

- Centralized municipal-private collection and processing
- Centralized municipal collection and processing
- Decentralized farmer collection and processing

Models for collecting and processing residential organic materials observed in Germany and Austria

- Decentralized municipal collection and farmer processing partnership
- Centralized private collection and private processing

Soil Quality



A Sidebar has Emerged Biomass Energy



A German Compost Facility Adding Digester



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Pennsylvania?

- Waste management focus
- Cheap landfills
- Lackluster public/government support for change
- Impact of private enterprise
- Weak landfill ban
- Manure
- Energy competition
- Do not consider external costs
- Increase variety of hard recyclables



What's Happening

- Both tour teams have combined into one working group
- A vision paper is nearly complete
- A presentation was made to Secretaries of Environmental Protection and Agriculture
- Numerous presentations, newsletters, interviews and press reports

A vision for Sustainable Organics Recycling in PA January 08

We believe that Pennsylvania can transform its organic residuals management system into one that reconnects urban and agricultural sectors into a mutually beneficial flow of energy, organic matter, nutrients and capital

This transformed system requires a state-wide policy that encourages and supports:

- Partnerships between private, agricultural and public sectors
- Production of energy, compost and other value added products
- Recycling of organic matter and nutrients into soils
- Source separated collection of organic residuals.

Related Local Projects in Progress

- Center County- cooperative farm, State College Borough composting
- Montgomery County - vegetable farm composting
- Allegheny County – Restaurant Chain
- Chester County – Longwood Gardens
- Lancaster County – excess manure composting



The Landfill is not in the picture...
Organics are not waste...

