Sustainable Agricultural Residues and Food Wastes and MSW

Northeast Sun Grant
Regional Feedstock
Summit Working Group

Working Group Participants

- David Specca
- Priscilla Hayes
- Abby Webb
- Tom Wilson
- Pegi Ficken
- Manuel Villa-Garcia
- Zhongtang Yu
- Fred Michel

- Norman Scott
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- **Recorders:**
  - Navaneetha Santhanam
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Current best feedstocks in this category in the northeast and best source(s) of information for determining quantities

- Animal manure
- Food waste
- Paper waste
- Agricultural residues

Inventories, databases and information available for existing feedstocks

- Combine the following databases:
  - Norm Scott's for NYS
  - Priscilla Hayes & Dave Specca's for NJ
  - Abbie Webb's for NYS
  - Hitzhusen for Ohio state
- Constant updates of databases needed

Top 3 most significant challenges that must be addressed to bring the feedstock (or the technology) to the energy market?

- Accurate quantity data
- Accurate categorization
- Improved and updated regulations

What would be the cost (dollars, equipment, full time equivalent positions, time, etc.,) to adequately address the identified roadblocks?

LOTS!!!

Questions

NE Feedstock Workshop

Attendees:

Norman Scott - Cornell
David Specca – Rutgers
Manuel Villa-Garcia- Cornell
Pegi Ficken - Cornell
Abbie Webb - Cornell
Tom Wilson– Penn State
Darek Letkiewicz – O'Brien & Gere
Priscilla Hayes – Rutgers
Fred Michel – Ohio State CARDC
Zhongtang Yu – Ohio State

Background:

1. No accurate assessment of what is available via food wastes and manures
2. There is a market out there
3. Existing statistics are rudimentary and not updated eg Essex County is consuming more waste than was assigned to it
4. There is a fair account of the number of animals and waste generated for manure processing
5. Biosolids was done but with data from a waste water treatment plant
6. Waste paper data was deficient because of DOT method of assigning percentages to generated wastes ad recyclables – Recording is also lacking….paper recycling may be done under the wrong category
7. Small scale entrepreneurial approach may be more efficient
8. Website – waste to energy, GIS based system
9. Food processors in NYS are not forthcoming with their numbers
10. Waste is moving to processors upstream – impacts location of waste

Primary

- What are the currently available feedstocks and quantities of each?
    1. Restaurant and home waste as food waste ~ 15% of MSW
    2. Tremendous amount of paper is in MSW and can be estimated
    3. Animal manure is high but not quantified
    4. Food wastes may be divided into (i) restaurants (ii) supermarkets (iii) schools (minimal .25lb to 0.5 lb per student; high school students ate everything & middle school students were most wasteful) (iv)homes (v) processing waste
    5. Don't know the exact quantities of waste, but it is significant enough to produce energy. Also how much of it can be collected?
    6. Small scale entrepreneurial initiatives may be more effective(community level), but there are also large scale opportunities available using existing infrastructure implying getting more energy for your dollar from one location, but transportation costs may make this inefficient
    7. Seasonal availability of the feedstock must be overcome

- What existing feedstocks can be enhanced and at what increase in productivity?
    1. Chicken litter
    2. Creating roots – densification
    3. Oil residues from restaurants
    4. Collocation to increase productivity
    5. Enabling technologies – pelleting, bioplastics, pulping recycle banks

- What are the best candidate feedstock species and varieties?
    1. Food waste
    2. Animal manure
    3. Challenge – feedstocks are location specific ie depends on local laws, infrastructure
    4. Construction and developmental waste

- What "new" feedstocks can be produced and in what quantities?
    1. Paper waste
    2. Clothing

3. Compostables
4. Industrial wastes from pharmaceutical companies eg glycerin

- What inventories, databases and information are available for existing feedstocks?
    1. Norman Scott's database
    2. Hitzuisen's database for Ohio
    3. Priscilla Hayes & Dave Specca have a database
    4. Abby Webb has a database
    5. There may be many more databases that we don't know about
    6. There must be some way to keep these databases updated

- Where are the most significant voids (top 3) that must be addressed before making a reasonable assessment of feedstock inventories?
    1. Accurate quantity data
    2. Accurate categorization
    3. Improved and updated regulations

- What would be the cost (dollars, equipment, full time equivalent positions, etc.,) to adequately address the roadblocks/voids identified above in each NE Sun Grant state and the region as a whole?
    1.

Secondary

- What sources of information are available to help determine what lands are capable of producing specific feedstocks?
    1. Not applicable, but determine the nodes

- What are the constraints to feedstock delivery to the plant?
    1. Tipping fee
    2. Distance
    3. Local regulations
    4. Moisture content esp in food wastes

- What are the technology drivers for feedstock development?
    1. Clean technology
    2. Flex-fuel engines for P-Series fuels
    3. Pelleting
    4. Scalability

- What are the process co-products (plus associated value) and/or cost?

- What are the potential benefits of feedstock production?

- What are the consequences of feedstock production?

- What are the consequences of biofuels production?

- What are the social issues associated with biofuels?

- Are these the questions we need to be asking? Are there other questions we need to include in the discussion?