

Digester Seminar – St Cloud, MN Wednesday August 21, 2002

**Jack Johnson
Agricultural Utilization Research Institute
Waseca, MN**

“Adding Value to
Minnesota Agriculture”



Mission

- Identification and expansion of markets for new or existing commodities, ingredients and products;
- The development of new uses or value improvements for Minnesota agricultural commodities
- Assist with technology transfer for Minnesota Agriculture

Digester



Sows vs. Cows

- Cow manure has higher percentage of solids which is preferred for digesters
- Manure from finishing hogs produces less methane, smaller percentage of solids (solids separation is necessary)



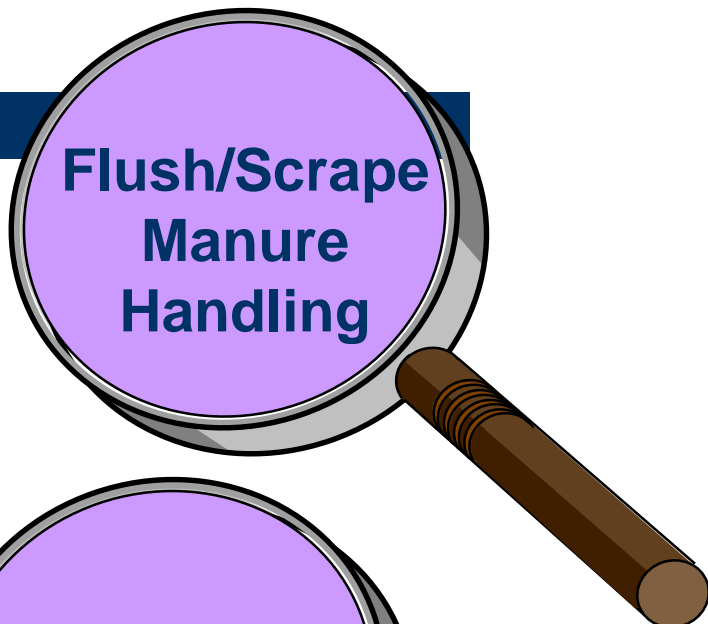
Digester Feasibility

- Is a digester right for you?
 - Philosophy
 - Environment
 - Economics

On-Farm Considerations



**Size of Farm
of cows**



**Flush/Scrape
Manure
Handling**



**High
Energy
Costs**



**Manure
Utilization**

Potential Environmental Benefits

- **Reduces odor problems**
- **Protects water resources**
- **Controls pathogens**
- **Controls weed seed**

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AURI

ag innovations

Agricultural Utilization Research Institute

About AURI News Programs **Research** Clients

AG INNOVATION NEWS

The Newspaper of the Agricultural Utilization Research Institute



- Biomass burner
- Lamb dish debut
- Advancing eLK
- Treating bad bugs
- plus: How AURI works 

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products.

- Alfalfa New Products Initiative
- Biodiesel
- Growing Trees as a Crop
- Hog Odor Research
- Manure Digester**
- Meat Goat Initiative
- Meat Goat Enterprise Budget
- Oilseed Executive Summary

For ag new
Farm Network news
broadcasts, elevator and
market information, weather
and more, check out the
[TOOLS](#).

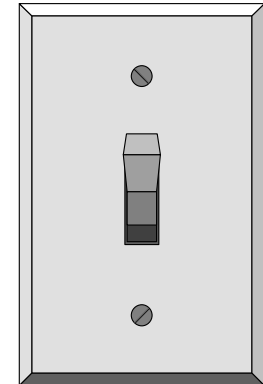


Potential business benefits

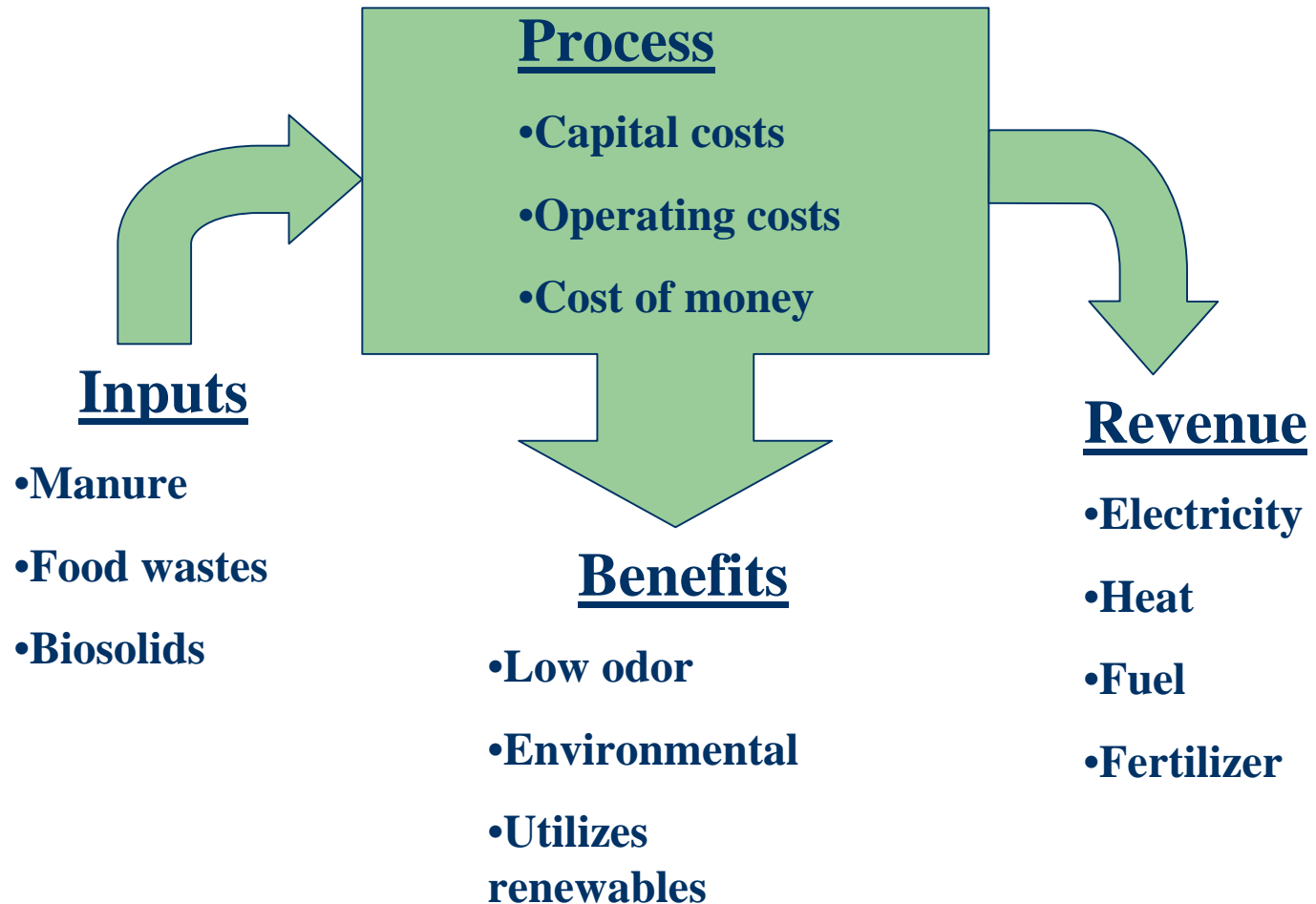


Increase revenues
through sale of
manure co-products

Reduce utility
bills



Economics



Inputs

- What is the value of your manure? \$_____
- What is the volume of your manure? _____
- What is the cost to /gal _____
- Are odors an issue Yes No
- Is Pathogen reduction an issue? Yes No
- Is weed seed in manure an issue? Yes No
- Is there benefit in having inorganic N instead of organic N for spreading? Yes No
- What is pH of your manure? _____

Digester System Costs

Digester/Tank	\$87,000
Generator	\$65,000
Biogas Handling	\$8,000
Utility Interconnect	\$8,000
Separator	\$32,000
Annual Operating Costs	<u>\$9,000</u>
Total Capital Investment	\$209,000

Output Revenues/Costs

- What revenues/cost will digesters produce:
 - Savings in heating costs \$ _____
 - Savings in electrical costs \$ _____
 - Revenue generated from
 electric sales \$ _____
 - Value of bio-solids \$ _____

Potential Revenues

Electricity	\$24,000
Heat	\$11,000
Solid Sales	\$6,000
Saving on Lagoon Cleanings	<u>\$9,000</u>
Annual Revenue	\$50,000

Information to Gather

- **Cost of you electricity (cents/Kw)** _____
- **Cost of heating fuel** _____
- **Does local electric supplier buy renewable or green energy** Yes No
- **What rate does electric supplier pay for buying renewable energy** _____

Information to Gather (con't)

- What grants, low interest loans and/or subsidies are available for feasibility studies, construction, and operation?

- What firm will you use to perform a detailed feasibility study for your unique farm operation?

Available resources

- **AURI**
- **AgSTAR**
- **Minnesota Department of Agriculture**
- **Haubenschild Dairy Digester Report**
- **Minnesota Project**
- **Department of Energy**
- **USDA**
- **National Renewable Energy Laboratory**

Questions from the floor

AURI Office Locations

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- Central Office, Morris (320) 589-7280
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