



Methane to Markets

The Kindersley Centre, Berkshire

November 29th & 30th 2006



defra

Department for Environment
Food and Rural Affairs



Methane to Markets

Markets, Drivers and Outlets

Kelsi S. Bracmort, Ph.D.

Agricultural Engineer

U.S. Department of Agriculture

Natural Resources Conservation Service



defra

Department for Environment
Food and Rural Affairs



Jennifer Beddoes, P.E.

Environmental Engineer

U.S. Department of Agriculture, Natural Resources Conservation Service

Robert T. Burns, Ph.D., P.E.

Associate Professor,

Iowa State University, Agricultural & Biosystems Engineering



Department for Environment
Food and Rural Affairs

Current Status of Manure Anaerobic Digestion in the US

- Manure AD systems in the US have a high failure rate
 - 50% all system types
- Millions of small-scale AD systems are working successfully internationally for direct biogas use
- Increase the number of functional AD systems



Methane to Markets



Barriers to Anaerobic Digestion on US Farms

- High Up-front Capital Cost
- Improper Design
- Poor Construction
- Inadequate Maintenance
- Lack of Economic Return



Methane to Markets



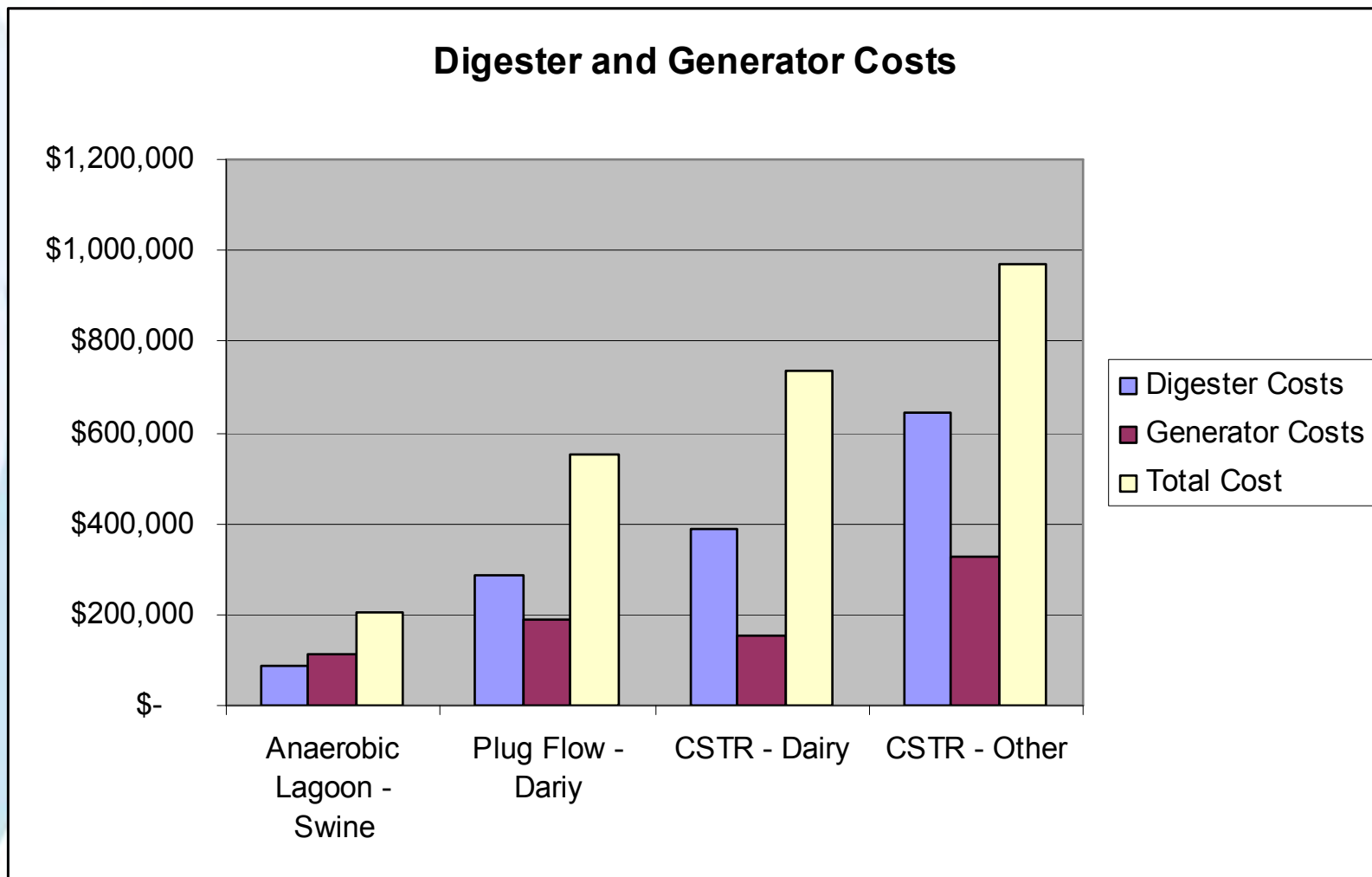
NRCS



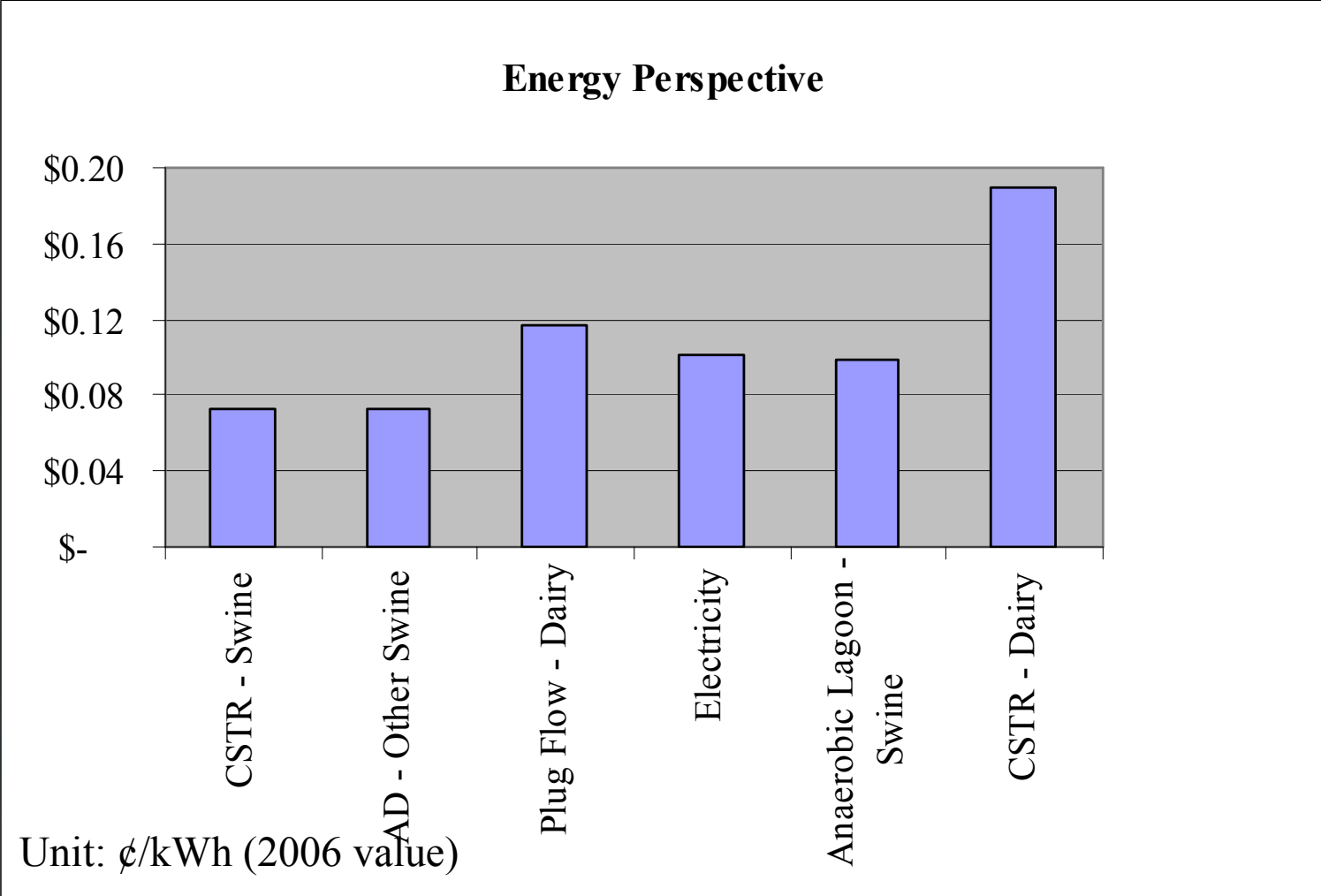
defra

Department for Environment
Food and Rural Affairs

Capital Cost of Anaerobic Digestion on US Farms

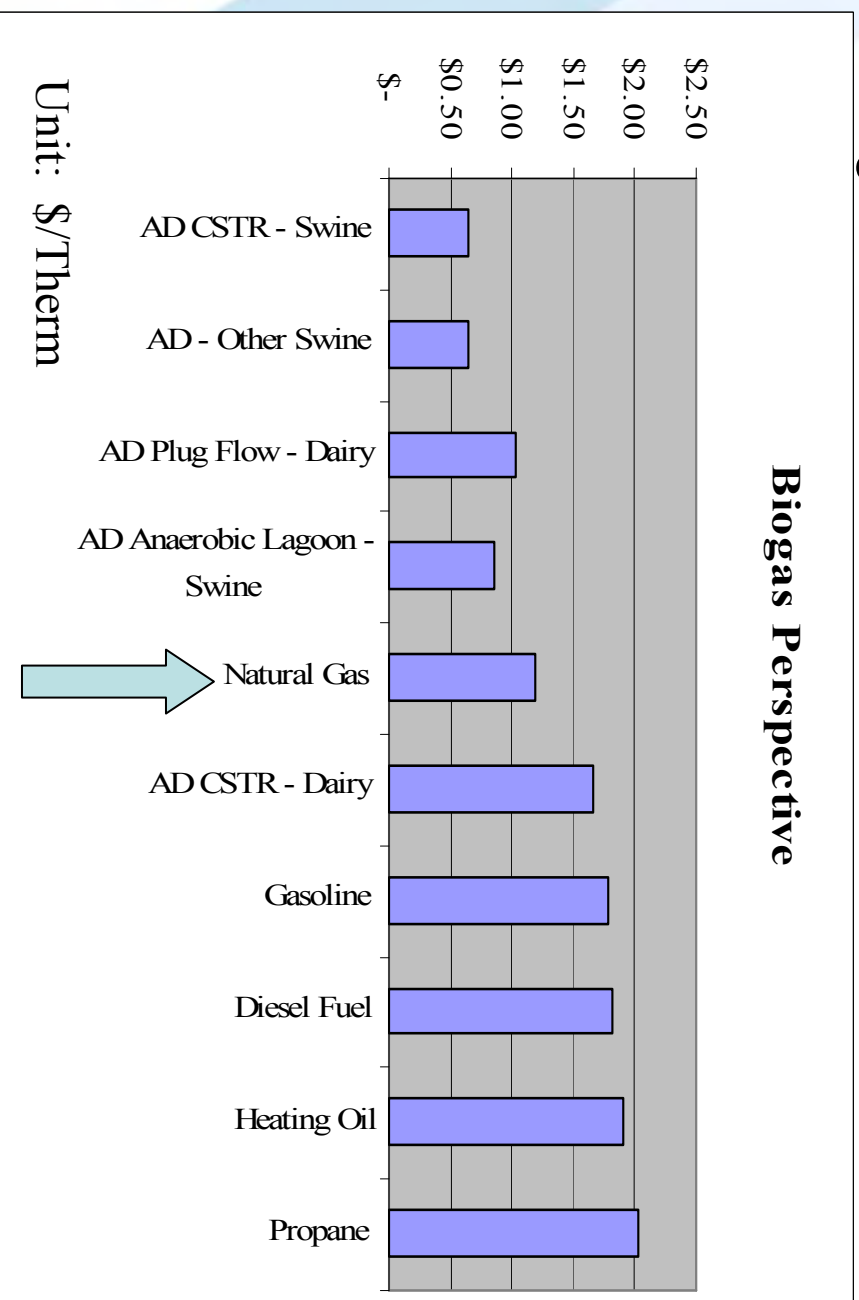


Lack of Economic Return from Electricity Production



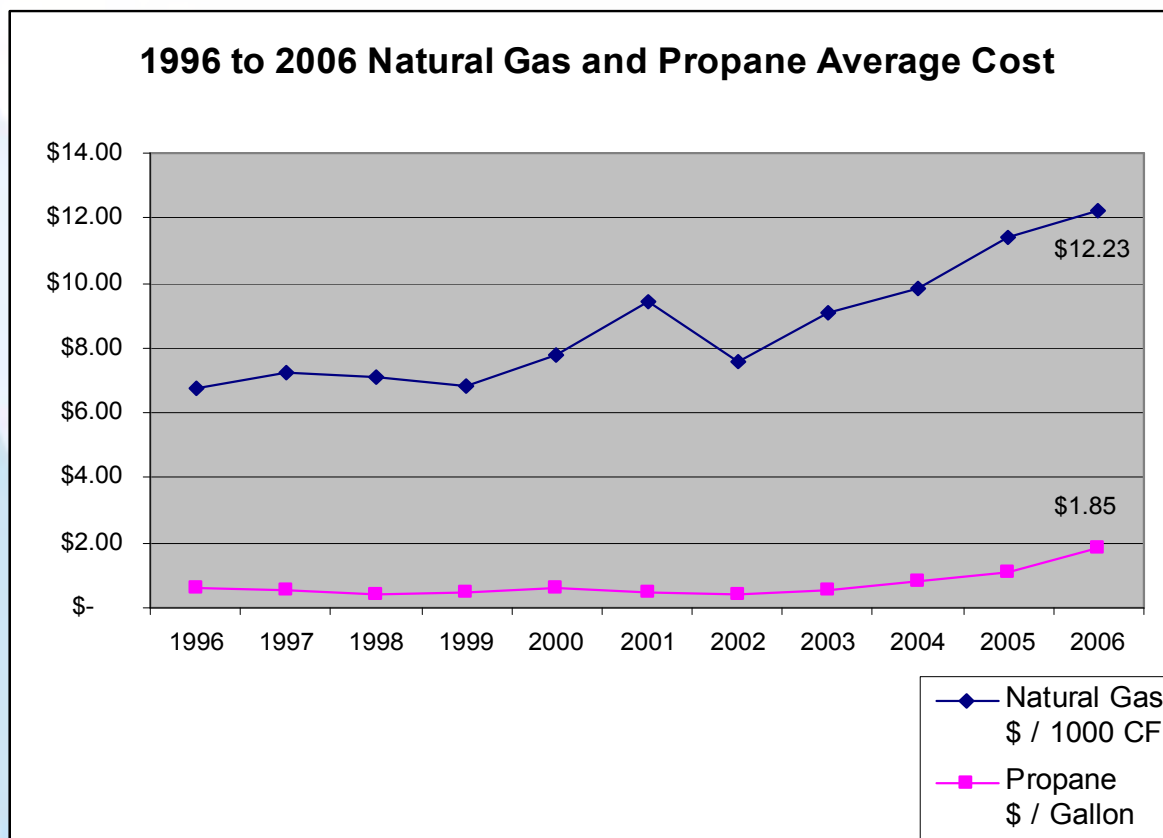
New Market Opportunities for Manure Anaerobic Digesters

- Biogas Production Costs



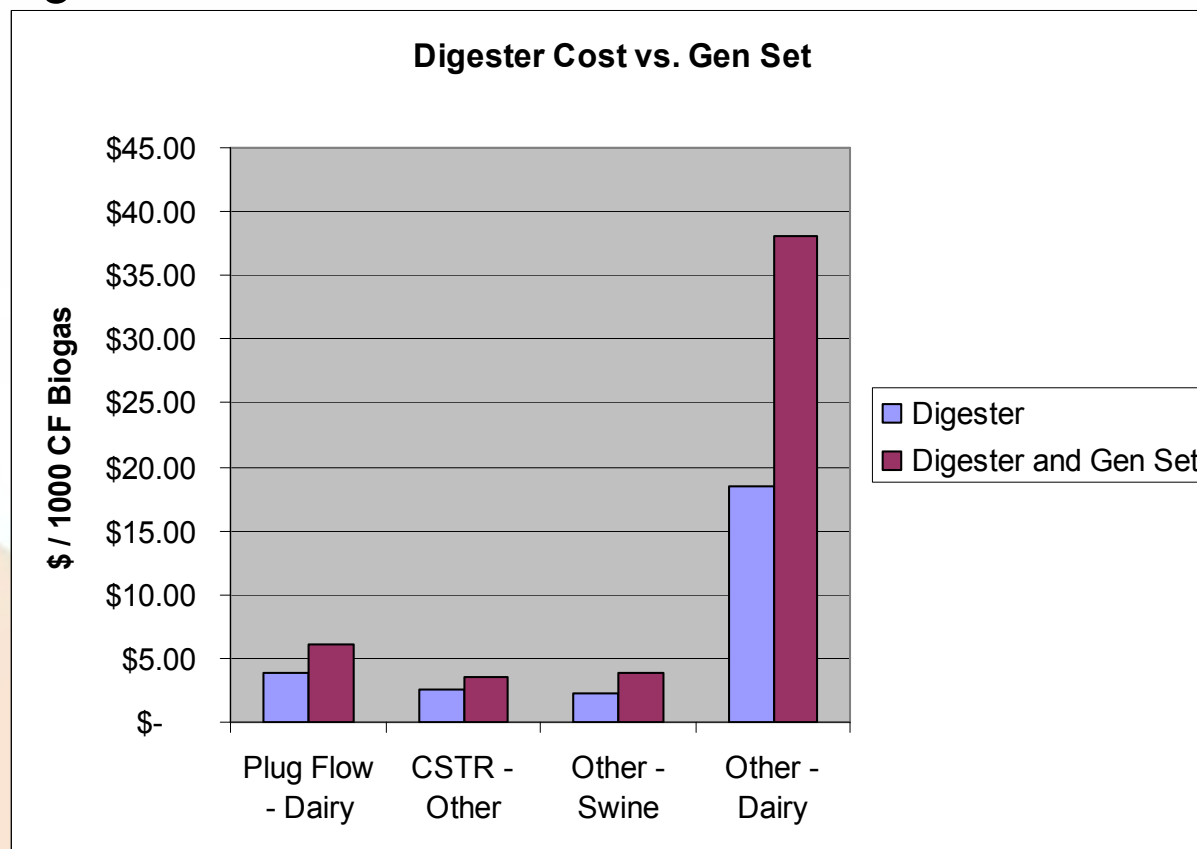
Opportunities for New Manure Markets for Anaerobic Digesters

- Increasing Cost of Natural and LP Gas



Opportunities for New Manure Markets for Anaerobic Digesters

- Direct Use of Biogas On-Farm
 - Hot Water
 - Space Heating



Methane to Markets



NRCS

defra

Department for Environment
Food and Rural Affairs



NRCS Technical Note:

Anaerobic Digesters for Limited Resources Producers

- Promotes Direct On-Farm Use of Biogas
 - Provide Producers Information

Current Status of AD Technology in the U.S.
On-Farm Production of Biogas
On-Farm Biogas Use
Biogas Cleaning and Conditioning
Typical Manure Anaerobic Digestion Systems
Estimating Biogas Production through AD
NRCS AD Conservation Practice Standards



Methane to Markets



NRCS



defra

Department for Environment
Food and Rural Affairs

Conclusions

- U.S. Producers need systems that are more cost effective and easily managed
- Economically feasible cost avoidance can be achieved by directly utilizing the biogas produced by manure anaerobic digesters on site



Methane to Markets



Outline

- * AD = Gas/Energy + digestate (raw digestate, liquid or fibre).
- * Heat / gas / fuel / electricity
- * Digestate - nutrients recycled, pathogens killed
- * Barriers to landspreading - farmer and retailer (public) acceptance, regulators
- * Quality standards, certification, product use, labelling and Marketing
- * NRCS tech note and how it provides guidance to limited resource farmers.
- * Could also add points/conclusions that NRCS has that could be applicable internationally

Outline

All of the products of Anaerobic Digestion (including heat/gas/fuel/electricity as well as digestate and main types of digestate). Details and benefits of the digestate as well could be included, such as nutrients being recycled and pathogens killed. An outline to the market barriers (e.g. barriers to landspreading, quality standards of digestate etc.) and drivers (e.g. legislation, rising energy costs etc.) should then be presented

As your presentation is 12-15 minutes long we recommend no more than about 10 slides.

Slide title goes here

- Bullet point area 1 position
- Bullet point area 2 positioning and format
- Bullet point area 3 style, format and positioning
 - Sub-bullet point area, style and format



Methane to Markets



NRCS



defra

Department for Environment
Food and Rural Affairs