

“Learning What's On Our Lines” to
Maximize Farm Energy Efficiency with
Rural Electric Cooperatives



What is this really about?

- Existing efficiency resources:
 - EnergyWise Rebates through local utility
 - Mostly residential
 - USDA Energy Self-Assessment
 - www.ruralenergy.wisc.edu
- The Gap: Very little programming targeted at the farming community.

How did we do this?

We knew there had been a lot of farmers in McLeod Co-op Territory, but we needed to know...

- How many are still farming?
- What kind of farming are they doing?

How we asked them?

- Leveraged the style of the “Customer Satisfaction Survey”
- Scantron Bubble Sheet – Quick & Easy
 - “Are you actively farming?”
 - “What kind of operation are you?”
 - Dairy, Grain & Drying, Poultry, Beef, Swine, Other
- \$100 Gift Card as incentive

The MINNESOTA PROJECT **McLeod COOPERATIVE POWER**
Farm-Residential Account Inventory

McLeod Cooperative Power Association and the nonprofit The Minnesota Project received a grant from the Minnesota Department of Commerce to develop a program focused on farm energy use. This effort aims to help lower agricultural production costs and assist the Cooperative with energy efficiency goals. Please help us tailor our effort by answering a few questions about your Farm-Residential account.

INSTRUCTIONS

Please use pencil or blue/black pen and fill ovals completely. Correct Mark Incorrect Marks

We are developing a service model focused on energy efficiency in agricultural operations. Please fill out this survey to help us reach the right farms.

<p>Are you actively farming? <input type="radio"/> Yes <input type="radio"/> No</p> <p>What kind of farm operation do you have? <i>(Mark all that apply)</i> <input type="radio"/> Dairy <input type="radio"/> Poultry <input type="radio"/> Swine <input type="radio"/> Grain & Drying <input type="radio"/> Beef <input type="radio"/> Other</p> <p>Are your farm and residence on one electric meter? <input type="radio"/> Yes <input type="radio"/> No</p> <p>How many meters does your farm have? <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 or more</p> <p>What lighting system do you have in your farm facilities? <i>(Mark all that apply)</i> <input type="radio"/> Incandescent Lighting <input type="radio"/> Compact Fluorescent <input type="radio"/> Linear Fluorescent <input type="radio"/> Metal Halide or Mercury Vapor <input type="radio"/> High Pressure Sodium (orange light) <input type="radio"/> LEDs <input type="radio"/> Not sure</p>	<p>Do you use electric space heaters on your farm? <input type="radio"/> Yes <input type="radio"/> No</p> <p>Do you plug in your tractor block? <input type="radio"/> Yes <input type="radio"/> No</p> <p>Does your farm shop have a compressed air system? <input type="radio"/> Yes <input type="radio"/> No</p> <p>Does your farm have a backup generator? <input type="radio"/> Yes <input type="radio"/> No</p> <p>↳ If yes, what type of generator? <input type="radio"/> Portable <input type="radio"/> Automatic</p> <p>Are you considering the purchase of a backup generator? <input type="radio"/> Yes <input type="radio"/> No</p> <p>You could win a \$100 Visa card by completing and mailing this survey!</p>
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If you write your name and telephone number in the area provided at the end of the survey, your name will be entered in a drawing for a \$100 Visa card.

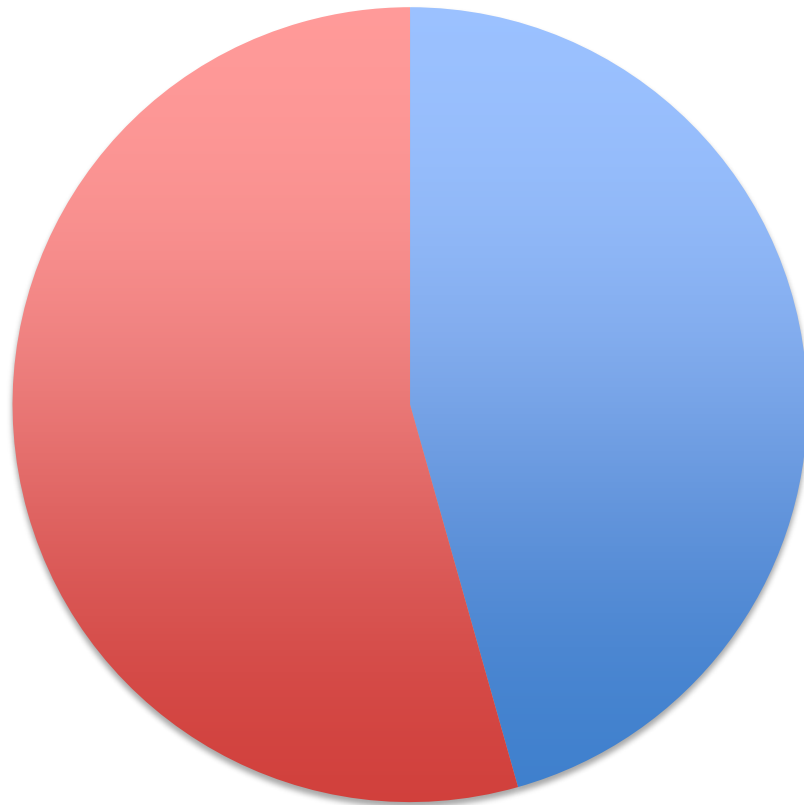
Please print clearly below. Matching address and phone numbers will help us compile results.

Name: _____ Phone: _____
 Address: _____ Email: _____
 Comments: _____

Your personal information will not be shared with anyone other than The Minnesota Project and McLeod Co-op Power Association.

Thank you for your valuable input!
 To return your completed survey, please use the enclosed postage-paid envelope. Then simply drop in the mail.

2500 “Farm-Residential” Accounts



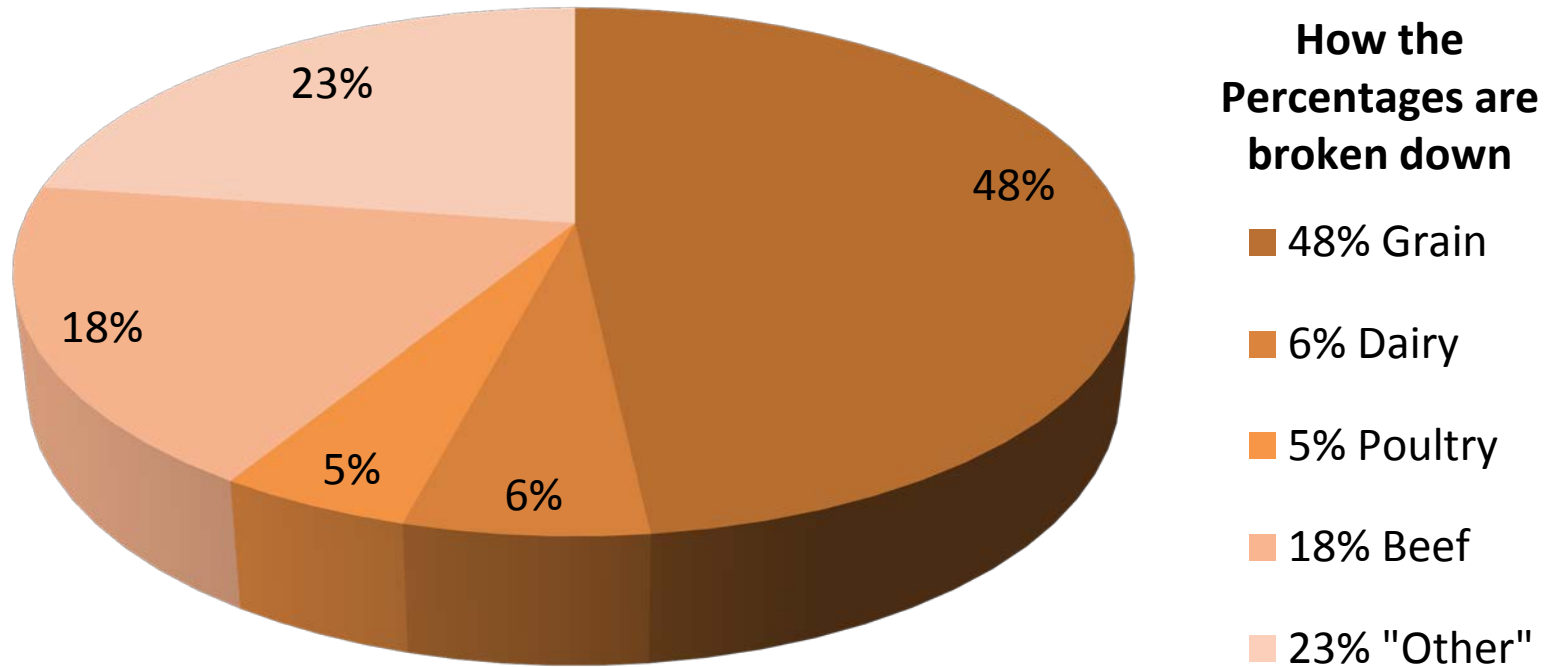
936 Total Respondents

■ 427 Actively Farming

■ 509 Not Farming

What kinds of farms?

427 Active Farm-Residential Accounts



An In-Depth Look

- Project Team developed 8 individualized one-page surveys:
 - Farm-specific
 - Technology-specific
- Point was to identify what efficient equipment:
 - is missing and/or
 - is past its prime

What did the surveys look like?

Grain Systems and Dryers

Please verify your grain handling system information.

What grains do you currently mechanically dry?
 Corn / Soy Bean / Wheat / Oats / Other: _____

What months do you typically dry grain?
 Jul / Aug / Sept / Oct / Nov / Dec







Grain Storage Capacity: _____ No. Bins: _____

Verify your grain dryer energy sources (circle):
 Electric / Nat Gas / Propane

Type of electric service (circle): 1-phase / 3-phase

Specific to energy sources associated w/ grain drying:
 Avg. monthly electric: \$ _____
 2013 drying season nat gas/prop: \$ _____ / _____

Select the options that best describes your grain handling and drying systems


 <small>In-bin</small>	1. Utilize in-bin drying with electric air assist fan system? Y / N	
	2. Do you have <u>stirrators</u> for your in-bin drying system? Y / N	
 <small>Full Heat Batch</small>	3. Utilize a gas heated full heat in-bin continuous flow dryer? Y / N	 <small>Continuous Flow</small>
	4. Utilize a gas heated full heat batch dryer? Y / N	
 <small>Vacuum Cooled Tower</small>	5. Utilize a continuous cross flow grain dryer? Y / N	 <small>Continuous Cross Flow</small>
	6. Utilize a vacuum cooled tower dryer? Y / N	
	7. Utilize a continuous mixed flow dryer? Y / N	 <small>Mixed Flow</small>
	8. Utilize computerized moisture and temperature controls? Y / N	

Please provide the following annual grain drying information.

Do you practice in-bin cooling? Y / N. _____% moisture going into bin?

What is your target final moisture content? _____

	2012	2013	2013
Bushels dried: corn: _____	_____	_____	Bu. produced: _____
Soybean: _____	_____	_____	_____
Other: _____	_____	_____	_____



What did the surveys look like?

Dairies

Herd Size: No. Milking Cows: _____ No. Other Cows: _____ Milk vacuum pump runtime: _____ hrs/day	Specific to your dairy farm: Do you have LP/ Natural Gas /No NG but Access to? Avg. monthly electric bill: \$ _____ Avg. monthly Nat Gas/Propane: \$ _____ / _____ Bills include house or just farm? <u>Y</u> / N
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In the last 10 years have you installed any of the following?



Variable Speed Drive

1. Variable Speed Drive on Vacuum Pump? Y / N

2. Variable Speed Drive on Milk Pump? Y / N



Scroll Compressor

3. Plate Cooler/Pre-Cooler? Y / N

4. Scroll-type Refrigeration Compressors? Y / N



Plate Cooler

5. Refrigeration Heat Recovery? Y / N



Waterers

6. Low/No Energy Waterers? Y / N

7. Tractor Block Heater Timer? Y / N



Refrigeration Heat Recovery



High Efficiency Lights

8. High Efficiency Lights? Y / N



Block Heater Timer

If so, what kind? (T-3, T-5, LED, etc.) _____

Do you use space heaters to supplement winter heating in the milk house? Y / N
What type of milk line water heating do you have? Electric LP/Natural Gas
How old is/are your water heaters? 1-5 yrs 5-10 yrs 10-20 yrs >20 yrs



Looking ahead.....

- Now we have the data we wanted, but what do we do with it?
- **Analyze it!**
- Now we've identified cost-effective technologies for farmers and are developing marketing materials and rebate programming to target each facility.