Agricultural Maintenance Benefits White Paper:

The Success and Unforeseen Benefits of Farm Equipment Tune-Ups

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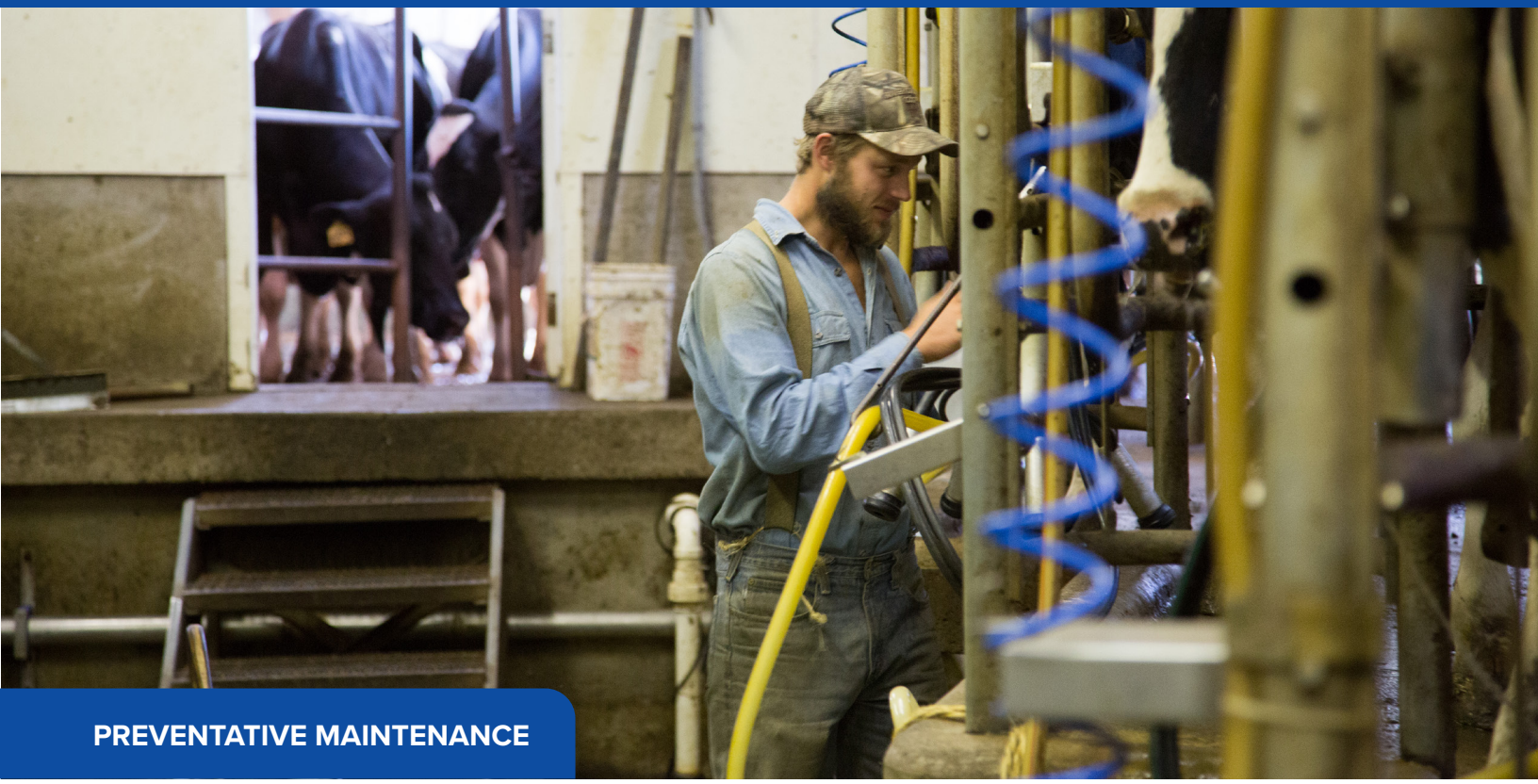
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INTRODUCTION

When equipment breaks down on a farm, operations halt—or so it seems. In reality, the work continues despite the setbacks. If a grain dryer shuts down, crops are still harvested. Maintaining functional equipment is essential for a smooth, productive, and efficient farm operation.



PREVENTATIVE MAINTENANCE

While the practice of tuning up agricultural equipment is well-established, it is not always prioritized in every farmer's preventative maintenance plan. Often, farmers wait until equipment fails before addressing issues. When commodity prices are low, and finances are tight, farmers prioritize essential tasks to keep their operations running. Preventative maintenance becomes a luxury, and in times of budget constraints, maintenance is frequently one of the first areas to be neglected.

The benefits can be significant when farmers allocate resources for preventative maintenance, such as regular tune-ups. These include peace of mind, fewer service calls, and properly functioning, longer-lasting equipment.



DAIRY REFRIGERATION TUNE-UPS

FOCUS ON ENERGY® incentivizes farmers to offset the cost of dairy refrigeration and grain dryer tune-ups. Tune-ups aim to enhance functionality and extend the life of equipment, saving the farmer time and money.

Milk cooling accounts for the most significant energy expenditure on a dairy farm. Tuning up dairy refrigeration systems not only improves efficiency - it can also uncover potential issues before they arise.

Dairy refrigeration tune-ups include:

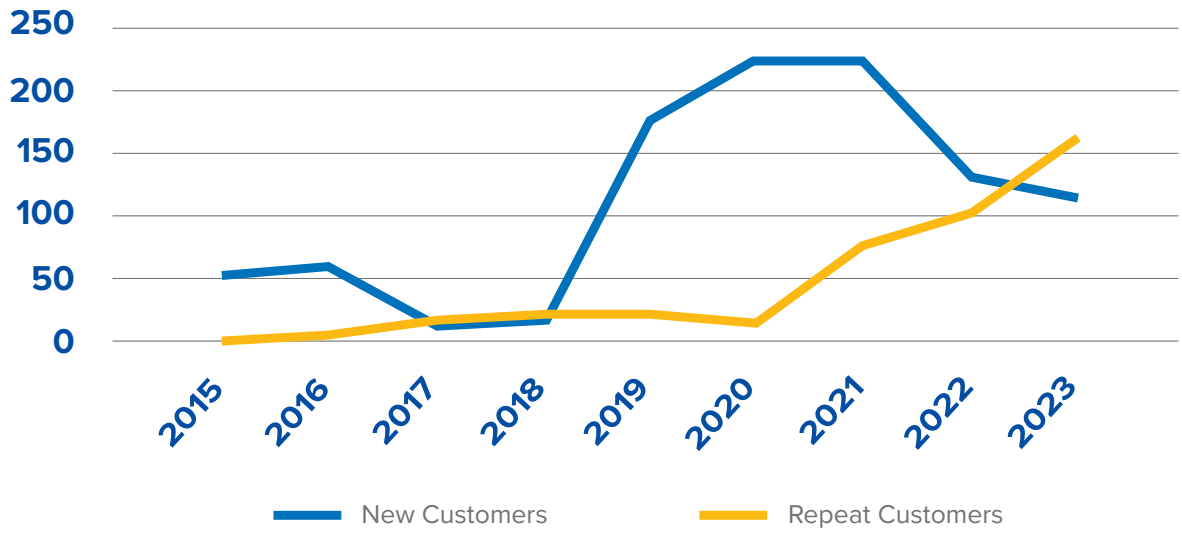
- Cleaning and inspecting condenser and evaporator coils.
- Cleaning drain pan.
- Inspecting/replacing relays and capacitors as needed.
- Cleaning/replacing screens, grills, filters, and drier cores.
- Inspecting/adjusting heat reclaim operation.
- Tightening all line voltage connections.
- Inspecting/cleaning fans.
- Adjusting refrigerant charge as necessary.



The Trade Ally submits a short application and invoice to Focus on Energy. Focus on Energy then provides an incentive payment directly to the Trade Ally based on the number of compressors tuned up. This process allows the farmer to receive the tune-up service at no cost to them.

Trade Allies provide Focus on Energy with information on the compressors serviced during a customer's tune-up. Focus on Energy then pays the Trade Ally directly for the services completed. Since 2019, over 100 new customers have participated annually, with repeat customers outnumbering new customers in 2023 (see Graph 1).

GRAPH 1 - DAIRY REFRIGERATION TUNE-UP CUSTOMER PARTICIPATION





GRAIN DRYER TUNE-UPS

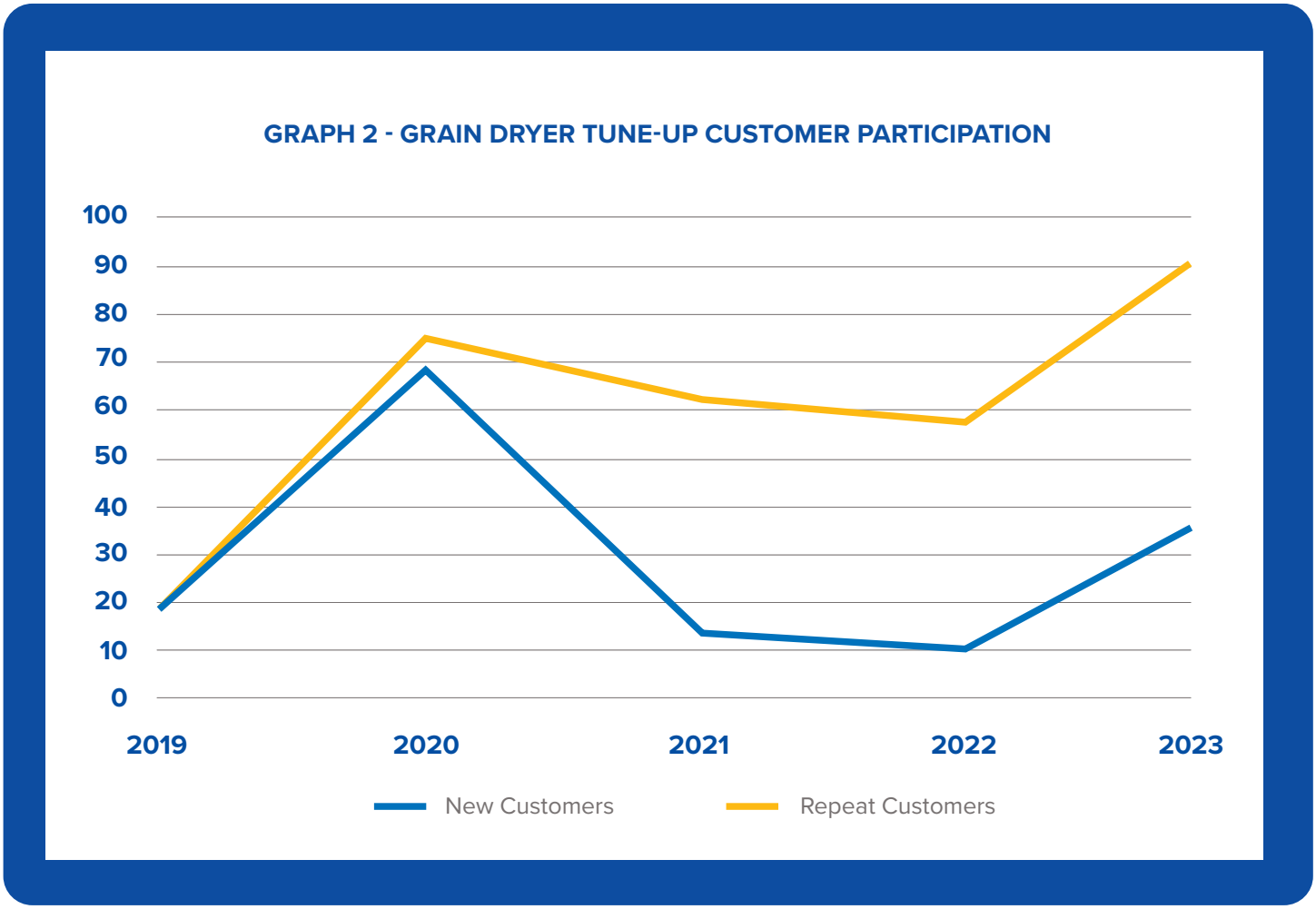
Grain dryer tune-ups are essential for maintaining peak performance, minimizing energy costs, and ensuring the longevity of the equipment. This ultimately leads to more sustainable and cost-effective grain drying operations. Participating in the grain dryer tune-up program is straightforward.

The process to apply is similar to Dairy Refrigeration tune-ups in that the Trade Ally submits an application and invoice and Focus on Energy reimburses them for the services performed. The farmer is able to receive these services at no out of pocket cost to them.

Grain dryer tune-ups include:

- Cleaning fans.
- Lubricating bearings associated with the ventilation system.
- Cleaning drying floor and column screens.
- Cleaning burner.
- Checking pressure regulator.
- Adjusting inlet air settings.
- Cleaning and calibrating temperature and moisture sensors.
- Optimizing control settings, including plenum temperature setpoints.

Since 2021, over 60% of participants have been repeat customers, validating the program's benefits (see Graph 2).



FARMER'S ADVANTAGE

On dairy farms, peace of mind is often elusive, with numerous concerns keeping farmers up at night. One way to alleviate some of this stress is by ensuring their dairy refrigeration equipment is serviced annually.



EQUIPMENT EFFICIENCY

Investing in annual dairy refrigeration equipment tune-ups is a great way to improve efficiency, but it may also save a farmer money on repairs for otherwise undetected equipment malfunctions.

For instance, a Wisconsin farmer discovered a leak in his refrigeration heat recovery (RHR) unit during a routine tune-up. The service technician found the refrigerant level was low and traced the issue to the leaking RHR unit. Identifying this problem during regular business hours saved the farmer significant money. As a loyal customer, he was charged $95 per hour for labor, compared to a new customer's $165 per hour emergency rate. This same five-hour job could have cost the farmer an additional $350 had they not been proactive in identifying the issue.

The Trade Ally conducting the tune-up was knowledgeable about the Focus on Energy program and connected the farmer with an Energy Advisor. This advisor helped the farmer secure an additional $600 tune-up incentive, offsetting some of the unexpected repair costs.



ESTABLISHING ALLIES

Tune-ups offer farmers an additional benefit: ***the opportunity to establish a relationship with an Energy Advisor***. These advisors can help identify other energy-related projects to enhance productivity and reduce monthly utility bills.

Energy Advisors provide hands-on assistance in identifying and prioritizing energy efficiency projects and help with submitting incentive applications for payment.

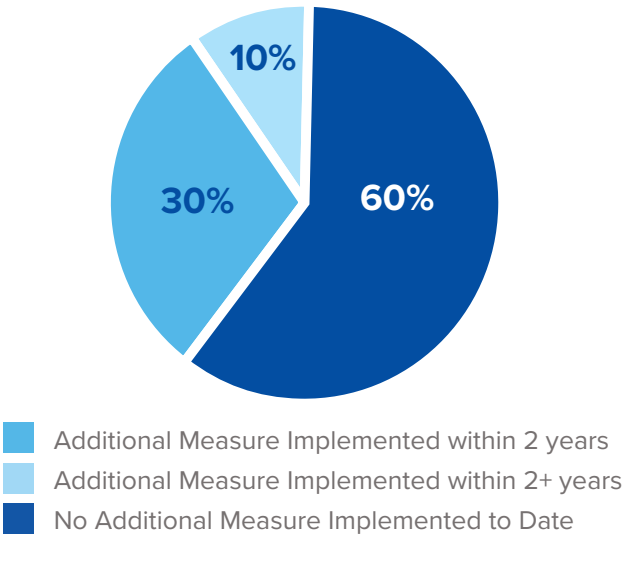
DAIRY REFRIGERATION TUNE-UPS AND BEYOND

Roughly 40% of customers who completed a dairy refrigeration upgrade complete at least one additional energy upgrade. Of those, 30% implemented those upgrades within two years of completing their tune-up (see Chart 1). Additionally, 29% of customers who completed a tune-up in 2022 implemented at least one additional measure within 12 months.

The most common next steps include implementing lighting measures, followed by variable frequency drives and fans. Other popular measures include:

- Refrigeration heat recovery units.
- Plate coolers.
- Boilers.
- Water heaters.
- Waterers.

CHART 1. DAIRY REFRIGERATION TUNE-UP CUSTOMER ACTIVITY 2018-2021

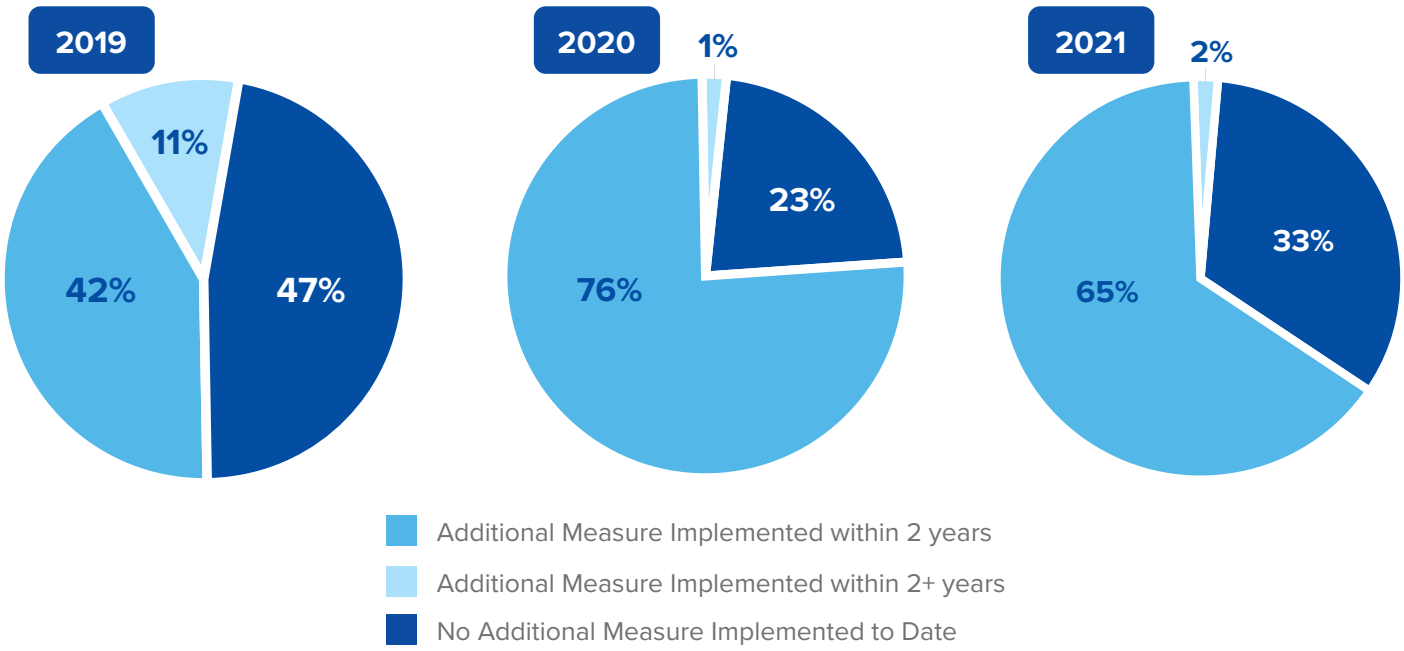


GRAIN DRYER TUNE-UPS AND BEYOND

For grain dryers, the value of a tune-up extends far beyond routine maintenance. Preventing a dryer from going offline during harvest season can have a significant economic impact. Dryers typically operate only three to four months of the year, so any downtime can disrupt critical operations. If equipment failure occurs, crops may need to remain in the fields past optimal harvest time or be rerouted to a functional dryer, both of which can strain a farmer's finances.

On average, 68% of customers who undergo a grain dryer tune-up will implement another measure within two years. Lighting measures are the most common first step, followed by adding variable frequency drives and investments in new grain dryers. The breakdown of customer activity after a tune-up between 2019 and 2021 can be found on Chart 2.

CHART 2 - CUSTOMER ACTIVITY AFTER GRAIN DRYER TUNE-UP



TRADE ALLY'S BOON

Emergency calls become nightmares for farmers and Trade Allies during labor shortages. Not only do these calls strain the farmer's finances, but they can also pose significant challenges if no one is available to respond and complete the work on site.



REDUCED EMERGENCY CALLS

Several Trade Allies have reported a decrease in emergency service calls resulting from the tune-up offerings. While preventative maintenance is expected to lead to fewer breakdowns and extended equipment life, the enthusiastic response from service technicians regarding the decline in 'after-hours' calls was unforeseen. Like most trades, agriculture service providers have faced staffing shortages in recent years, and while visiting all the farms remains challenging for many providers, scheduling tune-ups during regular business hours has made it significantly more manageable.

> *Dairy refrigeration tune-ups are invaluable. This service guarantees optimal performance, slashes expenses, and safeguards against equipment failures. It enables us to deliver top-quality milk year-round consistently. When considering impactful ways to lower our carbon footprint and maximize the return on investment, prioritizing a tune-up is essential.*
>
> **Brian Forrest, Owner**
> **Maple Ridge Dairy**

GROWING CUSTOMER LIST

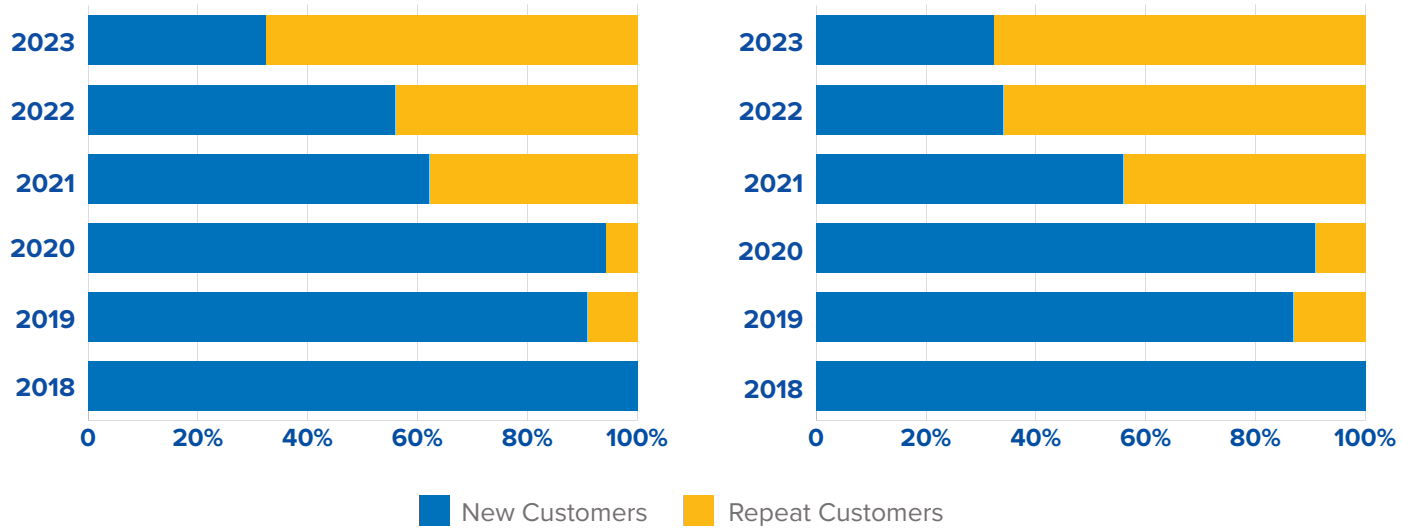
Trade Allies have shared the tune-up offering has allowed them them to broaden their services with existing customers and attract new ones. Some Trade Allies employ proactive measures, like sending out spring mailers to past customers, encouraging them to schedule their dairy refrigeration tune-up before summer. This proactive approach allows them to visit farms, identify potential issues, and establish ongoing relationships. For others, the tune-up has seamlessly integrated into their standard preventative maintenance service, becoming an expectation among farmers.

In rural communities, word-of-mouth remains a powerful tool for Trade Allies to attract new business. Farmers often share positive experiences with their neighbors, further fueling the Trade Allies' reputation. While new customers are always welcomed, repeat customers have steadily increased for both tune-up offerings, indicating a growing level of trust and satisfaction.

LEADERS IN DAIRY REFRIGERATION TUNE-UPS

The top two leading providers have collectively served over 360 customers since 2018 (see Graph 3). Each year, an average of 10 dedicated Trade Allies deliver dairy refrigeration tune-ups. Their success stems from diligent efforts in building their customer base from 2018 to 2020, with a notable surge in repeat customers beginning in 2021. By 2023, repeat customers comprised approximately 65% of their total dairy refrigeration tune-up clientele.

GRAPH 3 - DAIRY REFRIGERATION TUNE-UP - CUSTOMER PARTICIPATION – CO-LEADING TRADE ALLIES



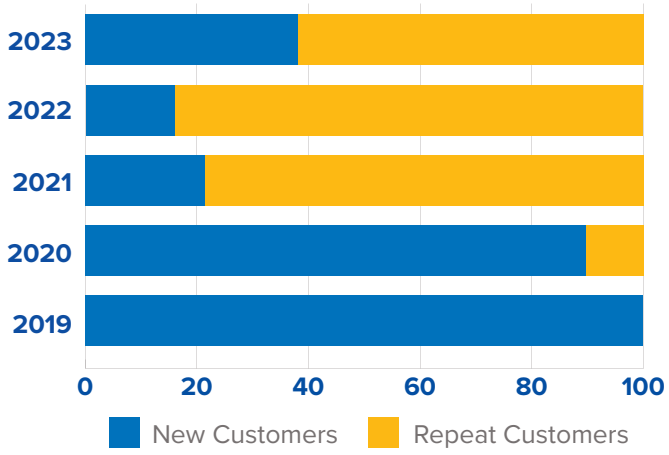


GRAIN DRYER TUNE-UP LEADERS

Since 2019, three prominent Trade Allies have been delivering grain dryer tune-ups statewide. Since 2021, there has been a shift, with more repeat customers than new ones, a trend expected to persist.

The leading Trade Ally, servicing an average of 60 customers annually, focused on building its customer base throughout 2019 and 2020 (see Graph 4). This leading Trade Ally also offers an 8% discount on all grain dryer services for the remainder of the season if a tune-up is completed. This incentive encourages farmers to prioritize optimizing their equipment before the harvest season, ensuring smooth operations and potentially avoiding costly repairs.

GRAPH 4 - GRAIN DRYER TUNE-UP CUSTOMER PARTICIPATION - LEADING TRADE ALLY



> *At Lodermeier's, we offer a pre-season check-up on grain drying equipment performed by our factory-trained technicians. These check-ups are invaluable as they allow us to identify and fix issues that may have arisen at the end of the previous season or during the off-season. By catching these problems early, we can order parts and make necessary repairs, ensuring our customers don't face delays during the critical harvest period.*
>
> *A common issue is damage to wires and electronics caused by critters. We also frequently see problems with dryer gas components due to water damage. We aim to identify these issues and provide effective solutions, preventing them from recurring, to guarantee a smooth operation for our customers.*
>
> **Troy Voth, Project Manager, Lodermeier's**

PROGRAM'S PROSPERITY

Initially designed as 'loss leaders,' the tune-up measures have far exceeded expectations, creating a snowball effect of energy savings for rural communities in Wisconsin. Originally, tune-ups aimed to expand our customer base and allow Energy Advisors to establish relationships with new clients. The program's goals included:

- Expanding brand recognition in the agriculture market.
- Identifying energy-saving projects on farms.
- Building trust within the agriculture community.

Trade Allies across the state are crucial stakeholders in achieving these goals.



BUILDING RELATIONSHIPS

Cultivating relationships with Trade Allies has proven to be mutually beneficial. Energy Advisors share information about additional incentives available to farmers with active Trade Allies. These allies often identify potential projects and either inform the Energy Advisor directly or encourage the customer to reach out. Subsequently, the Energy Advisor assists with the project details and provides a financial incentive.

This collaboration benefits Focus on Energy as well, as it encourages the completion of projects that might otherwise be delayed or abandoned. Customers view Trade Allies as trusted resources, fostering loyalty and ensuring they return to the same providers for future needs.

Active Trade Allies also receive newsletters from Focus on Energy, keeping them updated on new offerings and resources.

In 2020, Focus on Energy launched a 'nurture campaign' targeting customers who had previously completed grain dryer or dairy refrigeration tune-ups.

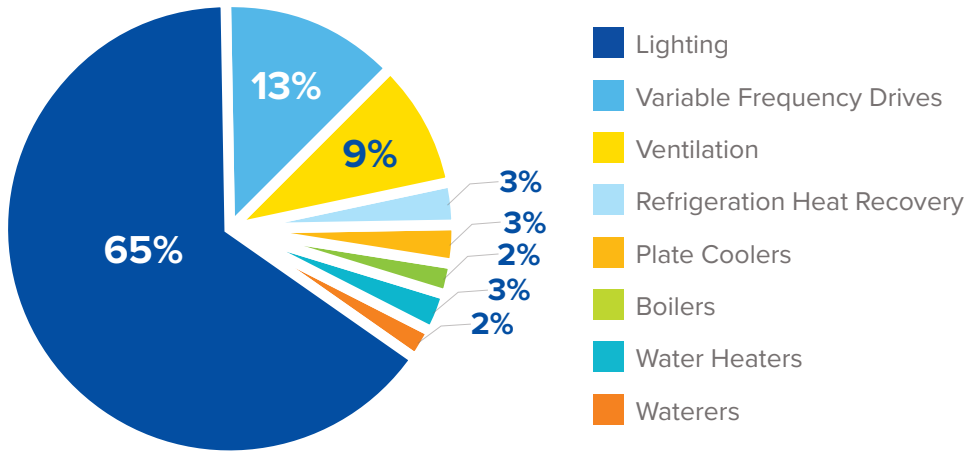
This campaign involved mailing a printed flyer to these customers to boost their overall participation in program offerings.

BEYOND DAIRY REFRIGERATION TUNE-UPS

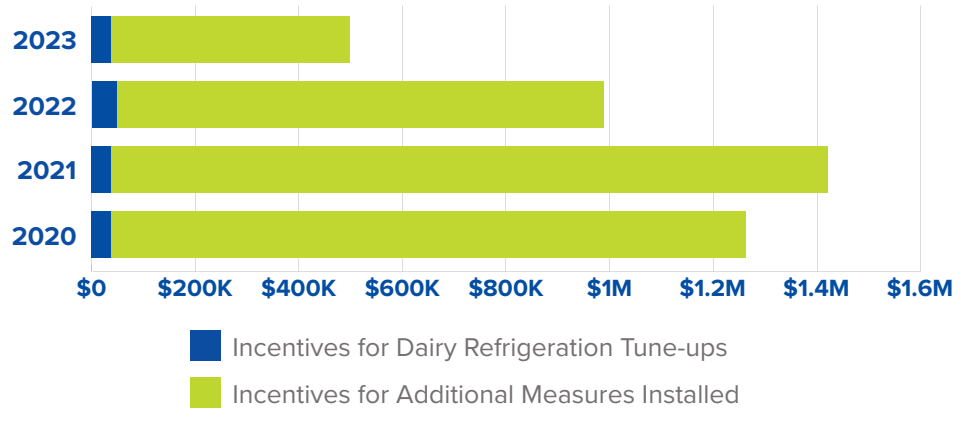
Less than 1% of the lifecycle MMBtu savings from Agribusiness customers were associated with a dairy refrigeration tune-up (see Chart 3). Therefore, 99% of the lifecycle MMBtu savings can be attributed to measures installed after completing a tune-up.

Tune-up incentives account for 2.5% of the total incentives provided to Agribusiness customers (see Graph 5). Most incentive dollars support measures installed after the tune-ups, such as **lighting (65%)**, **variable frequency drives (13%)**, and **ventilation (9%)**.

CHART 3. MEASURES INSTALLED AFTER DAIRY REFRIGERATION TUNE-UP



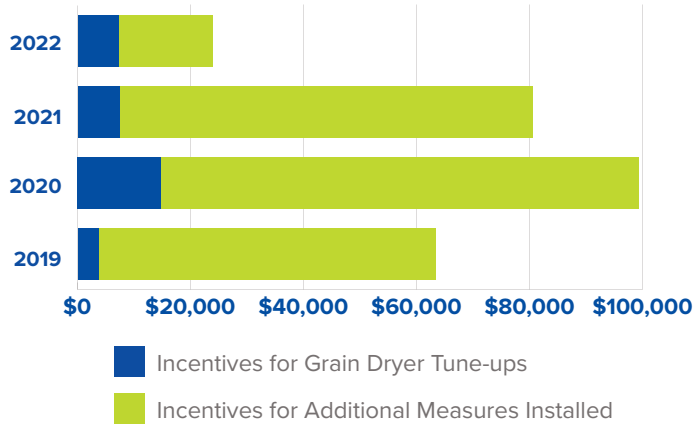
GRAPH 5. ANNUAL PROGRAM INCENTIVE SPEND (DAIRY REFRIGERATION TUNE-UPS)



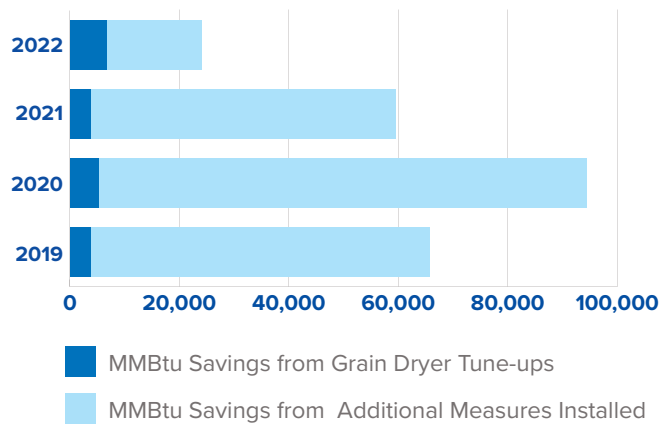
BEYOND GRAIN DRYER TUNE-UPS

Between 2019 and 2022, Focus on Energy spent an average of $7,500 annually on grain dryer tune-up incentives (see Graph 6). In contrast, the program spent nearly $60,000 annually—over 7.5 times more—on incentives for measures installed post-tune-up for the same group of customers. Annual program savings trends mirror the incentive spend annually (see Graph 7).

GRAPH 6. ANNUAL PROGRAM INCENTIVE SPEND (GRAIN DRYER TUNE-UPS)



GRAPH 7. ANNUAL PROGRAM SAVINGS (GRAIN DRYER TUNE-UPS)



APPEALING APPLICATION

The success of the tune-up offerings can, in part, be attributed to the simplicity of the application process. Trade Allies need only basic information, including customer contact details, utility providers, their contact information, and the tune-up date. For dairy refrigeration tune-ups, additional details include the number of cows milked daily and compressors serviced.

The number of corn acres planted, dryer type, and dryers serviced are required for grain dryer tune-ups. Trade Allies typically submit batches of completed applications with invoices showing the program discount was passed on to customers. These applications are processed swiftly, ensuring prompt payment to the Trade Allies.

EXAMPLE GRAIN DRYER TUNE-UP APPLICATION

Customer Information

Contact Name _____
Phone/Email _____
Farm Name _____
# of Corn Acres Planted _____
Dyer Type ❍ Low Temp Bin ❍ Continuous Flow Bin ❍ Mixed Flow ❍ High Temp Batch Bin ❍ Continuous Cross-Flow (Tower) ❍ Cross-Flow Batch

Job Site Address _____
City _____
Zip Code _____
Electric Utility _____
Heating Fuel ❍ Natural Gas Dryer ❍ LP Dryer
Natural Gas Utility _____
LP Supplier _____

Project Information

Trade Ally Company Name _____
Trade Ally Contact Name _____
Date of Service _____
# of Dryers _____ x $100 = _____ Total Incentive Amount

CONCLUSIONS



Participating farmers now consider tune-ups to be integral to their annual preventative maintenance plans. Many no longer need to request them; tune-ups have become routine. It is likely a farmer who has completed a tune-up has already undertaken another energy efficiency project or has one in the pipeline.

Trade Allies benefit significantly from this arrangement, as it helps expand their customer base and reduces the frequency of after-hours emergency calls. Word-of-mouth referrals remain a powerful method for growing their businesses, and they recognize the importance of providing high-quality, affordable service to the agricultural community.

The deliberate effort to create a positive customer experience has not only enhanced the program's sustainability but also strengthened relationships with farmers and Trade Allies.

> *We never anticipated how successful these tune-up offerings would become. Thanks to our dedicated Trade Allies, we reach more farmers each year and are committed to supporting these tune-ups for years to come.*
>
> **Jessica Mlsna, Lead Energy Advisor**
> **Focus on Energy**

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REDUCING ENERGY WASTE ACROSS WISCONSIN

Focus on Energy, Wisconsin utilities' statewide program for energy efficiency and renewable energy, helps eligible residents and businesses save energy and money while protecting the environment. Focus on Energy information, resources, and financial incentives help to implement energy efficiency and renewable energy projects that otherwise would not be completed.

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