

Emissions Reduction Alberta (“ERA”) Expanded Technology Pilot (ETP) Final Project Report | May 31, 2023

Project Information	
ETP Project ID:	ETP0161589
Project Title:	Lely Juno Feed Pusher
Recipient Organization:	Poly-C Farms Ltd
ERA Project Start Date:	September 12, 2022
ERA Project Completion Date:	March 31, 2023
Total Eligible Project Budget:	\$52,874.04
Total ERA Funding:	\$26,191.50

ABOUT ETP

The Expanded Technology Pilot (ETP) offered a new pathway for Alberta businesses to propose effective, commercially viable technologies that could offer high return on investment but were not supported through the Energy Savings for Business (ESB) program. Successful proposals received funding to support project implementation and will help expand ERA’s understanding of the technology’s performance, market potential, and how it could be best supported in future initiatives.

ETP was open to applications between December 2021 to May 2023.

PROJECT SCOPE

Poly-C Farms Ltd is a family-owned and operated dairy farm that has been producing milk in Alberta for over 25 years and is seeking to become more sustainable and efficient in their practices. Their innovative project is the replacement of a diesel-driven skid steer to push feed for the cattle with two electric, automatic Lely Juno feed pushers, which will reduce required labour, increase cattle productivity, and save carbon emissions.

Below, Poly-C Farms Ltd has provided additional detail on the outcomes of their project

PART 1: Commercialization & Technology Benefits:

1. List and briefly describe any knowledge-sharing activities since the completion of your ERA funded project. E.g., attendance and presentations at conferences or workshops, news articles, social media promotions, etc.

Poly-C Farms Ltd has an open-door policy for individuals or groups to learn more about dairy production. On a regular basis we host tours on our farm for the general public or industry related parties. These groups are either directed to our farm by a supplying industry partner, like Penner Farm

Services, or the Central Alberta Holstein Club. Poly-C Farms Ltd. is a member of the Central Alberta Holstein Club, which organises on farm tours on regular basis for their members.

2. What is the plan for further commercialization of the technology? i.e. what does the next 3-5 years look like, will the technology be used/exported outside of Alberta/Canada etc.

Due to shortage of labour, many dairy farms are investing in technology to become more efficient per full time employee (FTE). This trend is expected to continue in the next 3-5 years.

3. List any additional benefits from the technology system (e.g. water use, land use, social benefits, etc.). Were there any other learnings from installing the technology? (e.g. any new insights into technology capability, difficulties or setbacks, what other markets the technology could be utilized in etc.)

The technology has resulted in an increase of milk production in the herd. A higher milk production has been achieved by more frequently pushing up the feed. Ultimately a higher milk production will lead to lower Greenhouse Gas production, due to fewer number of cattle needed to produce the same amount of milk.

PART 2: Economic and GHG Impact

4. Provide your best estimate of the number of FTE's supported because of the ERA funded project since project completion:

The installation of the Lely Juno Feed Pushers have resulted in a decrease of labour of required of one hour daily for every day of the year. This translated to a decrease of 0.175 FTE. As noted above, due to shortage of labour, many dairy farms are investing in technology to become more efficient per full time employee (FTE).

5. Provide updated estimated direct lifetime GHG emissions reductions in tCO₂e. Please provide any available evidence, calculations, or data to support this claim, e.g. relevant activity date, verification report, assumptions or project plan.

	Total GHG reductions (tCO ₂ e)
Lifetime Savings	132.3*

*Values calculated by ERA prior to project completion.

Please specify the number of years the equipment is expected to remain operational: 16

6. Provide any operational data required in the Contribution Agreement (indicate if there is an additional attachment(s)). E.g., how much time the technology is operational, how much fuel it uses, etc.

The technology has been operational since March 31, 2023. The power consumption has been monitored by installing a temporary Energy Watt Meter. Based on the readings of this meter the power consumption per Juno per running hours is 0.000228 MWh, which is actually slightly lower than projected in the application. As a result, the total GHG reductions achieved by this project are slightly higher than originally anticipated.

7. Provide an update on the Technology Success Metrics identified in the Contribution Agreement:

Success Metric	Project Target	Target Achieved?
Reduced usage of diesel-powered skid steer and consequently lower diesel fuel consumption.	Reduce skid steer operation by 1 hour a day, consequently reducing diesel fuel consumption by 8.505 liters per day	Yes
Increased feed intake	Milk yield increase of 2%	Yes
Reduced labor requirement	1 hour per day	Yes

PART 3: Technology Transfer Plan

8. Provide a brief overview of what the problem the technology solves.

The installation of the Lely Juno Feed Pushers displaces a diesel-powered skid steer and reduces the production of GHG for the process of pushing up feed. The installation also resulted in higher milk production which further reduces the amount of GHG production overall. It also reduces the need of labour.

9. Describe where people can access the technology. Who is responsible for manufacturing, selling and servicing the technology?

The Lely Juno Feed Pushers were provided by [Penner Farm Services](#).

10. Describe who will use the technology and what the target market is. i.e., industry, geography, size, quantity of customers etc.

Currently, there are 478 active dairy farms in Alberta which are always looking to make their operation more efficient. Not only will the Lely Juno Feed Pusher promote higher milk production, but it will also save on labour requirements.

11. Identify specific competitors for similar technologies and substitutes. Include a brief comparison of the technologies and strengths/weaknesses of each. Identify any advantages that might exist with this technology system or that of your competitors.

There are several products on the market that compare to the Lely Juno Feed Pusher, like the Boumatic Robotic Feed Pusher FP-1 and the DeLaval OptiDuo Feed Pusher. While the technology is fairly similar to the Lely Juno Feed Pusher, we choose for this product on experiences with Penner Farm Services and availability of parts.

12. Describe the primary marketing mediums that either your company uses to market the technology or how you found out about the technology. i.e., advertising, industry contacts, word-of-mouth, public demonstrations etc.

Poly-C Farms have a long-standing relationship with Penner Farm Services.

13. Describe what you are doing to promote the technology to others.

While Penner Farm Services promotes the product by means of advertising, we promote the product by taking part in discussion groups and explaining the technology during farm tours.