

Forage Facts



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DID YOU KNOW?

Our podcast **Coffee, Cows & Crops** turns one year old this month! Help us celebrate by listening in on our website at peacecountrybeef.ca/podcast, Apple Podcasts, Spotify, or wherever you listen to podcasts!

Integrating Livestock and Cropping Systems

By Johanna Murray

Crop/Livestock Integration is a hot topic and a broad one. As stated in an article by Joanne Thiessen Martens and Martin Entz, "Integration can occur either on a single mixed farm or in a cluster of various types of specialized farms. The most common approach to area-wide integration involves hauling of manure or compost from livestock operations onto surrounding farmland. Another option is to move the livestock onto farmland in custom grazing operations or other arrangements between crop and livestock farmers. Proximity of farms and trust between farmers are keys to the success of such systems." [\[nitoba.ca/outreach/naturalagriculture/articles/ecological-farm-systems_dec2013.pdf\]\(https://nitoba.ca/outreach/naturalagriculture/articles/ecological-farm-systems_dec2013.pdf\)](https://uma-</p></div><div data-bbox=)

Several studies have been completed on various types of integration in western Canada and the United States. These studies show that grazing cattle and spreading manure can significantly reduce fertilizer needs when growing cash crops.

Spreading manure, fresh or composted, on cropping fields is a straightforward form of crop/livestock integration. In the spring of 2018, PCBFA started a 3-year study on reducing fertility inputs in cropping systems using bio-stimulants, cover crop for forage production, livestock grazing, and manure application in partnership with Chinook Applied Research Association (CARA) in Oyen. This project found that applying cattle manure on Barley provided some of the most



significant benefits in terms of nutrient savings. However, rolling cover crops and grazing cover crops with cattle were not far behind in terms of nutrient savings in the long term.

While grazing cattle on crop land can be tricky to manage and provide challenges for both the cattleman and the crop producer, it can also provide benefits that manure alone cannot. According to Ecological Farming Systems on the Canadian Prairies by Joanne Thiessen Martens, Martin Entz and Mark Wonneck, "Nutrients in plant material consumed by livestock, especially ruminants, are converted quickly into more plant-available forms. This allows for acceleration of nutrient cycles, with nutrients available immediately for plant uptake.... With (the) acceleration of nutrient cycles, however, comes (an) increased risk of loss. Thus, crop-livestock systems require careful planning and continual assessment to optimize the use of nutrients." - https://umanitoba.ca/outreach/naturalagriculture/articles/ecological-farm-systems_dec2013.pdf

A study by Paul Jungnitsch et al. in 2011 found that winter grazing on a field could increase the inorganic nitrogen in the soil by 3 - 3.7 times depending on the method used. The nitrogen distribution was irregular since cattle congregated around areas where they were being fed, but most areas of the field did show increased nitrogen and slightly increased Phosphorus. With that being said; another study, (Kelnn et. al 2012) noted that the nutrient density of the feed likely had an effect on the quality of manure that was produced, and therefore affected the amount of nitrogen deposited.

Aside from nutrients and fertility however, grazing cattle on crop land has another effect that should be taken into consideration. Hoof action, or the effect of cattle on the land and soil can be used as a tool to rejuvenate pastures, or

to terminate crops and weeds, and is often used that way in livestock operations. The adverse effects of livestock impact (compaction and erosion) are significantly less when used on soils with high organic matter and good root binding. However, many crop producers have taken significant steps to decrease compaction on their operations, could be concerned about the effect livestock will have on their fields.

An article from the university of Nebraska addressed this in an article in 2015, "Grazing in late fall, winter, or early spring can result in detectable compaction. However, the effects are usually confined to the upper 0-2 inch soil depth and can be short-lived due to the natural processes of wetting-drying cycles, freezing-thawing cycles, root growth, and the activities of soil organisms. Therefore, grazing generally has no impact on subsequent crop yields."

<https://extensionpublications.unl.edu/assets/pdf/g2264.pdf>

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With that being said, wet conditions, tillage, or soils with very low organic matter, may show more impact and erosion.

Crop/Livestock integration is a useful tool, but it requires skillful management and, in the event that it is occurring as a partnership between two different producers, it can be a complicated undertaking to ensure that both participants are satisfied.

If you aren't a crop producer yourself, but need a little extra grazing to supplement your feed supply this winter, or if you're a crop producer with no cattle looking to decrease your fertility needs for next year's crop, finding the right neighbour to partner with can be difficult.

The most important step, if you're new to this sort of operation, is to get things in writing. Even though farming and ranching are often handshake businesses, written agreements means you and your neighbour can work through the potential issues beforehand. Answering questions like; Who is responsible if the cows get out? How will the electric fencing be powered? Where will the cows water? Will they stay on the whole field for

3 weeks or move across it in small chunks for 4? Can prevent issues or conflicts later on.

Sitting down to make a written agreement also provides an opportunity to discuss potential issues with an aim to solving problems before they start. For example, The grain producer might be concerned about cow trails and erosion around his dugout or wherever the mineral is placed, and the actual value of nutrients he is receiving. The cow producer might be more concerned about feed value in the regrowth and stubble, water quality in the dugout, and the strength of the fences.

Other concerns might be nitrate toxicity in heavily fertilized crops, or weed transfer from cattle trailers, or the cattle themselves (cattle can carry seeds for up to 3 days in their rumen.)

By working through these concerns beforehand, you can ensure both that there is a plan in place to prevent problems from occurring and that both you and your neighbour can work together to address anything else that does come up.

Because as important as getting fertility needs met, and cattle fed is, a good relationship with your neighbour is equally as important.

Papers referenced:

Kelln, B., Lardner, H., Schoenau, J. and King, T. 2012. Effects of beef cow winter feeding systems, pen manure and compost on soil nitrogen and phosphorous amounts and distribution, soil density, and crop biomass. *Nutr. Cycling Agroecosyst.* 92: 183-194.

Jungnitsch, P. F., Schoenau, J. J., Lardner, H. A. and Jefferson, P. G. 2011. Winter feeding beef cattle on the western Canadian prairies. Impacts on soil nitrogen and phosphorus cycling and forage growth. *Agric. Ecosyst. Environ.* 141: 143-152.



Mark Your Calendar!

Event	Date & Time	Location
Crunching Numbers with Steve Kenyon Introduction to Gross Margin & Cash Flow Planning	Friday, November 19th 7-9pm	Online via Zoom
Crunching Numbers with Steve Kenyon Tools for Success & Discussion	Saturday, November 20th 3-5pm	Online via Zoom

For More Information, or to Register for any of these Events, please visit or contact:

peacecountrybeef.ca | info@pcbfa.ca | 780-523-4033

If you have any event or speaker ideas - Please call Johanna at 780-523-4033 or email johanna@pcbfa.ca

There are Many More Great Events Happening in the Peace and Online!
Check out peacecountrybeef.ca for a Listing of Our Partner's Events

Upcoming PCBFA Events



Crunching Numbers

with Steve Kenyon

A Virtual Introduction to Gross Margin and Cash Flow Management

Learn How to Calculate Gross Margin, and Manage Your Annual Cash Flow in Two Virtual Meetings

November 19th	7-9 pm	Intro to Gross Margin and Cashflow Planning
November 20th	3-5 pm	Tools for Success and Discussion

Meetings are Free to Attend, Recordings will be Available to Registrants

For more info or to register:

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Coffee, Cows & Crops Podcast

with host
Johanna Murray



produced by the
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Listen into our podcast - Coffee, Cows & Crops! Our Extension Coordinator, Johanna Murray hosts special guests and chat about various aspects of beef production, business management, and delving into Alberta-based research.

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Thank You to Our Municipal Partners!



NORTHERN SUNRISE COUNTY



By: Alberta Plastics Recycling Group

In Canada and around the world, certain industry sectors take responsibility for managing their products and packaging when consumers/users are finished with them (typically called at 'end of life') so the resources can be recovered and reinvested in the economy.

In these cases, a variety of market forces encourage these companies, called 'producers', that supply or import products and packaging into the market to take on this important responsibility. An example of a voluntary, industry-wide initiative that keeps agricultural plastic out of landfills and off farmland is Cleanfarms' empty container recycling program. Now a national program, it got its start in Alberta more than 30 years ago.

Some provinces have adopted regulatory mechanisms to ensure that products like electronics, paper and packaging (blue cart and bag programs), tires, among others, are properly managed.

Generally referred to as 'extended producer responsibility (EPR)', this policy approach not only requires producers to take responsibility for the end-of-life management for their products and packaging but it also encourages them to design products that are more durable and recyclable so materials and components continue to be used in the economy for as long as possible. An example in agriculture is the reusable 1000L tote that, in some cases, is used to replace individual 23L single use pesticide and fertilizer containers.

EPR regulations place legal obligations on industry producers to develop, operate and fund these programs, but they do not place any obligations on the product user; for example, in reference to agricultural plastics, the farmer.

Manitoba has established an EPR policy to require that industry producers take responsibility

for collecting and recycling grain bags, baler twine and pesticide and fertilizer containers. Prince Edward Island just passed a provincial regulation that impacts ag plastics. Saskatchewan was the first province to establish EPR for grain bags. Now in its fourth year of operation, recycling has increased from 1,257 tonnes in year one to 2,536 tonnes in 2020.



How EPR enables recycling

Many waste management programs are currently financed through municipal taxes so property taxpayers pay the cost of waste collection and disposal. EPR ensures that the legal and financial responsibility for managing materials at end of life is shifted away from municipalities and broader taxpayers and onto the producers that make or import the products.

When an EPR policy has been established, often industry producers will create a stewardship organization that is charged with the responsibility of developing and operating the collection programs. Funds are raised to operate the programs through stewardship fees that the producers pay based on the types and amount of product or packaging each company puts on the market and that is recovered for recycling. Provincial EPR regulations typically set a target percentage that is to be recovered for recycling each year. Clean-

Can Product Suppliers Play a Bigger Role?



farms is an example of an industry stewardship organization that develops and operates national and regional programs on behalf of its member companies, many of which are in crop input industries.

Depending on the material, municipalities often act as collection sites for these stewardship programs and are compensated for the important role they play in ensuring that users in their communities can access these services.

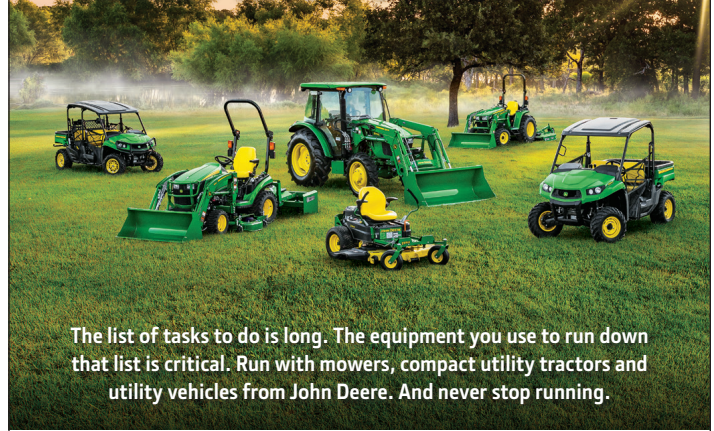
For used ag plastics, farmers are usually asked to prepare them by shaking out excessive dirt and snow and rolling or bagging materials to transport them to designated collection locations.

The parties obligated through EPR are then responsible for arranging transportation from collection sites to specific recycling facilities. In the case of grain bags, two recycling facilities are in Alberta and one is in the USA where the plastic is processed into pellets which are then used to make products like plastic bags, dimensional plastic lumber, and agricultural fence posts.

Depending on market conditions, revenue can be generated from the sale of used ag plastics to recycling facilities. However, the revenues generally do not cover all the costs involved with transporting materials to end markets, compensating collection sites and associated administration. To cover this cost differential, producers have the choice to absorb recycling costs into the price of the product, or establish an environmental handling fee (EHF), which is a separate fee the user sees at the point of purchase. As an example, in Saskatchewan, grain bag recycling is funded through a non-returnable EHF that ranges from \$37 for a 9 x 250 foot bag to \$66 for a 10 x 400 foot bag. Costs vary depending on the weight of the bag and it works out to about \$25 cents per kilogram.

Alberta is currently developing policy changes to

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enable Extended Producer Responsibility (EPR) in the province. More details are available here.

About

Cleanfarms and the Alberta Agricultural Plastics Recycling Group (APRG) are publishing a series of information articles for Alberta farmers to develop a shared understanding of the importance of used agricultural plastics resource management.

This practice is important to Alberta farmers because it contributes to agricultural sustainability that begins and ends on the farm, providing stewardship for future generations, as well as environmental health.

Cleanfarms is operating a three-year pilot project for grain bag and baler twine recycling in Alberta. The project is led by the multi-stakeholder APRG. Funds were granted by the Government of Alberta and are being administered by Alberta Beef Producers.



Member Information

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Member Feed Testing Service

PCBFA Members receive 2 free feed tests with their membership.

All feed tests are sent to Central Testing Labs in Winnipeg. Nutrients and minerals are tested by wet chemistry.

Nitrate, Mould, and Mycotoxin tests can be completed and will be invoiced at lab cost.

Feed Test Pricing:

Feed Tests for Members (after 2 free) - \$45/sample

Feed Tests for Non-Members - Billed at Lab Cost

Nitrate Testing - \$15/sample

Rush Shipping - \$50

Hay Probe Deposit for Non-Members - \$100

Feed Test Drop Off Sites:

Fairview Research Farm, County of Grande Prairie's Clairmont Office, MD of Greenview's Valleyview Office, Saddle Hills County Office, and the Lesser Slave Watershed Council Office in High Prairie

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