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Lakeland Agricultural Research Association



The Verdant Element

WHAT WASTE?

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Over the last few years there has been a greater focus and awareness of soil health. The profit we gain from the land; be it from yield, nutritional value, less disease and pests is a direct result from soil health. We can only add so much extra fertilizer, amendments and pesticides until it either breaks our pocket book or the products we are using no longer have an affect on our fields. We need to shift our beliefs and practices into ways that we can build our soils so that nature takes care of us and works with us, instead of us working against nature.

What we can control is limited. And truly we can only control ourselves, but we can work in such a way that we can mitigate the uncontrollable around us. Climate, markets, politics all affect our farming operations but we have little to no control as to what they do. Like last year, when the Lakeland seemed to get all of the rest of the province's rainfall, there was no way for us to force the rain away. But what we can do is manage our land in the best possible way. Maintaining riparian areas and keeping wetlands on the landscape help us store the excess water for dry years. Having good soil health and aggregation allows for more water to infiltrate the soil and stay where it falls, instead of running off the land and carrying your nutrients and precious top soil with it.

If you increase your soil organic matter by 1% your soils hold 20,000 gallons more water per acre. This is a huge benefit to you especially on the years with limited summer rains.

With more organic matter and less soil disturbance, you increase the amounts of microbes in the soils, which includes all the bacteria, fungi, and nematodes. These are the work horses of the soils.

Continued on page 2

What Waste continued...

Arbuscular Mycorrhizal fungi (AMF) are essential for good soil health and structure. AMF is a symbiotic fungi that works with plant roots. The plant provides sugars to the fungi and in return the fungi provide the plant with nutrients such as phosphorous, zinc, nitrogen, trace elements and water. 90% of plant species form this symbiotic relationship with AMF. The exceptions include brassica, amaranthus, chenopodium, sedges and lupins. AMF aside from providing plants nutrients and water also protect roots from disease and defend against pests. They also produce glomalin, which is a dark sticky substance which improves soil structure, water and nutrient holding capacity and increases soil carbon. The fungi also holds the calcium in the soil which is important for plant cell development and soil structure.



Other important organisms to consider are protozoa and nematodes. Protozoa are single celled organisms that feed on bacteria, and provide a food source for higher organisms. If you have low populations of protozoa you will have low nutrient cycling as protozoa help release the nitrogen and phosphorous held by bacteria and make it available for plant species. 95% of nematodes are beneficial non-segmented worms. They help guard the plants roots from pests. Nematodes are vital in nutrient mobilisation as they release nitrogen, sulfur and phosphorous to plants when they consume the bacteria, fungi, algae and other nematodes.

The soil biology is essential to both plant and soil health. We need to feed our biology and ensure that it is healthy and in return we will see resilient, profitable systems.

In December of 2017 I was fortunate to go to the Western Canada Conference on Soil Health and Grazing. 525 attendants were inspired by great speakers such as Gabe Brown with knowledge and possibilities of improving their farm and ranch profitability and increasing their soil wealth. With the use of some innovation, multiple species and integrating livestock back onto the land, improvements in soil can be noticed in a few short years. There is no silver bullet or prescription that can be used as each operation is unique and biology can take time to come back into the landscape. **But it can be done.** Cover crops, cocktail mixes, intercropping are all ways to increase profitability by building soils and decreasing the amounts of expensive inputs such as fertilizers and pesticides that are needed to sustain perhaps unsustainable practices. Everyone who attended seemed to take home something that they wanted to know more about or try on their operations. And everyone was feeling that progress was being made in helping our soils become more resilient to the uncontrollable aspects such as weather, and seeing that building the wealth below was going to lead to profit above.

However there are still those with the mindset that everything should be harvested or baled to prevent waste. With the two last years being wet and much not being able to harvest, there are those that think it is unacceptable to leave things out in the field, not willing to turn cows out into wheat that is not harvested and not baled (they were going to feed the cows the wheat in any case). But I ask you this... is this a waste? Would you not be equally or better served not using your resources such as machinery and fuel, and instead let your cows (or borrowed livestock) out and have them eat what they can, recycle the nutrients back into the soil, as well as whatever residue is left having them work it into the soil, increasing organic matter and feeding the biology of the soil? I think it is time to shift our thinking into there is no such thing as waste. Whatever we are not using is going back into feeding our biology in our soils, which in turn increase our profitability and resili-



ency further down the road. Think of it like a bank account, that you are depositing savings in for those rainy days (or in farming's case, drought). The more we can build our soils, the more that they are tolerant to adverse conditions. The residue acts like an armour, preventing the sun from heating it up and cooking the biology. On a day that is in the high twenties or early thirties, naked soil can heat up to over 95 degrees. The more cover we have, the less evaporation, the better the soil aggregation, and the more water your soil can infiltrate and hold.

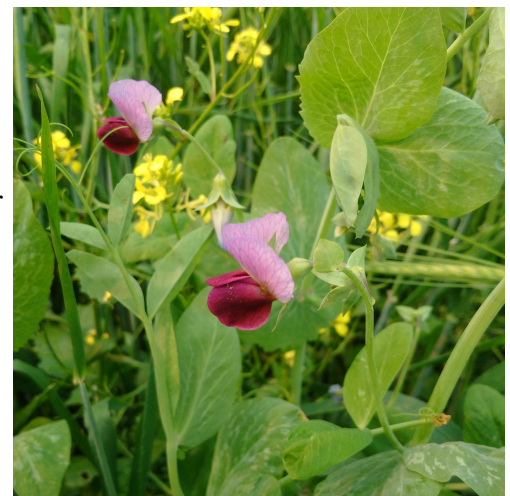
Multispecies cropping is just not for the livestock operations. Intercropping of two cash crops (such as peas and canola), underseeding your silage mix with a forage brassica or legume, or even planting a subterranean clover with a wheat crop are all ways that can improve your crops health and tolerance to pests and disease. The yields of intercropping may be lower for each species individually, but you will see a net increase for the species combined which leads to more dollars in your pocket book. As well as a lower fertilizer bill that season due to less input requirements because you are growing your canola with a nitrogen fixing pea that will be able to supply some of your nutrient requirements. If you are looking to try intercropping make sure you keep your seed sizes different. Some combinations you could try besides peas and canola are: flax and oats; wheat and subterranean clover; and barley and sweet clover. The possibilities are numerous but just make sure that they have similar times to maturity.

Kevin Elmy from Friendly Acres Seed Company spoke to over 30 producers in January in regards to cover crops in Mallaig. He stressed the importance of soil health, and how even adding one other species to your crop will help your soil health. If you were to dig a 6x6x6 inch soil sample, there should be at least 5 earthworms. If you have less than 3 your soil is in poor health. When biology is in balance you will be producing nutritionally dense plants, with low rates of disease, stress and insect damage. In the soil, carbon is the currency. All soil food sources are carbon based, so more organic matter will promote the microbes. But you just can't have oodles of residue on your soil, which may be an indicator that there is no biology in the soil to break it down. To promote your microbes you should: have a diverse rotation; use less tillage; keep living plants as long as possible throughout the growing season; and work to build good organic matter (watch your carbon :nitrogen ratio).

When looking to add species try having a grass, a legume and a broad leaf in the mix. Diversity trumps density of plants. The more diverse your species, the more diverse your microbes are going to be. And when picking your species choose based on what you hope to accomplish in regards to organic matter increases, weed smothering, etc. And if you are grazing try to abuse your annuals and protect your perennial species.

Grasses produce a lot of tonnage and have large fibrous root systems. Legumes have moderate tonnage, and rely on AMF. They are also able to fix nitrogen. Broadleaf can be categorized as brassica and non-brassica. Brassicas do not associate with AMF. Broadleaf species are great as scavenging for nutrients, and can produce vitamin E. Forbs are a diverse group and tend to be a specialized type of plant that is great for adding diversity.

So at the end of the day you need to look at your bank account. Have you been "wasting" and adding to your soils, or depleting your resources, taking away future profitability in resilient, biologically rich soils?



ENVIRONMENTAL FARM PLAN

The environment is becoming a more prominent issue. It is a large factor in marketing agriculture and food products in today's global markets. Consumers are demanding more transparency and are demanding high quality and safe products. Reputation of food safety is critical to retain and gain access to domestic and international markets.

Environmental Farm Plans (EFP) provide a tool for producers to self analyze their operation and identify environmental risks, current standards, areas for improvement and also highlight what they are doing well.

Having a completed EFP allows producers to access different funding opportunities, such as the Growing Forward Stewardship Program. It is also useful in product branding that demonstrates specific environmental standards.

The EFP Process

An EFP can be completed through workshops, online or one-on-one session(s). The EFP first identifies the soil and farm site characteristics. Following this, the producer completes only the relevant chapters that apply to their operation; such as wintering sites, fertilizer, pesticides, crop management etc.

Upon completion the EFP is submitted to a Technical Assistant for review. Once reviewed the EFP will be returned along with a letter of completion.

The EFP is a living document and should be reviewed and updated periodically.

If you wish to complete an EFP or have any questions regarding EFP please contact Kellie at the LARA office at 780-826-7260

Effective April 1, 2018, producers will need to have an EFP completion letter dated within the last 10 years to be considered current and eligible for cost-share funding with the Environmental Sustainability and Climate Change programs of the Canadian Agriculture Partnership (CAP). That means, for example, if you apply in September 1, 2018, your EFP will need to have been approved on or after September 1, 2008 to be considered for current funding.

I (Kellie) have been at LARA for nine years so if you haven't done your EFP with me consider yourself due for renewal. Give me a call or email to start or renew your EFP!

Riparian Health Assessment

The riparian zone is the interface between the upland and a water course. A healthy riparian area: traps and stores sediment; builds and maintains banks and shorelines; stores water; recharges aquifers; filters and buffers water; creates primary production and much more!

A riparian health assessment is a tool designed to evaluate the site and can provide a foundation to build an action plan and identify priorities.

If you would like a FREE Riparian Health Assessment conducted on your property or more information please call Kellie at 780-826-7260 or email sustainag.lara@mcsnet.ca

Red Bartsia

Odontites vernus (Aka Late Flowering Eyebright, Red Rattle)

Pest Watch

To report prohibited noxious weeds call the Alberta Pest Surveillance System at :

310-APSS (2777)



Fred Paulson, Interlake Weed District



http://commons.wikimedia.org

Overview:

Red Bartsia is an annual in the figwort family that was introduced to Manitoba in the mid 1950s. It arrived at the Gimli Canadian Armed Forces Base in packing crates from Germany. It escaped into areas adjacent to the runways which local farmers mowed for hay. The plant soon spread throughout the Interlake Region.¹ It is currently found in every province except British Columbia as well as in parts of the Northeastern U.S.²

Red Bartsia infests mostly pastures and hayland because it does not compete well with annual crops. It is unpalatable to livestock, so it quickly overtakes forage stands, causing losses of 50-70%. Recent surveys have shown that Red Bartsia is now moving into native grasslands. Some researchers speculate that seeds transported on the all terrain vehicles (ATVs) used by hunters is one probable cause for these new infestations.³

Red Bartsia is a hemiparasite. It can survive on its own but will also feed off the roots of a wide range of grass and forb hosts when conditions are adverse.³ Each plant can pro-

duce up to 1400 seeds. The seeds easily float and stick to animal fur, clothing and equipment, aiding in dispersal.⁴

Habitat:

In Manitoba, seedlings typically emerge from mid-May to mid-June suggesting that the plant requires warmer temperatures for germination. Several flushes can occur over the growing season.⁴ Red Bartsia does not persist under cultivation¹ and appears to thrive in a variety of soil types.

Identification:

Stems: Erect, 10-50 cm tall, usually branched and hairy.⁵

Leaves: Opposite, 1-4 cm long, lance-shaped with 2-3 pairs of blunt teeth and hairy.⁵

Flowers: In spike-like racemes. Individual flowers resemble tiny snapdragons. Petals pinkish-red, about 1 cm long, with two lips; the upper straight and the lower shallowly 3-lobed.⁵

Seeds: Numerous, in hairy capsules, 6-8 mm long.⁵ Individual seeds tiny, beige and oval with small wings.⁶

Prevention:

Red Bartsia is mostly spread by humans in contaminated hay and on equipment and ATVs.³ Buyers need to check sources of hay to ensure that bales are weed-free. Producers and hunters should routinely inspect and clean equipment before entering uninfested areas.⁴ Purchasing certified seed is also an effective tactic since Red Bartsia is classified as a prohibited noxious weed in the Canadian Seeds Act and Regulations.⁷

Control:

Cultural: Research is exploring the use of compost mulches to control Red Bartsia in native grasslands. Preliminary results showed that mulches suppressed the annual weed while allowing native perennials to penetrate through the compost layer.³

Cultivation: Cultivating an infested pasture and planting annual crops for at least 9 years

to deplete the Red Bartsia seed bank can be effective strategy.⁴

Mechanical: Mowing is not recommended and can help to spread the problem.⁴ Small populations can be hand-pulled but vigilance is required to ensure that plants appearing in successive flushes over the summer are removed before they go to seed.²

Chemical: Currently no selective herbicides are registered for use on red bartsia. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: There are no known biocontrol agents for Red Bartsia.



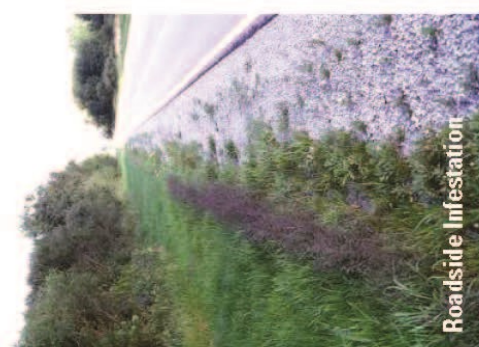
Emmett J. Audzewicz Wisconsin State Herbarium



Emmett J. Audzewicz Wisconsin State Herbarium



Michelle Ammeter Macdonald Weed District



Emmett J. Audzewicz Wisconsin State Herbarium



Emmett J. Audzewicz Wisconsin State Herbarium



Fred Paulson, Interlake Weed District



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Finding Fairness in Farm Transition

By Elaine Froese

<http://elainefroese.com>

Winter is a great time to take a fresh look at how our plans are unfolding. As a speaker, it is also a season of meeting and greeting many stressed out farm families who are seeking solutions to being stuck.

BDO's Jim Synder has a daughter who thinks that families that see fairness defined as "helping everyone be successful" will be better off than those who equate fair with being equal.

I was challenged this winter to create a session on fairness, and here's what kept me up at night, mulling thoughts and experience into a practical tool for you.

FAIR Financial Transparency, Attitudes, Intent, Roles

Financial Transparency

The parents are not silent on their desires for the future and openly share the farm books, viability, and their personal wealth situation. Merle Good has coined the term "personal wealth bubble" meaning the money that parents can draw income from over the next 20 years, and access for gifting to heirs, farm, and non-farm business heirs. Have you sought out a financial planner to create more certainty about your future financial security? Do it.

Debt Servicing

Debt servicing is also part of this discussion. How much can the next generation really afford to service? What parts of the farm assets are you willing to gift, roll over, or have purchased? If you want to give an equity position to non-farm heirs, you can do that with well-written land rent agreements. Check to see if your successor wants to be in business with his /her siblings.

Gifting

Money does not equal love in my books, but for many it does. I have also seen parents fret about working to give monies to less fortunate children in an unrealistic attempt to make all the kids economically equal. This is a foolish goal. Have you ever asked your adult children what they expect? Most decent young adults that I have the joy of working with say, "Elaine, we just want our parents to have some fun and enjoy the fruit of their labour. We will be okay. We will find a way to make it work." (Yes, I know you are wishing you could adopt those kids!) Many young people with great educations and entrepreneurial skills may end up wealthier than their farming parents. Also, consider the gifts of vehicles, house down payments and university degrees (\$200K) that you and the farm have already facilitated. What do you owe your children?

Farm Viability

Do you have a clear picture of how many families the profitability of the farm can support? Are you having a hard time saying no to the adult child who is seeking to return against the wishes of your current successor(s)? This is where operating agreements,



codes of conduct and shareholder agreements are helpful tools to be clear about role expectations.

Attitudes

Attitudes about money create havoc when your heirs feel that “love equals money.” What money scripts are you carrying around? Do you have a scarcity mindset or one of abundance? Read “The Soul of Money” by Lynne Twist or “Wired for Wealth” by Brad Klontz or “Moolala...why smart people do dumb things with their money.” by Bruce Sellery. You know too many sad stories in your area about families who never speak to each other after the parents die. I suspect the fights are about the high value put on money, land and the lack of forgiveness or grace to allow parents to make their own choices. My experience with estates has been interesting when my main goal is to have richness in relationships, and not worry about the size of the inheritance, if there even is one.

So, Bruce Sellery’s penetrating question is “What does money mean to you?” Spend some time over coffee talking this over with your spouse and your adult heirs.

What we believe, our values and cherished beliefs will drive our behaviour. If someone is secretive about their plans to be fair, think about open-ended questions that you can draw them out with. “What does fairness look like to you?” Listen carefully to what the person’s concerns are. Many folks have been “burned” by their family of origin experiences, and there is usually some history or a back-story that is driving their decision making. Ask, “how did you get the farm from your family?” Be curious about women who maybe did not get much compared to their farming siblings.

Intent

Intent is a key tool for conflict resolution. As mediators and conflict resolution communicators we work hard to find out what each person’s intent is, what they truly desire and want. In the case of farm transition, there are many players with various needs, the founders, the successors, the non-farm heirs, sibling groups, in-laws, and extended family or grandparents. You can see there are a lot of players to consider in the family dynamic web.

Work hard to be clear about sharing your intent, and then listen for what effect that has on the other party. In my case, I was clear with my parents that I did not intend to expect a large sum of money from their estates as they needed their finances to focus on the farm financial success. My intention was to have their love and time for my family, as much as they were able to give while they were alive. We spoke about this openly at a family meeting facilitated at their accountant’s boardroom. My mother died a short 6 weeks later.

If the parents don’t agree on their intentions for the fair distribution of assets or gifts or they fight about what fairness is, then the task is to work with the founder’s vision first.

Roles

Role expectations about what a good day on the farm looks like for dad and mom and when the successor can be the main manager with control are also fairness discussions. Is it fair for an eighty-year-old to still hold the majority of ownership and control? Is it fair for his sixty-year-old child not to have power? Or the grandparent’s 35-year-old employee/grand-child not to have a concrete equity position?

What do you want your legacy to be? Start figuring out what fairness in farm transition looks like to you. Then act!



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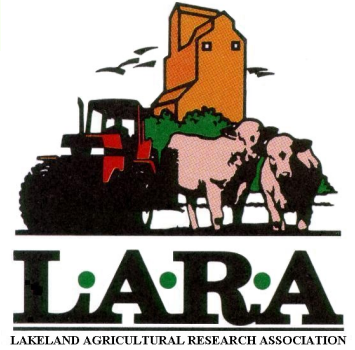
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Kellie Nichiporik

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Sustainable farming encompasses a wide range of practices and principles; combining environmental stewardship with profitability and ensuring that the family farm will be there for generations to come.



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Growing Forward has ended and is being replaced by the Canadian Agricultural Partnership grants. The programs will begin to roll out in April. More information can be found at <http://www.agr.gc.ca/eng/about-us/key-departmental-initiatives/canadian-agricultural-partnership/?id=1461767369849>

Food For Thought...

- * Canada is the worlds largest grower and exporter of flax seed, canola, pulses and durum wheat
- * Over 125 different fruits and vegetables are grown coast to coast in Canada
- * Globally we loose a soccer field worth of farmland every second

FARM ENERGY AND AGRI-PROCESSING (FEAP) PROGRAM

FEAP is a combination of two discontinued GF2 programs:
On-Farm Energy Management Program
Accelerating Agricultural Innovation Program (Stream C)

FARMS
RANCHES
AGRI-PROCESSORS
ENERGY EFFICIENCY INCENTIVES

Ag-Info Centre: 310-FARM (3276)
agriculture.alberta.ca/feap

Canada

Alberta
Government

ON-FARM SOLAR PHOTOVOLTAICS (OFSPV) PROGRAM

To be eligible for funding, a Photovoltaic system must be:

- Grid-tied, not off-grid
- Approved under Alberta's Micro-Generation Legislation
- Positioned to optimize sunshine and minimize shading
- Have manufacturer-warranties on: Solar modules, Racking, Inverters and/or Micro-Inverters, and
- Installed on a Site ID that has a Distribution Rate Class of Farm, Irrigation, Grain Drying, or equivalent

Retroactive projects that have been completed AFTER APRIL 15, 2017 are eligible. See website for more details!

Ag-Info Centre: 310-FARM (3276)
agriculture.alberta.ca/solar

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