



# The Verdant Element

## THAT'LL LEARN YOU

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Every year of farming presents its own unique set of challenges. Every year has different weather, market conditions, seed availability, fuel prices and other inputs (fertilizer and pesticides) price and availability fluctuations. To say that farming has its challenges is a gross understatement. So how does one continue to farm and do what they love within such a unstable industry?

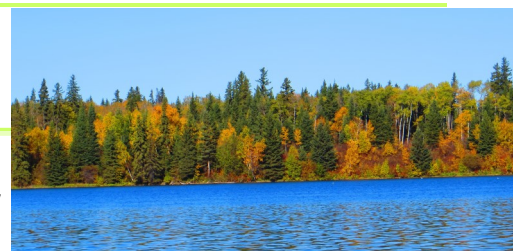
To put it in perspective it is like working at the community hall in the kitchen. The hall has worked for many years, creating and perfecting their dishes to be able to serve to hundreds of people at a time. All the ladies and gentlemen in the kitchen also prepare these same dishes for their families and friends at home, but for much smaller serving sizes. Everyone has their own recipes and ways of doing things, and the end product might vary, but they are all delicious. Everyone thinks that their way is best, and that everyone at the hall should cook like they do at home, not realizing that the way they cook their dish doesn't translate well for cooking for several hundred people. Everyone has a right to their opinion and to do things their own way, and we should listen for we may learn things along the way, but we have to recognize that there are many ways to do things and respect that (and also know who the head chef is in the kitchen, as too many cooks can ruin the soup).

Farming is much the same way. Every operation is unique and a particular farming technique is not feasible on every operation. However, we in the industry have to be open to learn and not be afraid to change or try something new.

Let's face it, the industry has changed very rapidly. Consumer pressure from people who are very far removed from farming is having huge impacts. For example the housing systems for Alberta egg producers. The margins are getting tighter and producers need to change to be able to stay viable in the industry. Things like soil health are becoming more important and management of operations requires

Continued on page 2

# Water for Life



## Water Wells: What's in Your Water?

### A Free Test of Your Well Water Can Protect Your Family and Your Property

Those who live in urban municipalities seldom worry about whether or not their water is safe to drink, because regulations are in place that require municipalities to treat and test water quality on a regular basis. For rural residents who rely on wells for their household water, access to an adequate supply of clean drinking water is not as simple as turning on a tap. Those who get their water from private wells are responsible for managing and maintaining their wells and ensuring their water supply is tested regularly and is safe to drink.

“Even though testing is free of charge for residential users through Alberta Health Services, we’re finding that some people aren’t testing their water,” says Debra Mooney, an environmental health consultant with Alberta Health and an advocate for the Working Well Program. “People need to know what’s in their water. Some well water has high nitrate levels which can be harmful to small infants when mixed in their formula. Other harmful substances can also make their way into wells and since water quality can change over the lifetime of a well, regular testing is the only way to be certain that well water is safe for human consumption.”

Testing well water on a regular basis also provides a baseline of the water quality, which can be very important to a well owner if things go wrong. “Routine testing can pick up changes in water quality early on and help a well owner realize that certain maintenance procedures need to be done to preserve water quality and increase the lifetime of a well,” says Jamie Wuite, Executive Director of Alberta Agriculture and Rural Development’s Irrigation and Farm Water Division. “A baseline is also important information to have when you suspect your water quality has been negatively affected by another party. If you never tested your water quality, it’s hard to prove that it has been negatively affected.”

Over time, land use changes or structural degradation of an aging well can change or affect water quality. Private well owners can’t take water quality for granted. Regular testing of well water is vital to preserve the health of rural families and to ensure that ground water remains safe for many generations to come.

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/wqe14943](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/wqe14943)

**[continued from first page]** a vast array of skills. Where we learn and how we learn are not what is important; but what we learn and apply is critical. As well as the fact, that learning needs to be ongoing. *Learning is essential for life.* It can be learning from a neighbor, at the local coffee shop, going to workshops, seminars, webinars, reading a newsletter or paper (or our annual report), or from an actual educational institution such as college or university. *The definition of insanity is doing the same thing over and over and expecting a different result.* Everything

Water testing sample bottle pick-up and drop-off locations can be found at:

<http://www.albertahealthservices.ca/assets/wf/eph/wf-eh-north-zone-water-sample-bottle-locations.pdf>

evolves and changes, whether we like it or not. We have to learn and adapt to remain profitable and retain the social license to farm. And perhaps, maybe me on my little soapbox will have inspired you to learn a little and maybe come to a workshop (or two) or give us a call. I am always willing to listen and learn; and if there is anything specifically that you would like to know more about please let me know.

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

**310-APSS (2777)**



# Woolly Burdock

**Woolly Burdock** is a biennial species that can reach heights of 2.5 meters and is considered noxious. It has a large tap-root that can go to depths of 1 meter. Lower leaf stalks can either be hollow or solid and the stem is grooved and rough with many branches. Leaves are heart shaped, are very large (40 cm) and alternating. Clusters of purple globular flowers with the flower head surrounded by whorls of bracts that are densely cobwebby. These bracts are curved allowing them to stick like Velcro to anything that touches them, allowing for seed distribution. This species only reproduces by seed, growing the first year as low-growing rosettes. Herbicide is most effective to control first year growth rather than digging out the large taproots. Woolly burdock matures in the second year of growth and flowers, producing seed. For control it is best to clip the heads and burn them, or mow the plants before it flowers to prevent seed from being produced.



**Pest Watch**



## 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](mailto:sustainag.lara@mcsnet.ca)

# Soils School with Nicole Masters

Nicole Masters is coming!

Nicole of Integrity Soils is returning to Canada from New Zealand to host an advanced 2 day school related to soil health. The school will go into more depth on:

- Enhancing the C, N, and water cycles
- Soil microbes
- Cover crops and diversity
- Weeds as indicators
- Soil minerals and the role of major nutrients
- Mineral & microbial synergy

Nicole Masters, director of Integrity Soils, is an agro-ecologist with over 17 years' extensive practical and theoretical experience in regenerative / biological farming practices.

Recognised as a dynamic and grounded educator, Nicole brings cutting edge sound science to a topic that has relevance to anyone interested in improving the efficiency of inputs whilst improving profitability and resilience. **"You can have your cake and eat it too!"**



## Working Well Workshop

Did you know that a poorly maintained water well can put your water supply at risk of contamination and reduce your well yield?

If you are one of 600,000 Albertans who use their water well for household purposes, the key to ensuring your water supply is safe and secure is knowing how groundwater works, learning about your well and understanding how to properly maintain it.

Proper water well siting, construction, maintenance and plugging will help protect your well from biofouling and contamination, save you costly repairs, and ensure your well water yields are sustained over many years.

If you'd like to find out if your groundwater is at risk and learn what you can do to protect your well, attend a free water well management workshop being hosted by Lakeland Agricultural Research Association, and presented by the Working Well Program, with technical expertise from Alberta Agriculture and Rural Development, and Alberta Environment and Sustainable Resource Development on December 1<sup>st</sup>, 2016 at Flat Lake Hall with supper starting at 5:30 PM and the workshop starting at 6:30 PM. This hands-on, informative workshop is designed to help water well owners better understand and manage their precious groundwater supplies.

*Consider how your life would change if you lost your water supply!*

During the workshop we will cover:

- Groundwater - how it works
- Water Quality and Quantity Testing
- Well Protection - protecting your well from contamination
- Basic Well Maintenance
- Water Sampling - how to do it

**December 1, 2016**

**Supper at 5:30 PM at Flat Lake Hall**

**Workshop starting at 6:30 PM**

**59403-Range Rd 484**

To attend the workshop, please pre-register by calling Kellie at the LARA Office at: 780-826-7260



Free Supper Included! Must be pre-registered by November 29th!

LARA  
Box 7068  
Bonnyville Alberta  
T9N 2H4

Phone: 780-826-7260  
Call: 780-812-1036  
E-mail: [sustainag.lara@mcsnet.ca](mailto:sustainag.lara@mcsnet.ca)



Since 2003 she has taught these practices throughout Australasia and North America; helping to inspire and guide farmers into new and innovative ways to produce food. **Nicole has a proven record in supporting farmers in meeting their goals through an holistic approach to soil and pasture management.**



### Two Day Soil School with Nicole Masters

**November 22 & 23, 2016**

**Vermillion Regional Centre**

**5702 College Drive Vermillion**

**Cost: \$125.00 per farm unit (up to 2 people) Lunch included! For more info call 780-826-7260 or to register: [http://](http://www.battleriverresearch.com/)**

**[www.battleriverresearch.com/upcoming-events](http://www.battleriverresearch.com/upcoming-events)**

**Growing Forward 2** provides programs and services to achieve a profitable, sustainable, competitive and innovative agriculture, agri-food and agri-products industry that is market-responsive, and that anticipates and adapts to changing circumstances and is a major contributor to the well-being of Canadians.

# GROWING FORWARD

For assistance with any of the Growing Forward 2 programs please contact Kellie at LARA. For a complete list of available programs go online to: <http://www.growingforward.alberta.ca> Growing Forward can also assist with funding for things like succession planning, safety planning and holistic management under the Business Opportunity program.

Recently released is the On-Farm Solar Photovoltaics program. This program covers solar energy systems (includes solar panels/modules, racking, inverters and/or micro-inverters) which are: grid-tied; approved under the Alberta Micro-Generation legislation; have manufactures warranty; and purchased from April 1, 2013 to March 31, 2018.

Install Type	Without an Energy Assessment	With an Energy Assessment
Solar PV Contractor-Installed	<b>\$0.45/W</b> to maximum 20% of project costs	<b>\$0.60/W</b> to maximum 25% of project costs
Self-Installed	<b>\$0.15/W</b> to maximum 10% of project costs	<b>\$0.30/W</b> to maximum 20% of project costs
Grant Maximum	\$50,000	\$50,000

## Growing Forward Stewardship Programs

Program Area	Eligible Costs	Cost Share
Riparian Area Fencing and Management	Permanent fencing (controlled access or exclusion): <ul style="list-style-type: none"> <li>• Permanent barbed/electric fencing systems</li> <li>• Construction materials and supplies. NOTE: all materials must be new materials and not materials on hand</li> <li>• Labour and equipment will be paid at a 1:1 ratio to materials expenses. (NOTE: refer to section 7.4 in the Terms and Conditions);</li> </ul> Purchase and planting of native trees and shrubs and/or native or non-invasive introduced species of grass and legumes; Seed and seeding operation for revegetation; Cultural weed control systems and mulch	70% to a funding maximum of \$50,000
Year Round / Summer Watering Systems	Deeply buried, shallow buried, or surface pipeline installation used to distribute water within a pasture and protect a water body/water source; Portable watering systems; Year-round watering systems; Troughs, stock tanks, plastic tanks (or similar water storage); Frost free nose pumps; Pumping systems; Power sources such as solar panels, windmills etc. And other electrical supplies; Plumbing materials	50% to a funding maximum of \$30,000
Wetland Restoration	Earthwork related to construction or plugging of old drains; Engineering consultant fees for design and construction; Re-vegetation costs (seed plantings etc.); Applicant's equipment use at custom rates; In-kind labour at set program rates (\$25/hour)	70% at funding maximum of \$50,000
Livestock Facility and Permanent Wintering Site Relocation	Construction costs to rebuild an equivalent facility or adequately sized facility in a more suitable location; Plumbing, electrical, fence lines, feeding areas, shelter/wind protection; Earthwork; Engineering design and fees (if applicable); Tear down and removal costs of the old livestock facility; Re-vegetation costs of the old site; Applicant's equipment use and in-kind labour	50% at funding maximum of \$50,000
Used Oil and Lubricant Storage	Double wall steel storage tank design expressly for the temporary storage of used oil and lubricants that have a ULC or CSA approved stamp or plate indicating it is for that purpose (ULC-652)	50% at a funding maximum of \$2,000
On-Farm Water Management	Wells (including test drilling, new pump and well casing, electroseismology test, disinfection of new well); Dugouts (including aeration, fencing and floating intakes); Dams (including intake and fencing); Spring Development; Water tanks/storage/cisterns for low producing wells or as part of a permanent water supply; Buried pipelines Special projects include: Specified water conservation measures (purchase and installation of water use meters, well depth meters for agricultural use of water, well decommissioning by a certified contractor, well pit conversions by a certified contractor; Tie-ins	Various funding levels, refer to the terms of reference

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.

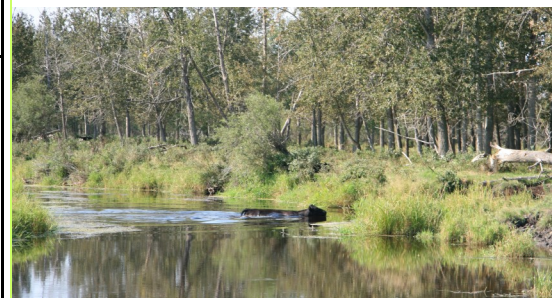
Having a completed EFP allows producers to access different funding opportunities, such as the Growing Forward Stewardship Program. It is also useful in product branding that demonstrates specific environmental standards.

### The EFP Process

An EFP can be completed through workshops 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 the LARA office at 780-826-7260



Stuck in the mud? Consider an offsite watering system.

ENVIRONMENTAL FARM PLANS



## Agroforestry & Woodlot Extension Society

17507 Fort Road NW, Edmonton, AB, T5Y 6H3

info@awes-ab.ca www.awes-ab.ca



The importance of wood as a fuel source fell drastically in the early part of the 1900's with improved affordability and access to electricity, heating oil and natural gas. Events in the early 1970's led to an increase in oil price and potential of shortages, and renewed interest in the diversification of our energy sources. Furthermore, interest in energy production from biomass is enhanced by technological advances and changes in management practices. Today, biomass is the second most important renewable energy source after hydroelectricity, supplying approximately 4.7% of Canadian primary energy demand.

Increased interest in wood bioenergy provides a number of opportunities for both producers and customers. Potential opportunities exist through the increases in wood quality and quantity obtained through improved woodlot management. For example, harvesting low value species for firewood has several benefits, including releasing higher value species from competition and reducing the risk of forest fire. The wood bioenergy market can also provide an outlet for treetops, slabs, small trees and wood culled in the production of saw logs and veneer logs. Replacing fossil fuels by using wood biomass can provide you with a great number of financial opportunities, including energy savings and the carbon credit market.

### “What is Biomass?”

Biomass used for energy production is biological material derived from living or recently living organisms usually plant or plant derived materials. Biomass typically comes from two basic sources of material:

- 1) Primary source:
  - **Virgin wood:** raw materials originating from forestry operations or wood processing; i.e. harvest residues, saw dust, unmarketable trees, thinning.
  - **Energy crops:** crops grown for energy production (i.e. annual or short rotation woody crops).
- 2) Secondary source:
  - **Agricultural residues:** residues from livestock, harvesting or, processing (e.g. manure, leftovers from grain production, shelterbelts pruning)
  - **Industrial waste:** co-products from manufactures such as sawmill residues (barks, sawdust, off cuts) or pulp and paper process residues (black liquor)
  - **Food waste:** from manufacturing processes and post-consumer waste

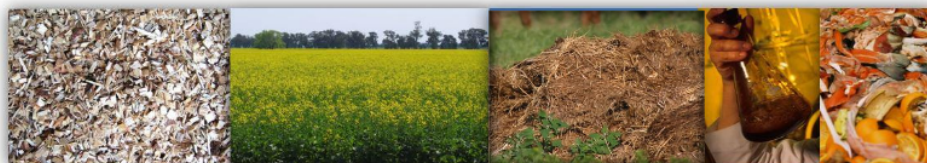


Figure 1: illustration of raw biomass materials, from left to right: wood chips, canola field, manure, black liquor and food waste.

**BIOMASS - COURTESY OF AGROFORESTRY  
& WOODLOT EXTENSION SOCIETY**

<http://www.awes-ab.ca/home.html>

**“What is Biomass used for?”**

Biomass can be used as fuel to produce energy. Most of the time biomass has to be processed in biofuel to maximize the efficiency of energy production. Biofuels are divided in three types:

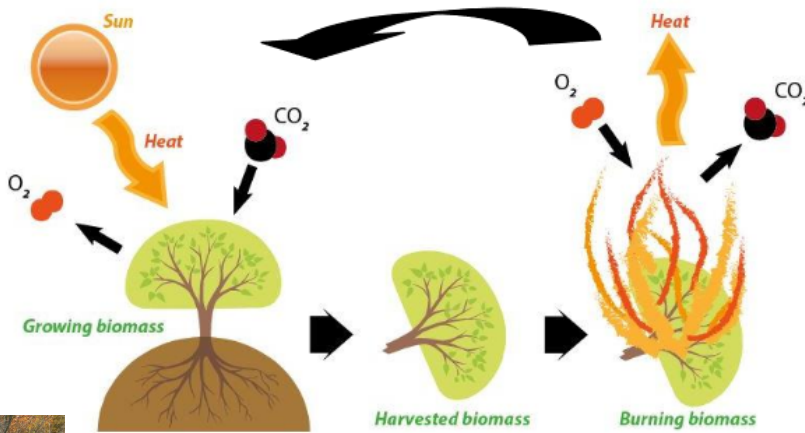
Solid biofuels	Liquid biofuels	Gaseous biofuels
<ul style="list-style-type: none"> <li>• Wood pellets</li> <li>• Briquettes</li> <li>• Wood chips</li> <li>• Small round Log</li> </ul>	<ul style="list-style-type: none"> <li>• Biodiesel</li> <li>• Bioethanol</li> <li>• Bioalcohol</li> </ul>	<ul style="list-style-type: none"> <li>• Biogas</li> <li>• Syngas</li> </ul>

To see the details of biomass fuels and installations reference to the AWES Fact Sheets ***Biomass Heating System for Private Individuals & Biomass Heating System for Enterprise.***

Biomass is converted to energy following to three primary ways:

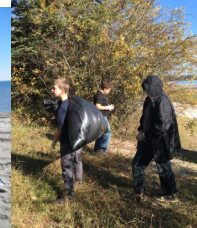
- **Thermal:** burning biomass to create heat. This heat can be use directly for domestic and industrial processes or generate electricity by a high-pressure steam system.
- **Thermochemical:** biomass is heating in a container in anaerobic conditions to release gas and liquids like methane or alcohol (e.g. ethanol). Products from this process can be directly combusted to create energy. This alcohol can be mixed with gasoline to burn in a combustion engine. After this process methane can also be extracted from biomass and use to produce energy.
- **Biochemical:** living components such as bacteria, yeasts and enzymes are used to ferment biomass and produce alcohol.

Energy from the sun is naturally assimilated in the plants to grow biomass. During this process plants absorb carbon dioxide (CO<sub>2</sub>) and release oxygen (O<sub>2</sub>). When biomass is decomposing in natural conditions or is using to produce bioenergy the process is reversed (Reference Figure 2).



**Figure 2: Life cycle of biomass**

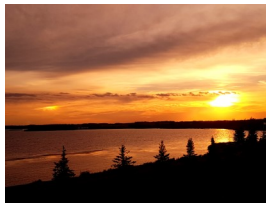
**On September 22, 2016** we were joined by 150 grade 7&8 students from Cold Lake Middle School to participate in the **Great Canadian Shoreline Cleanup**. We cleaned up approximately 150 kilograms of garbage from the shores of Sandy Beach of Cold Lake. Thank you to CLMS, Beaver River Watershed Alliance and the MD of Bonnyville for your assistance.



# Lakeland Agricultural Research Association

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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.



[Follow Us on Twitter! @LakelandARA](#)

**Like us on Facebook:** <https://www.facebook.com/pages/Lakeland-Agricultural-Research-Association/316266591732449>

## HOLISTIC MANAGEMENT

Holistic Management course with Kelly Sidoryk runs **February 25 & 26 and March 4, 5, 11 and 12.** It will be held in **Smoky Lake** at the **Agriplex**. The course is laid out into three modules over the three weekends.

### Module 1

- Introduction to HM
- Paradigm shifts
- Making improved decisions through analytics
- Developing holistic goals for higher quality of life, more profit and healthier land
- Secrets of effective communication

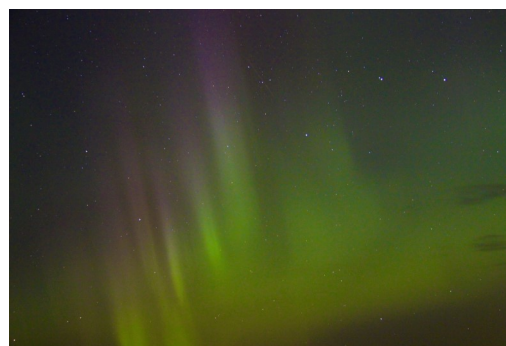
### Module 2

- Review principles of analytical testing questions
- Learn about using tools and their effects
- Grazing principles
- Develop a biological plan

### Module 3

- Principles of holistic financial planning
- Definition of wealth
- Enterprise analysis
- Plan a profit
- Develop your operations annual financial plan
- Create a learning (support) group

There is no blanket solution or one size fits all approach to management. This course allows you to consider your own goals and what would work best for you and help you to get to where you want to go. If you are interested to register or would like additional details for this please let me know.



### *Food For Thought...*

- \* *It takes over 8000 liters of water to produce a pair of jeans*
- \* *Farming began around 10,000 B.C. during the First Agricultural Revolution*
- \* *Bananas are the number one fruit crop in the world. They are the 4th largest overall crop, after wheat, rice, and corn*
- \* *For every \$1 spent on food, farmers get less than 12 cents for the raw product*

WWW.LARAONLINE.CA

