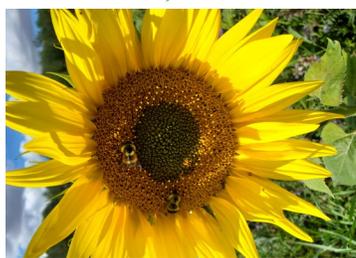


2021

Volume 12, Issue 3



The Verdant Element

FARMING UNDER HEAT

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This has been a season for the record books, with widespread drought and extreme prolonged temperatures that covered the western portion of North America. Usually a drought is more regional, so that feed could be transported and farming had more of a future. This year, anything is being considered for livestock feed, livestock herds are being minimized or completely sold off, and harvest yields show little promise to be able to take advantage of such high commodity prices.

The pandemic has shown that our food supply is vulnerable, and the impact of the droughts, fires and floods (abroad) will have a profound effect on our food system and security. Food prices have been increasing by leaps and bounds, and the forecast is for even higher prices or shortages. Coffee, a staple for most of us, is expected to double in price as most of the coffee crop in Brazil froze out. The United Nations food agency's index of world food prices for July showed a year-on-year rise of 31 per cent at a time when many consumers are struggling financially due to the pandemic.

Many of us have planted gardens and have been harvesting our bounty, as well as with the last few years the number of (urban) people gardening has increased. Our reliance on a global food system seems a bit tumultuous at the moment, and the appeal of a local food system is growing. This may mean that some producers have to shift their thinking about producing food versus a commodity. It can also make us ponder how to access local food, markets and connect consumers with the producer.

The excessive heat, drought and global conditions over the summer have been stressful; placing strain on our mental and physical health, as well as our relationships. Help is always a call away at 1-877-303-2642 or 211. Resources are also available at: <https://www.domore.ag/resources>

LARA Watershed Resiliency and Restoration Program

Watersheds are unique, come in many shapes and sizes and can cross many different land uses. The simple definition of a watershed is the area of land that catches precipitation, and drains into a wetland, stream, river or groundwater. The riparian zone is the interface between the upland and a water course. This area is heavily influenced by water, how and where it flows and is reflected in the plants, soil characteristics and wildlife that are found there. Riparian areas have a large role in water quality, quantity and biodiversity. They provide eight key functions to: trap and store sediment; build and maintain banks and shorelines; store water; recharge aquifers; filter and buffer water; reduce and dissipate energy; create primary production; and maintain biodiversity by providing habitat for plants, wildlife and fish. These Ecological Services benefit people, other living organisms, and the overall functioning of interconnected natural systems within watersheds. Conservation and restoration of wetlands and riparian areas in Alberta are needed for sustainably functioning watersheds.

LARA has available funding ending December of 2022 for: offsite watering systems, riparian fencing, water-course crossings, and wetland enhancements such as pond levelers, exclusion fencing and riparian plantings. So apply for your projects as soon as possible.

Forms and information for the program are available online at: <http://www.laraonline.ca/farming-resources/environmental/funding-opportunities/> Or by emailing sustainag.lara@mcsnet.ca

Alberta Environment and Parks Programs

There is a program to access public lands for grazing and haying with Alberta Environment and Parks. To access this program please contact Tanya Silzer at 780-778-7107 or email at Tanya.silzer@gov.ab.ca

There is also a program to access alternative water sources (the contact is also Tanya Silzer) and water pumping equipment.

Water Pumping Program

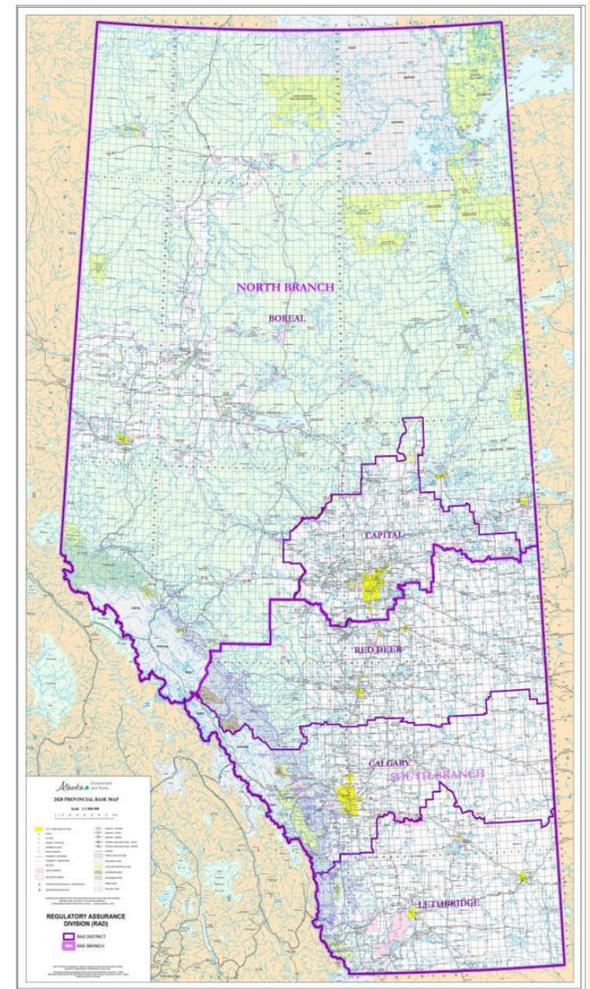
Environment and Parks is working closely with Agriculture and Forestry to support livestock producers across the province that have been affected by severe drought conditions. One way Agriculture and Forestry provides assistance to producers in securing adequate water supplies is through their Water Pumping Program. The Water Pumping Program provides access for producers to pipe and pumping equipment to fill dugouts or other suitable catch basins from nearby water sources.

More information related to the Water Pumping Program can be found at <https://www.alberta.ca/water-pumping-program.aspx>, or by calling 310-FARM (3276).

Other Sources of Important Information

- Temporary Diversions Licences under the Water Act <https://www.alberta.ca/temporary-diversion-licence.aspx>
- Alberta River Basins <https://rivers.alberta.ca/>
- Water Act: Water Diversion for Agricultural Uses During Low Flow Conditions <https://open.alberta.ca/dataset/a869293f-8356-4e6f-a70d-5186bf061266/resource/62ee8ebf-7507-4c03-b086-19d30b7db88d/download/waterdiversionagriculturalallow-low-aug2015.pdf>
- Farming in dry conditions <https://www.alberta.ca/farming-in-dry-conditions.aspx>
- Range Management During a drought <https://open.alberta.ca/publications/9780778591474>

AEP District Office Boundary Map



2021 Canada-Alberta Livestock Feed Assistance Initiative

On August 6, 2021, the Government of Alberta announced an AgriRecovery response, the 2021 Canada-Alberta Livestock Feed Assistance Initiative, to help address the extraordinary costs being incurred by Alberta's livestock producers because of reduced grazing capacity caused by prolonged dry weather and extreme high temperatures. For more information on this program go to: <https://afsc.ca/income-stabilization/agrirecovery/>

Please note that to receive this funding please ensure that you are signed up for an AFSC Connect account.

Drought Support

Streamlined Temporary Livestock Water Program 2021



Program Description

Alberta Environment and Parks (AEP) has implemented a Streamlined Temporary Livestock Water Program (the program) to support livestock and poultry producers impacted by water shortage and severe drought conditions occurring in the province. The program puts producers that have an urgent need for water in direct contact with AEP staff who will assist in locating alternative sources of water for authorized use under the *Water Act*.

Program Eligibility

The Program is eligible to livestock and poultry producers who have an urgent need for an alternative water supply for their animals, and need assistance in finding an alternative water source.

How the Program works

Step 1 – Producers can contact AEP by emailing the appropriate AEP district office. Please include **'Livestock Watering Program'** in your email subject line. Producers can also call the Ag-Info Centre toll free at 310-FARM.

Step 2 – Within three (3) business days, an AEP staff member will contact the producer directly to discuss their specific situation and to work with the producer to identify alternative water sources.

Step 3 – Potential impacts to the aquatic environment and other water users will be assessed for potential water sources.

Step 4 – Where required, AEP will work with the producer through a streamlined authorization process under the *Water Act* to authorize temporary use of the new water source.

Step 5 – Once the producer has received their streamlined authorization, such as a Temporary Diversion Licence, they can commence the use of the new water source.

Alternative Water Sources

Examples of alternative water sources may include:

- Storm water ponds.
- Gravel pits.
- Stock watering dams greater than 2,500 cubic metres.
- Beaver dams or ponds on non-fish bearing water courses.
- Larger rivers or wetlands.
- Municipal bulk watering stations
- Last polishing cell from a municipal wastewater treatment lagoon.

What to include in your Email

Producer requesting assistance under the Program should include the following information in their email to AEP:

- **'Livestock Watering Program'** in the subject line of the email.
- The legal land location(s) of your livestock
- If you currently have a Water Licence under the *Water Act*, the licence number(s).
- Number of animals.
- Suggested options for water source

AEP District Office Emails

Boreal District Aep.waborealregion@gov.ab.ca

Capital District AEP.wacapital@gov.ab.ca

Red Deer District WaterApprovals.RedDeer@gov.ab.ca

Calgary District aep.waapprovcal@gov.ab.ca

Lethbridge District WaterApprovals.Lethbridge@gov.ab.ca

Further information regarding the Program can also be obtained by phoning 310-FARM (3276).

Environmental Farm Plans

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

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





Farm Technology Program (FTP) Program Funding List

June 2021 | V1

The Canadian Agricultural Partnership (CAP) **Farm Technology Program** supports the adoption of innovative technology that minimizes agricultural waste, optimizes farm efficiency, and encourages the adoption of best management practices in farm security.

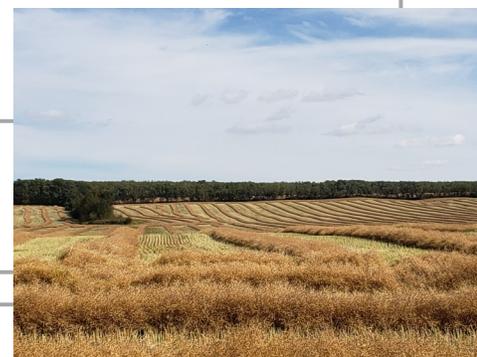
The 2021-2023 program-funding maximum is **\$48,000** for Farm Technology and **\$2,000** for Farm Security. The maximum amount is \$50,000 over the program term. Grant funding cost share is 50% of eligible expenses.

PLEASE NOTE: Purchases made before the program receives the application are ineligible for reimbursement. All purchases must meet the requirements as stated in the Programs Terms and Conditions and applications will be assessed based on the program eligibility criteria section 3. All application information and supporting documents must be included to facilitate this assessment (i.e. quotations, spec sheets, or letters of support).

The funding list will be updated periodically over the course of the program. Please subscribe to the Farm Technology website to be notified of any Funding List changes (<https://cap.alberta.ca/CAP/Programs>).

FARM TECHNOLOGY FUNDING LIST	
Ineligible Expenses	<ul style="list-style-type: none"> • Equipment eligible under the Efficient Grain Handling Program & the Irrigation Efficiency Program • GPS Location Sensors
Category	Eligible Expenses
1	Electronic soil sensors <ul style="list-style-type: none"> • Electromagnetic <ul style="list-style-type: none"> ○ Salinity, organic matter, moisture data • Electrochemical <ul style="list-style-type: none"> ○ Nitrate, potassium, hydrogen ion (pH) data • Soil compaction sensors
2	Farm equipment-mounted sensors and cables <ul style="list-style-type: none"> • Optical sensors <ul style="list-style-type: none"> ○ Vegetative index data ○ Grain protein, oil, starch content data • Yield sensors <ul style="list-style-type: none"> ○ Including hay bale
3	Farm equipment-mounted data collection and data storage units for: <ul style="list-style-type: none"> • Accelerometers • Gyroscopes • Magnetometers • Altimeters
4	Electronic livestock ID readers
5	Other sensors <ul style="list-style-type: none"> • Leaf wetness sensors • Bee hive temperature, humidity, audio and movement sensors
6	Technologically Innovative and Technology that is beyond a research stage and is commercially available and successfully demonstrated to work in Alberta.
	NOTE: Any items listed as ineligible are not eligible in this category.
7	Internet Boosters – MAXIMUM \$2,000 GRANT

This is a very open ended program. If there is something that you are interested in, apply and see if it gets approved!



FARM SECURITY FUNDING LIST	
Eligible Expenses	Ineligible Expenses
<ul style="list-style-type: none"> ➤ GPS Equipment Tracker ➤ Remote Monitoring Cameras ➤ Remote Fuel Tank Monitors ➤ Wireless Base Stations (Gateways) ➤ Motion Detectors/Driveway Alert Systems ➤ Door Sensors 	<ul style="list-style-type: none"> ➤ Bluetooth Trackers ➤ Regular Fuel Tank Monitors ➤ Installation Costs ➤ Lighting Systems ➤ Alarms

Efficient Grain Handling Program Funding List

The Efficient Grain Handling Program is an energy efficiency program intended to assist producers with reducing the overall energy use on their operations. The program can only fund equipment that shows a significant energy efficiency improvement over standard practice. Aeration fans and ducts, grain elevators and conveyors, hopper bins, and standard grain dryer configurations, are all important tools in managing grain storage. Unfortunately, however, these are standard equipment and none of them are premium-efficiency options and therefore **DO NOT** meet the requirements of the program on their own. Installation and labour costs are also not eligible under this program.

Grain handling system components that significantly improve energy efficiency above standard configuration are eligible under the program. These components can be factory options on new equipment or retrofits installed on existing equipment.

Eligible Costs	Ineligible Costs
<ul style="list-style-type: none"> ✓ Enclosed Dryer Roof, or Enclosed Dryer Top Cover ✓ Automatic Moisture-based Controllers ✓ High-Efficiency Burners ✓ Variable Speed Drives (VSD) for Electric Motors ✓ Grain dryer PTO to Electric Motor Conversion ✓ Insulated Plenums ✓ Exhaust Air Recirculation Systems ✓ Heat Exchangers ✓ Gravity-Fill Roofs ✓ Electrical or gas submeters on Dryers ✓ Temperature and moisture monitoring cables for in-bin drying systems ✓ Thermostats or thermometers for plenum or burner temperature control on in-bin drying systems ✓ Adapter plates for efficiently fitting external heaters to in-bin drying systems ✓ Indirect-fired high-efficiency portable aeration dryers ✓ Automated bin fan control systems ✓ Pipeline to grain dryer – for costs incurred over and above those paid for by the Rural Gas Program to a maximum of \$20k/applicant. A quote must be provided by the natural gas provider. 	<ul style="list-style-type: none"> ✗ Aeration Fans and Ducts ✗ Grain Elevators and Conveyors ✗ Grain Legs or Grain Pumps ✗ Hopper Bins ✗ Conversion from Propane to Natural Gas ✗ Standard Grain Dryer Configurations ✗ Additional Tiers ✗ Readers, software, or data subscriptions for interfacing with moisture and temperature cables ✗ Equipment that is leased ✗ Motors that are not for converting PTO to Electric ✗ Installation and labour costs are not eligible under this program. <p style="text-align: center; color: green; font-weight: bold;">If you are interested in applying for an item that is not listed as eligible, and is not listed or indicated to be ineligible, please call 310-FARM or email CAP.EGDP@gov.ab.cato see if this item could be considered in an application.</p>
Program Funding is 50% of Eligible Expenses	

Drought & Trees -Impact, Care and Maintenance By Toso Bozic, P.Ag

The direct impact of drought on trees is characterized by slowing or eliminating growth, serious health threat and causing injury or death. Drought also impacts trees indirectly, by increasing their susceptibility to wild-fire, insect pests and disease. Severe droughts cause widespread tree mortality across landscape (urban, acreage, farm, county or province wide) with profound effects on the function of tree/forestry ecosystems and overall environment.

Alberta native plant communities (grass, shrubs and trees) are well adapted for dry summer and fall as well as for a period of prolonged drought but still the effect and impact of droughts on trees are devastating and long lasting. A drought may be short-lived (few weeks or a month) or perhaps lasting one growth season or multi-year events, but its impact on a tree's health can last much longer. Trees that were already stressed by some other issue, like harsh winter/winterkill, poor soils, salt, herbicides and mechanical damage or insect infestation, are likely to decline even more following a drought.

How drought affects trees

No different than humans, trees need water to survive on hot, dry days. Many trees can survive for only short times under extreme heat and dry conditions. First tree response to the drought is to closing the pores called stomata. These pores are very important for photosynthesis process by controlling the amount of CO₂ they are taking to produce the sugar. Trees survive by moving water from their roots to their leaves through small cylindrical vessels that are connected within trees. Drought also disrupts the water transport by reducing the amount of water available for the tree. Due to drought, the moisture in the air and soil are declining, small air bubbles are formed in the vascular system creating embolisms that block the water's flow.

Symptoms of Drought

There are many visible drought stress symptoms due to water deficiency. The effects are not always immediate and the full extent of the damage to the trees can take one to three years to become apparent. In deciduous (hardwood) trees, some of the most common recognizable drought symptoms are:

- Scorching (margins/edge) of the leaves is browning
- Wilting, curling, bending, rolling and mottling of the leaves
- Lighter green to yellow-green foliage
- Leaves dropping/shedding or early autumn colour changes
- Chlorosis
- Smaller size leaves, stunted shoots
- Seed/cone production is increasing as tree is under the stress
- Cracks on bark of young trees



Picture 1: leaf scorching (L and C) and needle browning (C)

In coniferous trees, drought symptoms are recognizable by shoots drooping, browning, second year needle yellowing and they will often produce an abundance of cones the second year of a drought. As drought intensifies and prolongs, the effect on the whole tree is manifested in diebacks of twigs, branches, thinning of the crown. Leaves, twigs and small branches in the topmost and large lateral branches are dying. In the interior of the tree, leaves are more concentrated around the trunk with many producing epicormic shoots. Roots are the "engine" for the trees and when drought conditions persist, the fine hair-like roots, whose primary function is to absorb moisture, begin to die back. Under prolonged droughts, even the larger, fibrous roots are lost.

What can be done to reduce impact of drought?

To reduce the impact of drought, proper tree care includes:

- Proper watering
- Mulching - putting arborist wood chips mulch to protect roots from drying out
- Do not prune or remove live branches
- Do not fertilize trees - instead fertilize trees next spring
- Control weeds to reduce competition for water
- Do not disturb soil by mechanical weed control as you may damage roots and expose soil to loose moisture
- Pest management control including spraying of insects such as defoliators,
- Avoid any mechanical damages such as cutting surface roots, damaging root collar or bark on trunk (from mowers or weed whackers)
- Considering planting a diversity of trees and shrubs that are resistant to drought

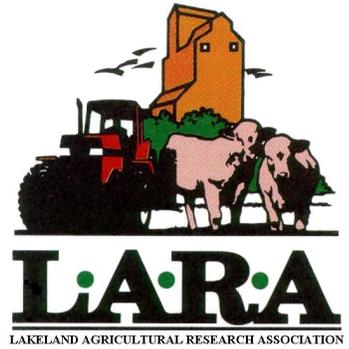
Lakeland Agricultural Research Association

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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.



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With Gabe Brown and Dr. Allen Williams

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Through hands-on training from the world's leading experts, Soil Health Academy participants learn how to increase profitability, build resiliency into the land, decrease input costs and improve nutrient density of food and agricultural products. No matter where you farm or what you grow, the Soil Health Academy will teach you how to improve soil health through practical regenerative agricultural principles.