MARA NEWSLETTER

Volume—01 February 2021

WGRF Approves $300,000 for New Agronomy Centre in Northern Alberta

As part of its $32 million Capacity Initiative, WGRF (Western Grain Research Foundation) is pleased to announce a $300,000 infrastructure investment project to Mackenzie County in Northern Alberta in partnership with Mackenzie Applied Research Association (MARA). “WGRF is pleased to be leading the funding for the construction of a much-needed agronomy centre and repair shop,” says, Dr. Keith Degenhardt, WGRF Board Chair. “The multi-use building will broaden the scope of research and extension programs at MARA and will allow them to maintain and grow the Ag research program,” says Degenhardt. The facility will be located on the MARA site at Fort Vermilion, Alberta. This is the most northerly agriculture region in Canada, one of the last areas of large-scale agriculture expansion in Alberta. “Our current research and workshop facility is antiquated and very expensive to operate,” says Greg Newman, MARA Board Chair. “The new facility will allow staff to process samples and build and repair specialized equipment to better serve the farming community in our region.” With $300,000 from WGRF and an additional $300,000 from local producers’ contributions, this building will realizes a long-term goal of the MARA Board to build an agriculture research site with the capacity to produce high level research that is relevant and important for local producers and all of Western Canada. In total, twenty-four Phase 2 Capacity Initiative applications were approved by WGRF. Additional capacity funding announcements will be made in the coming months.

“If Agriculture goes wrong, nothing else will have a chance to go right...”

- M.S. Swaminathan

Photo Caption: MARA’S New Agronomy Building

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Photo Caption:Danny Farkash, Vermilion, AB with his new Recycling Machine

Alberta Farmer Turns Ag Plastic into Fence Posts

It took two and half years for Danny Farkash, Vermilion, AB; Farmer, inventor and recycler to figure out how to build a recycling machine out of old oil field pipes, an anhydrous ammonia tank, a straw chopper and parts of a swather. He also has a bio-refinery which turns used vegetable oil into electricity.

In general, a prairie farmer buys more than 30,000 grain bags a year for temporary storage of grains who has limited knowledge on recycling options. The existing recyclers do not accept unclean agriculture plastic with debris and most of these grain bags end up in landfills and often burned or buried. Danny's machine recycles all kinds of plastics to create inexpensive fence posts. He was also looking for inexpensive heat source to heat the plastic to ultra-high temperatures. Danny figured out the old wooden pallets piled on his farm yard that didn't have any use could do the job. Danny is a great inventor as well as an environmental conservationist who reduces Agricultural-waste pollutants.

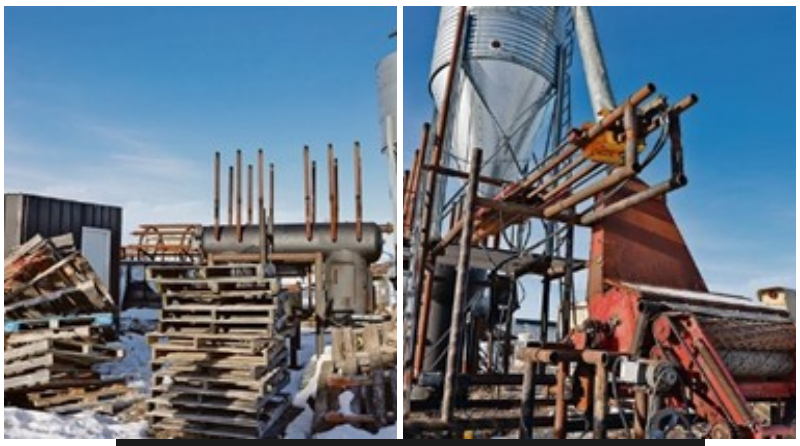

Photo Caption: Plastic Recycling Machine

Weed Control using New Spot Spray Technology

There are two methods of site specific and precision manner weed controlling:

- Map-based method: Involves thorough weed scouting, preparation of precision treatment maps and patch herbicide application
- Online techniques: Use real-time, sensor driven site specific, spot spraying weed management methods (Anduj AR et al. 2012; Moshou et al. 2013; Torres-Sanchez et al. 2013) to save costs on scouting and map-making (swin Ton 2005).

Advantages of Spot/ Precision Spraying

◊ Cut down cost of herbicide

◊ Help delay/fight against the risk of herbicide resistant

◊ Reduce environmental impact of weed control

◊ Reduce human health hazards

Weed-it is effective in three application timing,

1. Pre-seed burndown at the start of the growing season
2. Post-harvest weed control at the end of the season
3. It can be used between above two stages; spraying desiccant to patches of immature crops or to apply pre-harvest herbicides to control disturbing weed patches

Weed-it has the ability to reduce herbicide use up to 90%, through spot/ selective spraying. A sprayer with weed-it sensors selectively apply herbicides only where weeds are present.

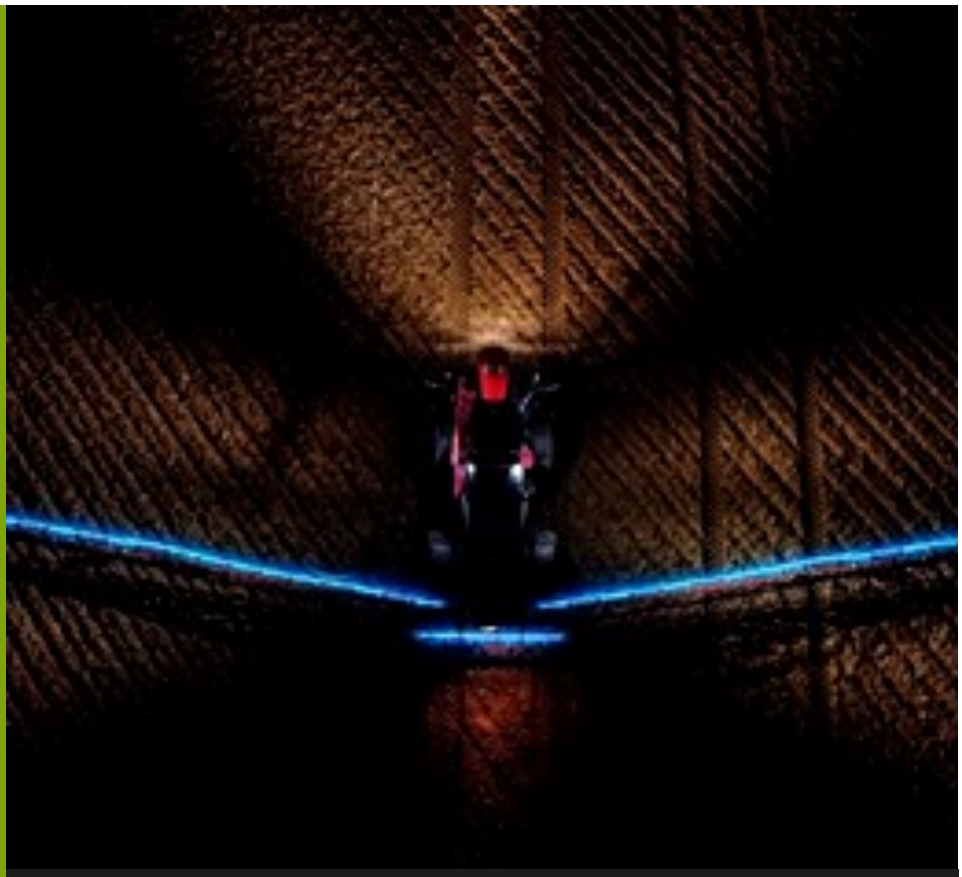

Photo Caption: The Camera-based, Precision-Spraying Technology (Croplands Equipment)

Weed Control using New Spot Spray Technology

Precision field spraying technology is a new technology developed in Europe and licensed to a distributor in Australia, which is now available to Canadian farmers too. “Weed-it” is a camera based, precision-spraying technology which has been demonstrated in western Canada over the past 2 years and now available for farmers to buy through Croplands Equipment. Croplands, that bought the right of marketing weed-it, is a subsidiary of the well-known Australian-based crop protection company, Nufarm.

Weed-it Quadro sensors mounted on the field sprayer boom, use a blue light to scan the ground to instantly detect and measure chlorophyll level in plants and apply herbicide where it is needed. This is called green-on-brown technology; it detects weeds (any green plant with chlorophyll) and ignore brown (including mature crop, crop residue and bare soil). So this technology is not a good fit for in-crop herbicide application over a whole field.

Weed Control Cont.….

The amount of herbicide applied is adjusted depending on the size of weeds. The weed-it sensors can be operated in 3 different modes

Spot spraying mode with Nozzles set at 40 degrees and each sensor scanning 10 inch spacing

Dual mode with nozzles set at 60 degrees, can detect very small, thumbnail size weeds and it sprays about 30% rate of chemicals on them. As the system detects larger weeds, it increases the amount of herbicide spraying

Full coverage mode: nozzles are set at 65, 80 or 110 degrees for sufficient overlap to provide proper coverage

Apart from different sensor modes, the sensitivity of the blue light to detect chlorophyll can also be adjusted. At high sensitivity this light can detect and spray very small weeds while at very low sensitivity the system will detect only larger green plants.

Will it Pay Off?

This is a great technology that applies chemical only to identified weeds and not to the whole field, however buying this technology is expensive.

Is there a return/payback on investment?

Weed-it system costs about $1500 per foot of boom and for a 100 ft. long boom it costs about $150,000. Using this technology to spray herbicide for spring burn off and pre-harvest treatments, could save $12 per acre and during chemfallow years producers can reduce their herbicide usage up to 90% (Jesper Voois, Canadian Manager of Croplands Equipment). Weed-it spraying system which costs $150 000 will not payback for 1000 or 2000 acres cropped and treated. Further, if a producers is using generic glyphosate at about $3 per acre as the reference point, saving half or more application wouldn't be that spectacular. A producer who crops and treat 7000 or 15000 acres, the payback becomes significant (Tom Wolf, Agrimetrix Services Consulting, Saskatoon).

With an increasing rate weeds are developing Glyphosate resistant and currently, there is no alternative for Glyphosate for conventional farming. Therefore, producers can't afford to lose it. To reduce the risk of resistant development, it's important to use combination of herbicides in a tank mix along with Glyphosate. As we look at multiple herbicide in a tank mix it becomes expensive and cost per acre could be varied from $4 to $15. Producers can use weed-it technology that reduces cost of herbicide by 50 to 70% and that saves a significant amount of money on their 7000 to 15000 acres. In that way, it wouldn't take long to cover the cost on producer's investment weed-it (Tom Wolf, Agrimetrix Services Consulting, Saskatoon).

Well Decommissioning 101

Wondering what happens when a wellbore is decommissioned on your land? What steps it goes through and what processes are undertaken to ensure the wellbore is permanently plugged?
The decommissioning of a wellbore goes through several steps, some of which are unseen, and landowners may not be aware of. We've included a brief guide that will provide you with a basic understanding of what is involved and how it is achieved.

What does it mean when a wellbore is abandoned?

Also known in the oil and gas industry as abandonment, the decommissioning of a wellbore in Alberta follows strict rules put in place by the Alberta Energy Regulator (AER). The current rules for well decommissioning (Directive 20) have been in place since 2011 and ensure that all wellbores are decommissioned in a safe manner that will ensure the safe permanent closure of the wellsite.

Well Decom…...

A wellbore is considered abandoned (decommissioned) when it has been deemed safe and secure by the AER. This happens after the wellbore has been permanently shut down, plugged and the wellhead removed.

Whether the wellbore is classified as inactive, suspended or abandoned, it's up to the licensee to take care of decommissioning and reclamation costs. If there is no viable owner, wellbores are managed by the Orphan Well Association with costs covered by an annual levy collected from the oil and gas industry by the AER.

Following decommissioning, the site is remediated (de-contaminated), if required, and reclaimed back to what it was prior to any well being there.

When it comes to the decommissioning process, the wellbore goes through seven basic steps from start to finish. They include file review, landowner discussion, site inspection, engineering program, on-site operations, cut and cap and lastly reporting.

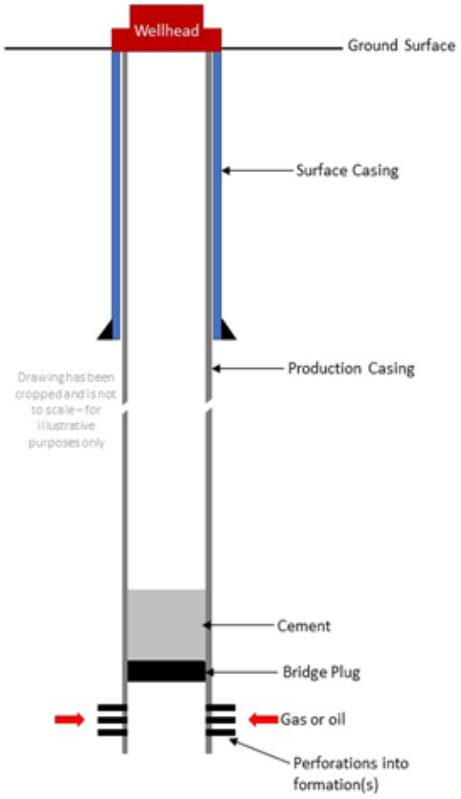

Photo Caption: Simple Wellbore Schematic Diagram

Step #1 – File Review

Once it has been determined that a wellbore is to be decommissioned (either by an operating company or, in the case of an orphan well, by the OWA) the history of the well must be compiled so that engineers will know the best way to abandon the wellbore.
There are numerous government and public data sources that can be accessed that provide important details on a wellbores including when it was first drilled, how deep it is, what formations it produced from, as well as any issues drillers may have encountered when drilling the wellbore. All wells in the province have what is known as a well file. Well files are also reviewed as they provide a complete history of the wellbore, including, drilling, workovers and production history, etc.
During this initial step, regulatory approvals are also completed. The regulatory approval phase can vary in length depending on the specific wellbore. Approvals may include a wellsite decommissioning (abandonment) notice to the AER, non-routine wellbore abandonment approvals, access approval from the access rights holder (Road Use Agreement for example) as well as engineering program and vendor selection.

It is important to note, not all of these agreements are required for every site. For example, non-routine wellbore abandonment approvals can be applied for and approved during the field abandonment stage. These non-routine approvals may be required where unusual or infrequent downhole wellbore characteristics require additional measures prior to decommissioning.
Project planning is also part of this step where issues within the wellbore are identified such as potential leaks and insufficient cement. Any potential issues identified are repaired in accordance with regulations to ensure the wellbore decommissioning in place is strong and will remain sealed.

Step #2: Landowner Discussion

Prior to any equipment moving to site, the landowner is consulted. In the early stages of discussion, the company or the OWA will confirm access and discuss the work required on your land. Landowner input is important to help crews execute work in the best way possible and with the least amount of disruption to landowners. Landowners may also have important historical knowledge of events at the site and what issues may be present.
Keep in mind, in the case of an orphan well, the OWA may need access to your land at any time throughout the year, regardless of what agricultural stage your land is in. We simply have too many sites to decommission to always wait for crops to come off for example. We will always strive to limit our activities to the former surface lease.

Throughout the process, the OWA will be in constant communication with landowners, keeping you up to date about what is happening.
Landowners should also be aware that they are entitled to be compensated for unpaid surface rent even if the site is an orphan. However, unpaid rentals are can only be provided by the Surface Rights Board, not the OWA. Landowners who restrict access for decommissioning or reclamation may impact their ability to receive unpaid surface rentals.

Step #3 – Site Inspection
After landowners are contacted to ensure the wellsite can be accessed, a site inspection takes place. If the wellbore is on a larger site or part of a recent operation, access is typically much easier. Older wells that have been out of service for extended periods may no longer have visible access roads. In these cases, the surface lease agreement will be consulted, and the original access utilized. During the inspection, the overall condition of the wellhead is determined and wellbore pressures are recorded. The wellbore is also checked to see if there are any leaks (gas, oil, or water) that may be occurring. Initial environmental parameters may also be gathered at this stage. This initial environmental review is known as a Phase I Environmental Site Assessment (ESA) and is part of the reclamation process.

Step #4 – Engineering Program
In this step, engineers use the information collected in the File Review to develop a detailed decommissioning program for the wellbore. This will outline what type of primary decommissioning equipment is needed (e.g. service rig, drilling rig, coil tubing unit, e-line unit, etc.). It also provides detailed instructions for where to place certain plugs and downhole devises as well as how much and where special cement should be placed.

Step #5 – On-Site Operations (see wellbore schematic image)
This step in the process will involve the mobilization of several pieces of specialized equipment to the site. Typically, a service rig is used for well decommissioning operations, but a coiled tubing unit may also be used in some cases. Smaller operations may use a smaller unit known as a logging unit or “e-line”. Other equipment may also be on site including a steamer truck (especially in winter), cement unit, and various transport and service trucks.
First the wellhead is secured and disconnected from any pipelines. The wellhead is then opened to allow certain tools to be lowered down the wellbore. The type and number of pieces of equipment placed on the lease will depend on the complexity of the wellbore. If more information is required on the wellbore, a logging truck may be sited to run several tools down the well. These tools are very specialized and can provide information such as how well cement has bonded to the outside of the casing, if the casing has good integrity, or if there are any leaks in the wellbore.
Any production tubing is removed from the wellbore and sent for re-use or recycling. These “joints” of tubing are each ~10 metres long and are fitted end-to-end with screw connections. Depending on the depth of the wellbore, this tubing “string” can be up to several thousand meters long and made up of hundreds of individual joints.
The inside of the wellbore is often cleaned and any residual oil or gas is removed. This is done to ensure cement plugs that will be inserted into the wellbore bond optimally to seal the wellbore.
The actual plugging of the wellbore takes place during this stage. A devise known as a bridge plug is lowered into the wellbore and placed just above the perforation zone (this is the portion of the wellbore that was previously perforated allowing gas or oil to flow into the wellbore from the formation). Once the bridge plug has been placed and mechanically connected, the seal of the plug is tested to ensure it is secure, and then several meters of cement is placed above the bridge plug. These actions result in the wellbore being “downhole abandoned”. The wellbore is left filled with fresh water or other non-corrosive fluid.

Any necessary equipment is also moved in during this step. Semi-trailer sized equipment is brought in to set cement below surface and seal the hydrocarbon source(s).

Next, an evaluation for potential shallow issues is conducted. This is to protect ground water and the surface environment. If any issues arise during this stage, certain equipment may return to site and further repairs will be made.

Step #6 – Cut and Cap
Once the wellbore has been permanently plugged downhole, the wellhead at the surface is then cut off and any near surface equipment removed. Wellheads are cut off at least one meter below ground surface (some exceptions apply) to ensure no future issues with cultivation.

Step #7 – Reporting
After a wellbore has been permanently decommissioned, the last step in the process is to electronically report the wellbore status change to the AER so that the wellbore will now appear as decommissioned on provincial databases.
Once the wellbore has been successfully decommissioned, other infrastructure on the site, including pipelines, will be removed and the site reclamation process can begin.

Did you know?
The average lifespan of a wellsite can be upwards of 20-30 years. The life cycle of a wellsite includes 6 main classifications, beginning with active and ending with reclamation. The 6 classifications include active, inactive, suspended, abandoned, orphaned and reclaimed.

Where to find more information

• www.aer.ca/regulating-development/project-closure/suspension-and-abandonment/how-arewells-abandoned

• www.alberta.ca/surface-rights-rental-recovery.aspx
• www.alberta.ca/agriculture-energy-utilities-and-surface-rights.aspx
•www.pembina.org/pub/landowners-primer-what-you-need-know-about-unreclaimed-oil-andgas-wells •
www.orphanwell.ca/

EXPORT SUPPORT FUND

The Canada Organic Trade Association (COTA) has a fund to promote export of Canada's organic products globally. This fund provides a subsidy to all organic exporter's to help cover the cost of shipping samples to overseas interested buyers of their products. In order to qualify for 50% of your shipping costs being subsidized, applicants must fill in a form, complete a survey outlining the sales potential and provide a copy of the paid invoice related to the samples shipped to a buyer outside of Canada. The shipping must have occurred between April 1, 2020 – March 31, 2021. Currently there is an abundance of funding available so we encourage you to contact COTA as soon as possible as all submissions must be completed by March 31, 2021. Please contact Caroline Bernard, Members Relations and Executive Assistant at cbernard@canada-organic.ca or by phone 613-482-1717 ext. 205.

References:

https://www.mackenzieresearch.ca/wp-content/uploads/2021/01/WGRF-News-Release-WGRF-Approves-300000-for-New-Agronomy-Centre-in-Northern-Alberta.pdf
https://www.producer.com/news/alberta-farmer-turns-ag-plastic-into-fence-posts/

New Spot Spray Technology in Canada by Lee Hart, Grain News

Report on the feasibility and benefits of spot spraying, Tamas Kömives, Plant Protection Institut, Centre for Agricultural Research, Hungarian Academy of Sciences, 1022 Budapest Herman Ottó u. 15, Hungary, e-mail: komives.tamas@gmail.com

Extension Events

1. Soil Health Webinar Series with Joel Williams on 23rd Feb from 7.00 to 8.00 PM on Regenerating Forage Stands & Using Perennial and Annual Forages in Crop Rotation. Visit https://www.absoilgrazing.com/ to register
2. Calving Management by Dr. Wendy Quist on February 25th from 7.00 to 8.00 PM
3. Questions and Answers with Joel on March 2nd from 7.00 to 8.30 PM. Visit https://www.absoilgrazing.com/ to register
4. Clubroot updates and Crop Diseases to watch in 2021 by Dr. Mike Harding on 25th March from 9.30 to 10.30 AM

MARA Membership Renewal 2021

It is the time to Renew or Acquire your MARA Membership for 2021,

1 Year Individual Membership—$20 1 Year Corporate Membership—$ 100

3 Years Individual Membership—$50 3 Years Corporate Membership—$ 250

Payment Methods: Cash, Cheque or Money Order

Contact Us

Give us a call for more information about our services and if you have any questions;

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