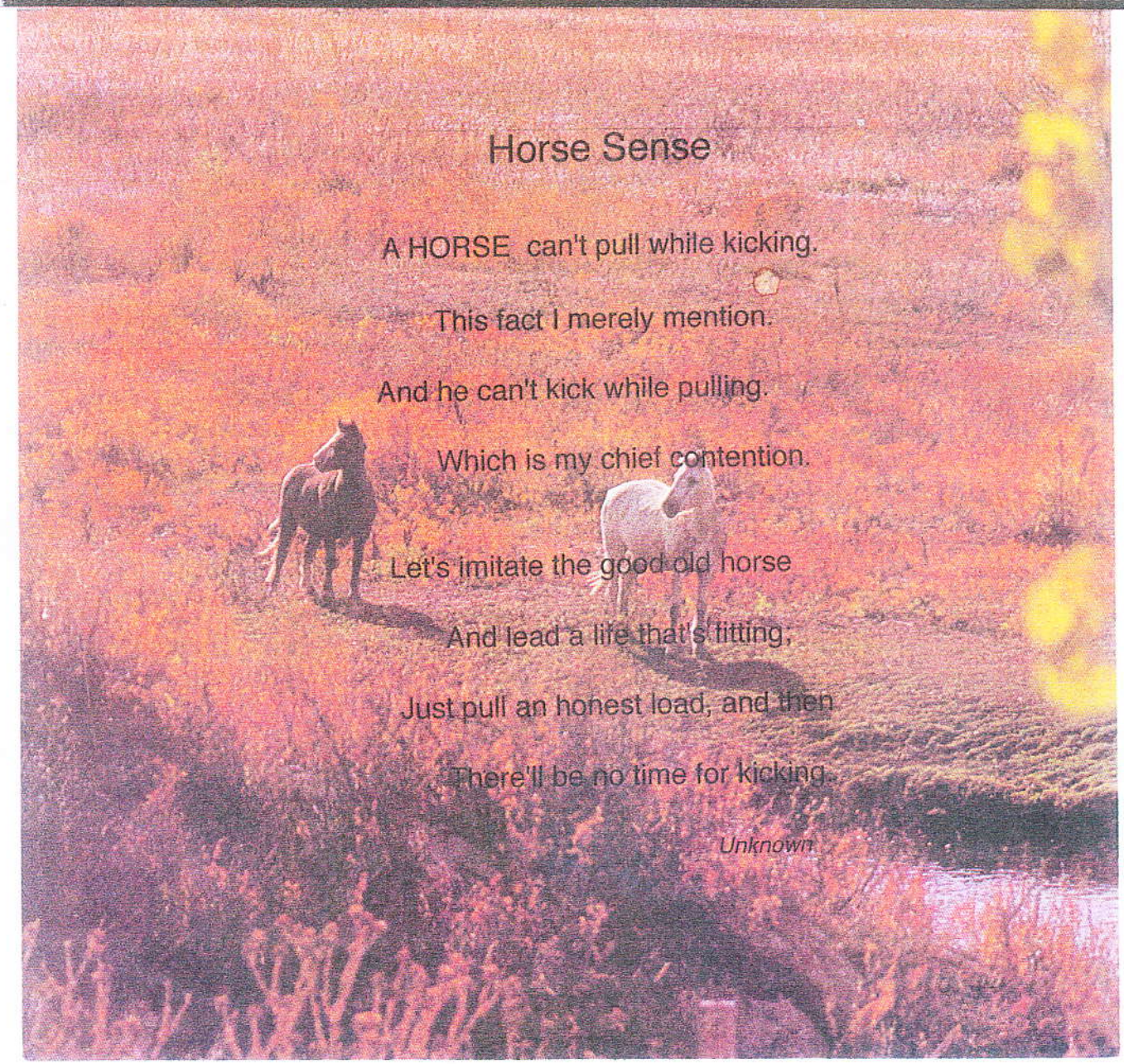
# THE LOG JAM

Published by the Woodlot Association of Alberta (WAA)

MARCH 2014



*Our Mission Statement :*

"The Woodlot Association of Alberta's purpose is to promote leadership in sustainable forest management by encouraging the development of private forest by increasing awareness of their inherent social, economic and environmental values."

Advertisements in the News Letter may be purchased at the following rates:
**Full page - $100.00; One half page - $50.00; Quarter page - $25.00**

To place an advertisement - write, draw, etc. how you want it to appear in the News Letter, and fax or e-mail to the editor.

## Contact - E-Mail, Address's and Phone


**Woodlot Association Office**
Box 303
Beaverlodge, AB
TOH - OCO
==========
E - Mail - rjolson@telus.net
==========
Website-----www.woodlot.org
==========
Phone ---- 1 - 800 - 871 - 5680

**News Letter Editor of "The Log Jam"**
E-Mail---jurgen.moll@xplornet.com
==========
Phone-----1-780-778-4272
==========
Box 84 , Whitecourt , AB , T7S-1N3


## Board of Directors

## Up Coming Events

Board of Directors - Teleconference - **March 30 / 14**
**April 27 / 14**
**May 25/14**
**July 27/14**
All calls are at 7pm

Board of Directors - **Meeting** @ Whitecourt - **June 14/14**

**WAA** Booth at **Farm and Ranch Trade Fair** in Edmonton **On March 27-29/14**

**Tour** West County of Grande Prairie Woodlot Tour (see pg. 4 ) **on June 7/14**

**Tour** of ***Jurgen Moll's*** Woodlot ( see details on pg. 4 ) **on June 13/14**

Annual General **Meeting** to be held **October 18 & 19, 2014** in Whitecourt

## Classified Ads


**R.W. & SONS CONTRACTING**

On-Site Lumber Mill Work

Log owners have your logs band sawed into valuable lumber.

Also assortment of Dry Piled Birch, white poplar & spruce lumber for sale.

Call Bob @ 780-963-4063

# Woodlot Tours - 2014

## Jurgen Moll's Woodlot Tour

***When*** - June 13, 2014 (Friday)
***Where*** - From Whitecourt South on Highway 32 to Twp. road 590 and one mile west *(name is on the gate post)*
***Time*** - From 1-pm to 5-pm *( or longer)*
***Bring*** - Walking boots, Raincoat/warm jacket *(there is lots of room for campers if you stay the night)*
*BBQ* - There will be a BBQ, after tour (6-pm)

This woodlot is only 75 acres, due to its small size and very extensive trail system. All parts of it can easily be accessed by walking some 2 km.

**What you will see :**

* Logged area, naturally regenerated.
* Mono culture of a spruce stand.
* Riparian area along the creek.
* Area grazed by sheep.
* Some diseases and insects.
* Christmas tree plantation.
* Thinned and pruned area.
* Young stand of birch.
* Muskeg.
* 2013 fire

This woodlot contains all of the main tree species which are found in the Boreal Forest, which are; white and black spruce, lodgepole pine, white and black poplar, birch, willows, alder, Larch, and many shrubs. *(No Jack Pine)*

The trees range in age from 10 to 75 years old, plus several small patches of trees 150 years old that survived the fire some 80 years ago.

This woodlot is fairly interesting in that it contains a number of projects that could be used in other woodlots. It may even be of interest to those who toured it in the past to see the changes to it over time. Plus an opportunity to visit with other woodlot owners.

---

## West County of Grande Prairie Woodlot Tour

**Saturday, June 7 @ 1pm at Woodworth Lumber**
*and*
**Sunday, June 8 at Larry Nofziger's Woodlot**

On Saturday, June 7 at 1pm, the tour will begin in the parking lot of the Giant Beaver attraction in Beaverlodge, Alberta. We hope to tour the tree nursery in Beaverlodge, but that detail has not been confirmed. From Beaverlodge we will proceed to Woodworth's site located adjacent to Hinton Trail Hall on Hwy. 722 located 25 km southwest of Beaverlodge. Follow the signs to Elmworth.

cont.

Woodworth Lumber is an aspen logging and sawmill operation owed by Garry Wilkinson. Garry is a third generation sawyer, he has his mill and hybrid poplar plantation on t he same quarter section as the Hinton Trail Community Hall. After touring his mill, we will meet in the hall for a presentation by Garry, which will be an overview of the aspen industry. This will be an opportunity for owners of aspen bush to learn about its value, and to realize they are woodlot owners who could benefit by managing that resource. To learn more about Garry, check out woodworthlumber.com <http://woodworthlumber.com> . If possible, a rep from the hybrid poplar plantation will also be on hand to answer questions. After the sessions there will be a barbecue at the Hinton Trail Hall around 5pm.

On Sunday morning, June 8, Larry and Chris Nofziger, will give us a tour of their half section aspen woodlot.
You will see:
Antique 48' head saw rig in operation
Aspen cut block regeneration back 27 years
Some results of the 2009-2010 WAA seedling program
Hungry rainbow trout (bring your rods)
Mushrooms, late morels or early boletus (if wet)
WIldlife (hopefully)
Nofziger's off-grid homestead

Anyone coming overnight will be able to find hotel accommodations in Beaverlodge or Grande Prairie. If you want to camp, you can camp along the Red Willow River or at the Nofziger's residence (25km sw of the hall).

Woodlot members are encouraged to contact us for more information,
Contact: Larry at 780-354-2710
cell 780-897-2596
email larrynofziger @ gmail.com <http://gmail.com>

Pete Mills at 780-354-8226
email pssbd@telus.net

Check the WAA website, www.woodlot.org <http://www.woodlot.org> for more details on this or other WAA activites.

## NEWS FROM YOUR WAA BOARD

Since the last LogJam issue, your Board has met by teleconference in January and face-to-face in February. Here are some of the things we have been dealing with:

### Public Lands Woodlot Program

Details of how our proposal to allow sustainable woodlot management by woodlot owners on leased crown land could operate (referred to in earlier issues as Leased land initiative) were submitted to the ADM of Alberta Sustainable Resource Development. In response, SRD mentioned the possible option that such a program might be added to the regulations under the Forestry Act, which up for review and possible amendment in 2017. Other options are still under consideration.

### Seedling program

The federal PFRA is now gone, and with it the program through which a landowner could obtain seedlings to plant from a selection of many different kinds of tree species suitable to this region. The WAA is asking the Alberta government to consider filling the void by instituting a program similar to this.

### Membership

Herb Cerezke has been working diligently to ensure that our membership list is correct and up-to-date. You may have received a letter from him if your membership has lapsed. We presently have 125 paid-up members.

Remember, you can give a gift membership in the WAA to someone for only $20 – just contact Herb. Also, you can apply for a free lifetime membership in the WAA if you have been a WAA member for 10 years and are either 75 or older or disabled and unable to work. Just send us a short letter by the end of August.

### Woodlot Gate Signs and WAA lapel pins

We still have 20 Woodlot gate signs available to our members for the cost of shipping, so let us know if you would like one. and are planning to get more produced. We also will be ordering more gold-and-green WAA lapel pins to make available to all members.

---

## Reminder

Just a reminder that the ***fire season*** starts on **MARCH 1 to October 31** when a fire permit is required, continue to use caution when in your woodlot either working or recreating ; by:

*Carrying some fire fighting tools ie, axe, shovel, water bag, etc. * Keep the exhaust clean on quad or other motorized equipment. * Check the spark arrester on power-saw. * Don't smoke , or sit down when having a smoke , make sure the butt is out cold. * Carry a cell phone to ask for help if you have a fire. * Get a fire permit for any burning. * **good Luck**

# Agroforestry: Where agriculture and forestry meet

Agriforestry is the integration of agriculture and forestry.

Kirsten Jurcek and her mother, Weenonah Brattset, graze cattle on their Jefferson County farm. This year, in partnership with Casey Dahl, they are establishing a 10-acre pasture area that will be known as a "silvopasture".

During a pasture walk at the Brattset farm recently, Dahl explained how he plans to establish working trees with forage in order to maximize return from the parcel of land.

Dahl is leasing the parcel and planting trees that are spaced to allow light to reach the forage. Once the trees are established, cattle will graze among the trees.

He says, "Heat stress in pastures can be a problem but this will help. If there is one lone tree in a pasture the cattle congregate under it and kill the vegetation below. With this system, they move around, enjoying the shade while they graze."

He notes, "In systems that have been established, the cattle have actually increased their rate of gain with a system like this."

TREES AND FORAGE

The system is planned to provide 40-50% shade for the forage plants.

Dahl says, "Plants like light but there is a photosynthesis saturation point. If a plant is over-stimulated by too much light and heat the plant's metabolism will shut down."

There are areas in the country that raise trees for lumber production but Dahl has chosen to raise trees that provide products for niche markets.

Chestnuts and hazelnuts work well with this type of system.

He worked together with Jurcek planning the system. In the first years of growth the Jurceks will do mechanical harvesting of the forage to allow the trees to get established. To do this, spacing between the trees is established to allow the equipment to fit.

He says, "Once the trees start getting taller we will cut the lower branches of the tree. That helps the tree's production and the cattle can't reach them."

Dahl says he has seen some successful systems that also utilize pigs to clean up fallen nuts or fruit under the trees. This is helpful because fallen fruit often results in insect problems if stays on the ground under the trees.

He says, "Worms and pests multiply in fallen fruit and become an even greater problem the next year."

He cautions, "When using pigs you will need to put a ring in their noses to keep them from rutting up the pasture. Then you may need to create a wallowing system so they will stay cool."

## Canadian Federation of Woodlot Owners

*By Wade Knight, CFWO*

### What is the Canadian Federation of Woodlot Owners?

The Canadian Federation of Woodlot Owners (CFWO) is a national federation of provincial woodlot owner organizations. The CFWO promotes the economic and social interests of Canadian private woodlot owners by representing their views through a united national voice. The Federation is committed to the sustainable management of private forest resources to ensure they will continue to contribute to the economic, social, environmental and cultural well-being of rural communities across Canada.

### Canada's private woodlots

Across rural Canada there are over 18.9 million hectares of private woodlots representing about 6% of Canada's forested landscape. Ownership of these woodlots is very diverse. It includes an estimated 450,000 families as well as some larger companies. For some families woodlot ownership is new, while for many others, the woodlot has been in the family for many generations.

Canada is diverse in many ways and the size and the species composition of woodlots is no different. Private woodlots range in average size from 30–40 ha in the eastern provinces to >60 ha in the prairies. In the southern regions of Ontario and Quebec the woodlots are dominated by tolerant hardwoods while in the Maritimes and western provinces they are home primarily to a mixture of deciduous and conifer species. One commonality is most of these forests are located in Canada's most populated regions and represent a significant component of our settled natural landscape. For example, about one third of Canada's population lives in southern Ontario where 90% of the forests are privately owned and managed.

**Table 1: Ownership profile of Canada's forest landscape**

| | Area of non-reserved productive forest land (000 ha) | | | | | | |
|---|---|---|---|---|---|---|---|
| Province | Public lands | Private industrial forests | Private woodlots (non-industrial) | % of private woodlots (non-industrial) | Number of woodlot owners [a] | Average area of ownership by woodlot owner (ha) | Range of private woodlot size, non-industrial (ha) |
| Quebec | 35,500 | 1,094 | 5,520 | 13 | 130,000 | 42 | 4–3,000 |
| Ontario | 36,350 | 744 | 4,795 | 12 | 169,000 | 28 | 10–4,000 |
| New Brunswick | 2,960 | 1,210 | 1,740 | 30 | 42,000 | 45 | 5–4,000 |
| Nova Scotia | 1,030 | 850 | 1,780 | 49 | 31,000 | 57 | 10–2,000 |
| Alberta | 21,700 | 25 | 1,535 | 7 | 17,500 | 88 | 2–2,000 |
| Manitoba | 13,500 | None | 987 | 7 | 13,500 | 73 | 4–4,000 |
| British Columbia | 46,700 | 900 | 1,200 | 3 | 22,500 | 53 | 40–8,000 |
| Saskatchewan | 11,500 | None | 400 | 3 | 15,000 | 27 | 20–2,000 |
| Prince Edward Island | 35 | None | 238 | 87 | 14,000 | 17 | 5–200 |
| Nfld & Labr. | 1,100 | 1,668 | 37 | 1 | 4,000 | 9 | - |
| Canada | 170,375 | 6,491 | 18,232 | 9.3 | 458,500 | 43 | |

[a] Estimate

Sources: Dansereau, Jean-Pierre and deMarsh, Peter, "A portrait of Canadian woodlot owners in 2003", The Forestry Chronicle, 2003. Various personal communications and unpublished reports: Hardie K. 2013 and Cote M-A. 2013.

### Canada's private woodlot owners

Canada's woodlot owners are very diverse in terms of age, occupation, objectives and reasons for owning a woodlot. They include blue collar workers, farmers, professionals, retirees, etc. Many woodlot owners have adopted the values and principles of sustainable resource management. These three aspects of sustainable

management – economic, ecological and social benefits – are well represented in the ownership motivations of woodlot owners.

Although the majority of Canada's woodlot owners don't depend on earning a full-time living from their woodlot, many rely on their woodlot as an important source of income. Sawlogs, pulpwood, firewood, maple syrup, and Christmas trees are common products from woodlots. Other common motivators for ownership include conservation, wildlife management, nature appreciation, investment, and recreational activities such as hunting, hiking, and cross county skiing.

**The social-economic benefits of Canada's private woodlots**

Private woodlots are not only an important source of economic and environmental benefits for the owner, but also for neighbouring communities. They contribute direct and indirect social, environmental and economic benefits to local economies including employment, clean air, recreation, wildlife habitat and biodiversity, water, and soil conservation.

Canadian private woodlots represent about 9.3% of Canada's total non-reserved productive forest land base (refer to Table 1). In terms of a worldwide perspective, if private woodlots were Canada's only forests, Canada would rank #11 in the developed world, between Finland and Spain in total forest cover.

While the annual revenue for individual woodlots in Canada is quite small, the aggregate value of production from all woodlots is significant. For example, in 2011 revenues from Canada's forestry and logging sector contributed $5.2 billion to Canada's gross domestic product (GDP). This included contributions from private woodlot owners who provided over 9% (13.6 million $m^3$) of the forest industry's total round wood supply, worth close to $500 million.

**Regional Economic Importance**

In some regions of Canada private woodlots are an especially important contributor to their local economy. For example, in a 2012 report on New Brunswick's private woodlots, *New Approaches for Private Woodlots — Reframing the Forest Policy Debate*, it was reported that for each additional cubic metre of wood harvested and processed about $220 would be added to the provincial GDP, and for each additional 10,000 $m^3$ of wood processed, it would result in the creation of 13 direct and 12 indirect jobs.

In addition to timber products private woodlots also support other economic activities within our communities. The two most prominent products are maple syrup and Christmas trees. In 2010 these two business activities contributed an additional $321 million to Canada's economy.

As they have done for many generations Canadian woodlot owners will continue to be an important contributor to the economic, social, environmental and cultural well-being our rural communities.

**CFWO member organizations include**

Federation of British Columbia Woodlot Associations, Woodlot Association of Alberta, Woodlot Association of Manitoba, Ontario Woodlot Association, Fédération des Producteurs Forestiers du Québec, New Brunswick Federation of Woodlot Owners, and the Federation of Nova Scotia Woodland Owners.

## SUMMARY REPORT OF "USING BIOMASS NOW" CONFERNENCE AND TRADE SHOW

On December 9, 2013, I attended the "Using Biomass Now" Conference and Trade Show held at the Chateau Louis Hotel & Conference Centre in Edmonton. The conference was organized jointly by the Canadian Institute of Forestry, Rocky Mountain Section, and the Agroforestry and Woodland Extension Society (AWES). The purpose of the conference and trade show was to explore potential uses for biomass in Alberta, while at the same time, provide opportunities for various community, business and other private enterprises to make connections and to access sources of biomass expertise and information. A general theme of the conference focussed on heating and energy generating systems deploying materials such as available waste wood and agricultural biomass instead of fossil fuels, with the resulting benefits of energy savings, reduced heating and electricity costs. The conference was well attended and there was a wide variety of display materials to view during coffee and lunch breaks.

The topic of the first speaker, Trevor Stanley (General Manager of Pineland Forest Nursery, Hadashville, Manitoba) was the "Burning Wood to Grow Wood" and was a review of a new energy efficient greenhouse with the installation of a state-of-the-art biomass heating system. As a result of this project, initiated in 2008, Pineland Forest Nursery is now considered a leader in bioenergy in Manitoba. Previously, the greenhouse used natural gas and electricity, which later was converted to burning wood chips to heat a large water storage system. The fuel types that can be used include fire-killed timber, wind throw and storm-damaged trees, peat moss, forest harvest and mill wastes, waste construction materials, and farm animal feed wastes. Plantation grown hybrid poplar may also be used. Net energy savings from this system are estimated at $100,000/year. Presently, the current system has about a 10-year pay back but costs are decreasing. Manitoba Hydro is currently promoting this system, especially for northern communities.

The title of the second speaker, Bruce Duggan (Director of the Buller Centre for Business at Provenance College & Seminary, Otterburne, Manitoba) was "Biomass Brokerage: Creating a Virtual Infrastructure for a Biomass Economy". Bruce is on a Steering Committee dedicated to moving Manitoba to 50% renewable energy by 2030 without increasing greenhouse gases. He spoke about a biomass energy system now established by the College, in which a geothermal plant has replaced about 80% of the natural gas usage in a new building. Potential fuels for future use identified include agricultural field waste, bull rushes, and some forestry wood residues. The biomass system has been operating for about three years. The College Biomass Brokerage operates by bringing various interested agencies together to create new potential markets for biomass usage and to reduce production costs. The College has prepared a data base that can be accessed.

The next speaker, Mark Ryans (Research Manager, Forest Products Innovations) spoke on the topic "Biomass Supply for Smaller Scale Bioenergy Systems". Mark is responsible for three national R & D programs: silvicultural operations, forest feed stocks for a bioeconomy, and wild fire operations based at Hinton. Mark specializes in bioenergy, especially with forest-origin biomass materials. He has assisted woodlot owners on private land in promoting the use of biomass materials for heating and energy production. These materials include bark, branch, sawdust and wood sawmill waste materials, small diameter trees and insect/disease killed trees.

The fourth speaker, Ruth De Santis (Business Development Officer with Alberta Agriculture & Rural Development, located in the Biomaterials Development Centre at Vegreville) has knowledge of biomaterials and assists with project management, event planning, and communicating and facilitating industry network development for biomaterial opportunities in Alberta.

The fifth speaker, Harry Welling, is Managing Director of Kalwa Energetics Inc. in Edmonton. His company promotes renewable energy, primarily biomass energy and its sensible uses. The focus of his company is to assist in the development of small- to mid-scale bio-energy projects that allow direct benefits to the economic and environmental development in each community by using local resources that meet local needs. Harry is a development consultant who follows a practical approach rather than a theoretical approach in designing and solving energy project solutions, with consideration for each individually unique requirement. He has authored the report, "Energy from Biomass Combustion in Rural Alberta Applications". A focus of his company is to reduce energy costs, increase efficiency of energy production, reduce distribution costs and increase the use of biofuels.

The next speaker, Don Harfield, is a Team Leader & Researcher with Thermochemical Processing (part of Bioresources Technologies, located at Vegreville). His focus is on research and development projects related to biomass conversion technologies and product development. He currently leads research projects in agglomeration and biomass combustion technologies, biomass pyrolysis, biochar-based specialty products, hydrothermal carbonization, soils amendments, and fertilizer development. He helped spearhead the "Alberta Biochar Initiative" and leads projects on municipal solid waste and refuse-derived fuels. An important goal of his is to commercialize new technology in the area of sustainable bio-energy systems.

The seventh speaker, Stephen Bearss, is a sales representative with Fink Machines Inc., based at Enderby, B.C. His company promotes the Viessmann-KOB line of commercial wood biomass boilers. The company's main working area is in southern B.C., Alberta, Northwest Territories, and Prince Edward Island. The company has been expanding and during the first quarter of 2014, they hope to reach their $60^{th}$ installation of boilers. In Alberta, the company has installed heating systems for clients in Edmonton, Calgary and Camrose County.

The eighth speaker, Jason Proche, is currently Manager of Consulting Services, MNP. He has led projects for clients in public, private, and non-profit sectors in the areas of strategic and business planning & strategy, feasibility studies, market assessments, program evaluations and reviews, stakeholder consultations and facilitation of policy review and analysis. His talk focussed on an energy biomass project proposed for the Fort McPherson community in the Northwest Territories, utilizing local sources of willow. These could be harvested in about an 8-year rotation. Two building pilot projects were established in 2013 and a pellet plant is proposed for 2015.

The last speaker was Toso Bozic, who is employed with Alberta Agriculture and Rural Development and works as an Agroforester and Bioenergy specialist with Agroforestry & Woodlot Extension Society of Alberta. He has over 18 years of experience in forestry, bioenergy and agroforestry and woodlot management. He spoke about the future challenges, opportunities, technology and key components of bioenergy projects. His presentation provided an overall summation of the current status of bioenergy production in Alberta and was a fitting conclusion to the conference theme: "Using Biomass Now".

Prepared by Herbert Cerezke

# The Time for EGS is Long Overdue

by Will Verboven

Once in a while at livestock producers meetings, Ecological Goods and Services (EGS) is on the agenda.

The idea was first broached around 20 years ago, but under different names. The venerable Western Stock Growers' Association, who has championed the cause for many years, has called it Environmental Gods and Services. A past Alberta Environment report called it Ecosystem Goods and Services. Interestingly, an Internet search finds different descriptions and assumptions as to what EGS means - it seems to depend on the organization and its intentions.

The Miistakis Institute of the University of Calgary defines EGS "as the economic and social benefits humans derive, directly and indirect, from the natural environment or Natural Capital, such as clean air, healthy soil, biodiversity, and water quality and quantity."

The Institute has conducted research in the nature an value of EGS. Landowners farmers and ranchers like such research because if a per- hectare value can be places on EGS, then there is the potential of obtaining an additional revenue flow from one's property.

Visions of being paid to watch grass grow come to mind.

However, any such research has not been an easy exercise because of the environmental variables from one location to another. To my knowledge, no research report has stuck its neck out and stated EGS is worth, for instance, $50 per hectare. Clearly, it would set a precedent. From a landowners perspective, it would be a perfect flag to wave in front of activist green groups, governments, wildlife organizations, fish and game associations, and the urban public. The message might run along the lines of, 'Pay for the EGS we'er now providing for free or shut up'.

One can appreciate that none of the afore-mentioned groups really want to go down that trail. If you admit farmers and ranchers are providing ecological services for free, it's not as easy to criticize the environmental impact of modern agriculture. But the current approach is not fair or progressive, particularly if one wants to enhance environmental flora and fauna.

A sliding scale of EGS values and payments would go a long way to seeing a remarkable change in the quality of ecosystems in many areas. For instance, if a base price was $10 per hectare and was increased gradually to much higher levels if certain standards and improvements were met, you'd conservation measures quickly adopted. I expect even endangered species would be coming from the dead if the right incentives were applied.

How could anyone be opposed to such a positive goals?

Perhaps there needs to be a summit held of all stakeholders in EGS to begin taking the concept to the next level. Sure it's blazing a new trail, but it could be a win-win situation for all and in particular, the long - suffering environment.

---

*Editors Note:*
Additional water storage has a wide spectrum of uses, and government entities are finding new ways to take advantage of private contracts to meet their needs. Meanwhile, private landowners have embraced these projects as new and additional of revenue.-----*(read on)*

# Florida's New Crop: Is Water Farming For You?

One of the biggest challenges of water management is getting water in the right place at the right time in the right amount. Government agencies and water users are constantly seeking alternative ways to expand the "water pie" during dry times and avoiding flooding during the wet season.

As with any commodity, there are supply-side and demand-side approaches—in this case ranging from water conservation to desalination to aquifer storage and recovery, and myriad creative solutions in between. One supply-side alternative being explored in South Florida attempts to control the flow and storage of water through contracts with private landowners in a water farming program known as dispersed water management (DWM). DWM is defined as "shallow water distributed across parcel landscapes using relatively simple structures."

## HOW DWM WORKS

Under the DWM model, the government is using privately owned land to store water for public benefit through the use of cost-sharing agreements and easements with landowners. The landowners and government sign fixed-term contracts, agreeing to the cooperative project to retain or detain water on the land in exchange for payment. The land becomes a highly sophisticated rain barrel that gathers water when it is plentiful and releases water when it is needed.

To obtain these services, the government "buyer" announces a solicitation inviting landowners to apply and negotiate over the terms of the agreement. In all cases, payment for DWM services is contingent on documentation throughout the term of the contract, and the services provided must be above and beyond any regulatory requirements the landowner already has.

## DWM'S HISTORY

The DWM project's origins extend back to 2005 when the South Florida Water Management District (SFWMD), the World Wildlife Fund, the Florida Department of Agriculture and Consumer Services, and a group of Florida ranchers signed a memorandum of understanding to work together to create a payment-for environmental-services (PES) program.

The agreement led to a six-year pilot project called the Florida Ranchlands Environmental Services Project. Eight "environmental pioneer" ranchers field-tested design elements and concepts. These projects were largely focused on water farming in low-intensity agricultural areas such as pastures.

The pilot project was considered successful, and in 2010 the Northern Everglades Payment for Environmental Services (NE-PES) program was launched. Today the project partners comprise an assortment of government, agricultural, and research groups, and the project is supported by environmental organizations.

## BENEFITS AND OPPORTUNITIES

DWM's supporters tout numerous environmental, economic, and practical benefits. In addition to keeping these lands on the tax rolls, DWM projects are generally less expensive than major government storage projects and can be implemented relatively quickly, sometimes in less than a year. This is in large part because of the simplicity of the structures. Ordinary berms and canals are often all that is needed to effectively store water on the land.

In the case of the NE-PES, water storage reduces the water delivered to Lake Okeechobee during the wet season, which has the added benefits of reducing the flow of nutrients into Lake Okeechobee and reducing the volume of freshwater released into the connected estuaries. While the water is stored, it can enrich habitats on the farmland for plants and animals by rehydrating wetlands. Stored water also helps recharge Florida's groundwater supply in the area. Other benefits include keeping the land in less intense land uses and supporting the agricultural community.

As of August 2013, the NE-PES program had acquired 131,500 acre-ft of water and enrolled more than 100 users and regional public facilities. Pending funding, additional planned projects could add as much as 230,000 acre-ft of water in the future. The SFWMD added eight projects in fiscal-year 2012, securing an additional 4,778 acre-ft of water at a projected cost of $7 million during the next 10 years. As recently as August 2013 the SFWMD governing board approved a three-year DWM contract with a citrus company, with the aim of meeting water quality and storage goals for the associated watershed.

Although the Florida DWM program focuses on environmental water quality benefits, such a program presents other opportunities. Utility providers might also find value in similar water storage to extend water supplies through dry times. That system could also be used as a flood-prevention mechanism.

Mining companies have also used available water storage as an opportunity to supply water to utilities. For example, in Florida a mining company collaborated with the SFWMD and various local governments to develop a plan known as the C-51 Reservoir Project. The rock pits owned by the mining company were used to store stormwater runoff, which would then move through existing canals and—at a cost to the utilities—become a source of freshwater for local governments.

Other projects around the country use public–private partnership programs to meet a variety of water needs. For example, Colorado has a winter water storage program to help store irrigation water during the freezing winter months. In the Midwest, the Natural Resources Conservation Service has a drainage water management program under its broader Environmental Quality Incentives Program (EQIP). Although the EQIP drainage program focuses primarily on improving water control and quality on the landowner's property, the overarching purpose is to improve water quality on a multistate scale. It also is an example of a method by which governments are using public funds for projects on private land to meet public water needs.

## ENSURING SUCCESS

For private-contract water storage programs to have long-term viability for utilities and landowners, the parties will need to ensure that the utilities can get water when needed and, for the landowner, that the use does not unduly restrict other potential uses. For example, water storage may enhance wetlands and species benefits on the storage lands, which could lead to more restricted uses of the land or more intense regulatory approvals in the future.

It is also possible that a government's long-term dependency on the private land may lead to the need for future takings if that source of supply becomes so important that it is irreplaceable. It is unclear how property values might be affected by such projects and whether these projects could be environmentally successful on lands that have been farmed more intensively.

However, if there is a need for additional water in a community, it is likely that prospective water farmers and water supply entities can work together to address these concerns to provide the benefits. For example, farmers could document the baseline conditions on their land so that both entities agree on the condition to which the land may return at the end of the contract. In some cases, it may be possible for a water farmer to use part of the water farm as mitigation for other activities on the land and still receive payment for any water storage that remains above and beyond what is required.

# Wood Energy for farms and rural communities

The importance of wood as a fuel source fell drastically in the early part of the 1900's, with better access to electricity, heating oil and natural gas. Events in the early 1970's, which lead to oil price increases and threats of shortages, have renewed interest in wood heating.

The recent interest in wood bioenergy provides a number of opportunities. In certain areas, woodlots may have been mismanaged, neglected or over-cut or simply there was no market for wood from private land. Harvesting the poor trees for firewood makes room for better wood, lumber or veneer quality trees and reduce the risk for potential forest fire. The wood bioenergy market may 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 the carbon credits market.

Wood can be used as the primary fuel for a great number of heating requirements or in larger scales even for electricity. Many rural residents already use some types of wood heating systems in their homes and shops, mostly through fireplaces or some types of wood burning stove. Due to very high-energy prices, highly efficient and fully automated wood-energy systems have been an established energy alternative for decades in other parts of the world, especially in Europe, lead by Austria, Germany, Sweden, and Finland, proving that it can be viable here too.

Before you decide to use wood for you heating needs there are several things you need to consider including:

**Wood supply** – you need to know how much wood you have in your woodlot, or wood waste in your facility or wood that is currently going into landfill. The key is to understand sustainability of wood supply for your bioenergy operation and the required type and quality of wood fuel for your wood heating operation.

**Wood Fuel types** – there are several wood fuel types of including: logs, sawdust, wood chips and wood pellets. All wood types can be used for heating purposes, and different tree species has different caloric values. A pound of wood will produce nearly the same amount of heat, no matter what species it is. A cubic foot of air-dried white birch weighs about 16 kg, while a cubic foot of white spruce weighs about 11 kg. A larger volume of spruce is required to get the same weight and the same heating value as birch. Furthermore, moisture is one of the key components in the wood supply. Freshly cut timber contains 40-60 % of moisture while wood pellets contain around 8-10 % moisture.

Besides your individual heat or energy needs, the type and quality of the wood fuel available to you will define which energy solution would be right for you.
Each wood burning system can require different fuel types with various sizes and shapes of fuel particles. You need know that wood pellets, sawdust and wood chips can be stored in the various bin sizes that can automatically feed wood boiler systems while logs are only for manual feed.

- **Environmental issues** – Smoke –full combustion systems have no or very minimal smoke, compared to fireplaces or other wood burning systems that emit a large amount of particles that end up in the air.
- **Insurance** –many insurance companies may be reluctant to provide you insurance for your house knowing that you using wood as primary heat source. It is very important to let them know about technology that you use and all the safety precautions needs to be presented
- **Choosing wood boiler system** – there are so many products available to rural residence but there are several key factors that needs to be address in this matter
    - Efficiency of the system – most of the European technology has high efficiency systems 85-95 %
    - Automation of the system – how much time do you spend to run the system – again most of the European systems are fully automated, throughout year as you only need to load fuel into storage and minimal maintenance and monitoring
    - Heat load requirement – try to buy system that fits your heat requirements. There are many systems that either too large or to small for you heating requirement.
    - Storage and space requirements for the system
    - Cost and services – beside the cost of the unit it is very important to know what kind of services supplier assists you in case that something goes wrong. There are too many suppliers that will happily sell you system, but if something goes wrong just as happily leave it up to you to fix it.
    - Smoke – most of the full combustion systems produce no or very little smoke (minor at starting-up)

There are many products on the market in Alberta (very few or none from high efficiency European technology), but your individual energy needs and wood fuel availabilities are the key to find the products that are suitable to your needs and requirements.

Description of wood burning systems for domestic use:

- Open and enclosed fireplaces: secondary heating source. Wide spread in Alberta and relatively low efficiency. Problems with smoke
- Various wood burning stoves: suitable as an additional source of space heating. Efficient way of burning logwood. Efficiency is better then open but still have an issues with smoke
- Pellet stoves: fuelled on pellets and unlike conventional wood burning stoves, pellet stoves are automatic. Wood pellets are fed from the storage hopper into the fire. Warm air is circulated and the heat output is adjustable or made completely hands-free with a thermostat.
- Pellet boilers: for space and water heating. Performance and size similar to oil boilers.
- Logwood boilers: similar to pellet boilers, although larger for the same performance and operationally less flexible. Need for heat storage tank. Fuel management an issue.
- Woodchip boilers: fully automated fuel-feed systems – similar convenience as oil or gas boilers. Controllable, no heat storage tank necessary. Large wood chip storage facility required. More suited to applications where heat demand is high.

## Myths about wood bioenergy

There are several myths about wood bioenergy that many people don't fully understand and I will address few major ones.

**Smoke** – many Albertan's have been asking me about this issue, as they remember the smoke on farms and in small towns in the 1940's or earlier years. It is a very legitimate environmental concern. My answer to them is simple; the technology has changed so rapidly (especially in Europe, where environmental standards towards smoke and other emissions are much higher then here). Most European systems are fully combustible, safe and reliable. We have, in the heart of Edmonton a wood burning boiler facility that is heating over 37000 square feet with NO smoke and no environmental complaints from anybody including regulatory folks.

**Reliability** – being used to the reliable and convenient natural gas source for heating in Alberta, people are asking, if wood bioenergy can be as reliable and convenient for their heating needs. A well planned and installed wood system is relatively close to the reliability of natural gas and the convenience of heating oil, though despite the automatization of the technology, there are differences to be recognized. A wood boiler system has more mechanical components, where handling might cause problems (eg piece of wood stuck in wood supply chain). With a solid service partner and your natural gas system as a paid for back up, such "emergency" should be easy enough to handle. See, I always wondered what the back up system for natural gas would be- folks from eastern Canada learnt that their back up systems were wood burning stoves

**Fuel delivery**– storage is required for wood bioenergy systems compare to natural gas – there are several options in regards to fuel storage. For most of people in farm settings this is not an issue. In the urban areas several various bin storages are available.

**Price** – natural gas in North America is priced by the market and market fluctuations where none of us have any control. Most of rural residents own forest resources and plentiful available sources for wood bio-energy fuel. You will be able to project the cost and price of the energy that you produce and be in full control of it. Many small businesses will be able to project and obtain lower energy prices from wood bioenergy and be come more competitive on the market

Wood bioenergy is a very reliable and possible solution for many farms, local communities and businesses. Education and understanding is the key to success in this field. Thousands of small farms and business have been using wood biomass for over 40 years in Europe and would not consider going back to other energy sources.
Is it not time for us to jump on the bandwagon?

Web sites for various wood boilers:
http://www.kahrgbiogenics.com/
http://www.finkmachine.com
http://www.centralboiler.com/

---

*Wine is constant proof that God loves us and loves to see us happy*
*Benjamin Franklin*

## Dollars And Sense Of Field Shelterbelts

*Dr. Robert Mikkelsen*

A long-term positive for crop production.

Is it worth it to plant a shelterbelt to improve crop yields? Past studies say "yes" – field shelterbelts make economic sense. Now a new study hopes to work with farmers on the Canadian prairies and the U.S. great plains to check that shelterbelts are still economically viable in today's farming systems.

Rows of trees, called shelterbelts or windbreaks, have been part of prairie landscapes for generations. In cropland, their main purpose is to create a sheltered zone with conditions that enhance crop yields. Shelterbelts reduce wind speed for a distance of about 10 to 20 times the shelterbelt's height (H), with the greatest protection within about 5 or 6H of the shelterbelt. The sheltered zone has less wind damage to crops and less wind erosion than in an open field. It's also usually warmer and moister, due to more snow trapping and less evaporation. On average, the area extending from about 1H to 15H distance from the centre of shelterbelt has improved crop yields because of the enhanced growing conditions.

In the 1H to 15H zone, "the shelterbelt can increase crop yields by 10 per cent, 20 per cent or more in some cases," says Toso Bozic, agroforester/bioenergy specialist with alberta agriculture and rural Development. "For a mature shelterbelt, the yield increases more than compensate for the yield losses due to the land taken out of production where the shelterbelt is planted and to competition with the crop right next to the shelterbelt."

Exact costs and benefits of an individual shelterbelt are affected by a long list of factors, such as how many rows are in the shelterbelt, which tree and shrub species are in it, how far apart the trees and shrubs are, how much it costs to plant and maintain the shelterbelt, how old the shelterbelt is, which crops are grown in the sheltered field, what their average yields are in an open field, how responsive they are to additional moisture, what weather conditions occur during the shelterbelt's lifespan, and so on.

"For example, the cost of a tree or shrub seedling can range from 25 cents to $3, depending on what you want, and the planting costs can vary depending on whether you plant the trees yourself or hire professional tree planters," notes Bozic.

"You'll likely see a better return from a shelterbelt if you're growing high-value, high-yielding crops. And shelterbelts usually tend to have a greater yield benefit in the drier parts of the prairies than in cooler, wetter areas. For instance in the peace region, a shelterbelt might reduce crop yields in some years if snow is kept on the field so Long that seeding is delayed. But it's also true that some parts of the peace region have soil erosion problems in dry years; even where farmers are using zero till, they are worried about topsoil loss."

Calculating costs and benefits

If you're interested in predicting the economics for a field shelterbelt on your land, a free computer program called WbeCon (Wind- Break eConomics) is available through the agriculture and Agri- Food Canada (aaFC) website. This model was developed by Dr. John Kort from aaFC's agroforestry Development Centre and Dr. James Brandle from the University of nebraska–Lincoln. They brought together a large body of data from many multi-year shelterbelt studies in the prairies, the great plains of the United States and other countries as the foundation for the model, as well as information on things like growth rates for different tree and shrub species.

WbeCon asks the user to enter information about the following: soil texture, moisture and prevailing wind; crop rotation, production costs, crop prices and expected yield without shelter; field size; and shelterbelt species, placement and number. Crop yield is the only benefit considered. You can try different scenarios to see how various choices for things like crop type and tree species would affect the economics.

The model calculates costs and benefits for a mature shelterbelt on an annual basis. And it determines the shelterbelt's

net present value, a measure of the shelterbelt's economic value over its lifespan.

The costs and benefits change significantly over a shelterbelt's lifespan. "There are upfront establishment costs for planting, weed control and so on, most of which are in about the first five years of the shelterbelt," explains Kort. "Then it may take 10 or more years, depending on the shelterbelt species, for the shelterbelt to reach a reasonable size to start giving protective benefits."

But those protective benefits can last a very long time. "again depending on the species, a shelterbelt may last 70 or 80 years. We have a lot of examples on the prairies of shelterbelts planted in the 1930s that are still out there. In southern Manitoba's red river Valley, some shelterbelts date back to the 1910s and 1920s, and they are still pretty good shelterbelts," says Kort, who adds the data show that, on average, shelterbelts are a good investment. "When the shelterbelt is mature, it works out to be a positive net benefit, on a year-by-year basis. Also over the shelterbelt's lifespan, you end up with a positive net present value."

producers who are thinking about planting a shelterbelt in 2014 Should be aware that aaFC's long-running prairie Shelterbelt program is being discontinued in 2013. Since 1901, the federal government provided free tree and shrub seedlings to landowners from its tree nursery at Indian Head, Sask. The government is currently in discussions with groups interested in taking over the program.

Updating the economics

Much of our basic understanding of field shelterbelt economics comes from studies conducted more than 20 years ago. "From the time when the majority of the data was collected, quite a few things have changed in the agricultural production systems," notes richard Straight, technology transfer lead with the national agroforestry Center of the United States Department of agriculture (USDa).

"Farming practices have changed, with greater use of minimum till and no till practices, different kinds of equipment, and more exacting applications of nutrients and pesticides. As well, crop hybrids have changed, and many are being designed to be responsive to greater extremes in weather conditions. Some drought-tolerant varieties are being developed. Also cropping practices have changed. A number of crops are being planted further north than they were 20 or 30 years ago.

"So our question is: is our understanding of the windbreak-andcrop relations still valid in light of all these changes? Is this still an economically viable practice for crop producers to apply on their land?"

When Straight and others took that question to the agroforestry community in the U.S. great plains and the prairies, they found a lot of interest. As a result, researchers, extension agents and others in many states have come together in a multi-agency initiative. Kort and Bozic are considering how they can help their U.S. colleagues in this project.

The research team hopes to collect crop yield data over multiple years in relation to shelterbelts across the great plains states and The prairie provinces. However, it would be a monumental task to conduct plot studies to cover all the different combinations of crops, climate, farming practices and so on for fields with and without windbreaks over such a large area. So the team hopes to partner with interested farmers.

"We realized a lot of the data was already out there with the farmers, with the yield monitors on their combines. If we could find a way to get enough of that data over a large enough area, then many of the problems that arise with setting up plot-type studies – like variations in weather patterns, soils and so forth – could be washed out just by the volume of data," says ray Stoner, a forester with the USDa's natural resources Conservation Service. "If we can get just a handful of landowners to participate, for example one per county in the United States, that would be a huge amount of data, especially if the landowners have several years of data."

Stoner emphasizes that farmer participation is strictly voluntary and that the data for individual farms will be kept anonymous.

This year, the team is conducting a pilot study, working with one or two landowners per state and province. "With this pilot, we hope to answer two categories of questions," explains Straight. "one is: have we designed the data collection process so it's simple, easy to understand, and gives us the information we need? The other is: how many different fields and years of data do we need to have a statistically valid set of information, so we can say with some level of

confidence that this is our understanding of the windbreak-and-crop interaction?"

If the pilot goes well, the researchers will start a full study to gradually build a comprehensive dataset. Initially, they want to be able to draw a general conclusion as to whether shelterbelts have a positive,Neutral or negative influence on crop yields. Then, as they collect more and more data, they hope to be able to predict yield responses for specific crops under specific soil and climate conditions.

"We certainly anticipate that we'll find windbreaks are having a positive effect, but however it turns out, we'll share that with the farmers," notes Stoner.

In his earlier research, Kort examined in detail the data from past studies on yield response to shelterbelts, and he says, "Some of the data could be updated, but the basic data is still good."

For example, he speculates that the shift from conventional to zero tillage might mean that a shelterbelt's role in trapping snow or reducing wind erosion may not be as large under zero till, because the standing stubble on zero till land is also performing those functions. Nevertheless, he says, "The main crop response to a shelterbelt is due to the growing-year shelter. So effects like less wind damage and more heat in the sheltered area will be there regardless of how you're growing the crop."

Kort also notes WbeCon was designed to be very flexible so that it won't go out of date. For instance, because the users input their own crop prices and production costs, that information will always be up to date.

Additional benefits

Bozic notes that shelterbelt benefits to crop producers go beyond the improved yields from enhanced moisture and temperature conditions. For example, shelterbelts help increase yields by reducing soil erosion, and by providing habitat for native pollinators of crops and natural enemies of crop pests. As well, he says shelterbelts can enhance the real estate value of agricultural land, and once a shelterbelt reaches the end of its lifespan, the wood could be sold for wood chips or other uses.

In addition to the benefits to farmers, shelterbelts generate positive economic effects for everyone. To evaluate such economic effects, Kort worked with Dr. Surendra Kulshreshtha, an economist from the University of Saskatchewan. They studied the economic benefits to society from the tree seedlings distributed by aaFC's Shelterbelt Centre at Indian Head from 1981 to 2001. They estimated the economic value of such benefits as increased carbon storage, reduced wind erosion, improved air and water quality, and conserved biodiversity to be over $140 million. They also identified various other benefits, like health values and transportation safety, but could not estimate their economic value due to a lack of data.

Bottom line

"In the long run the yield benefits from shelterbelts outweigh the costs. But the challenge is that you may have to wait 30 or more years to break even, which discourages many farmers," says Bozic. "So my advice is to plant shelterbelts for more than just the direct yield benefits. Plant them for benefits like protecting your topsoil and increasing biodiversity to create better conditions for crop production."

He adds, "When I have shelterbelt workshops with people who are 60 or 80 years old, I tell them, 'You'll do all this work to establish and maintain your shelterbelts, and you may not see the economic benefits. But your kids and grandkids will be thankful to you.' planting trees is a legacy to the next generation."

# Editorial

*Jurgen Moll*

Another year has past and a New Year announced with great fan-fair starting with the media talking it up as to what resolutions to make, endless rebroadcasts of last years news, etc. There are celebrations - from gatherings in the park, to wild house parties. To cap this off rockets soar into the night ski exploding into great light displays of fireworks.

All this takes place on January one in the Gregorian and Julian calendar, mind you in the Julian calendar January one comes 13 days after the Gregorian one.

The New year on January one began by the Romans in 45 BC, to celebrate their God Janus after which the month is named.

Can you think of a worse time to start a New Year for us northern people? It is the darkest, coldest and for some the most depressing time of the year. In addition we have just completed seven days past our largest celebration, Christmas with great expense and excitement. We are just getting back to normal and here comes an other hyped - up event. No wonder that people tend to drink to much and suffer on the first day of the New Year.

Now there are many other calendars with a wide variety of the New Year date other than January one. More than half the worlds populations have these traditional calendars.

Now if you have read this far and are wondering where I'm going, it's that I always feel that the New Year starts with the rebirth and new growth that spring brings.

Therefore of all the many, many different dates of New Year day, my favourite is the Iranian calendar which is not based on religion, but on the Vernal Equinox. That is when the sun passes over the equator on March 21 the first day of spring. This seems the most logical, it is one of the oldest calendars in the world and has been around for some 3000 years.

Would it not be nice to calibrate the New Years begining when spring is at the doorstep and optimism is in the air. One foresees the next six months the greening and rebirth of our woodlots. Thus regardless of the calendar New Year, we do celibrate in our own way that the New Year has arrived, for we can smell it in the wind.

Enjoy this spring in you woodlot.

## MY WOODLOT by Bernie Simpson

When I retired in 1990, Joan and I purchased a lovely quarter section of land about five miles SE of Drayton Valley. It consists of approximately 60 cultivated acres, 85 acres of forest and 15 acres of roads, wellsites and farm yard.

The big attraction to me, as a forester, was the mixed wood forest. The spruce was approaching maturity and the poplar was past its' prime. Several successive years of tent caterpillars left lots of dead and weakened aspen.

The previous owner had used a small dozer to clear a walking trail through the forest and looping back to the home site.

My first major project was to build a 32X64 foot pole shed. I felled 35 good-sized spruce and skidded them back to our yard. I hired a fellow with a wood-mizer to saw the lumber for the shed. Ten thousand board feet was obtained. With help from my new neighbours, the shed was soon completed.

At this time, Drayton Valley had an Oriented Strand Board plant, so I arranged a contract to deliver aspen. Logging was limited to places I could reach with a farm tractor. Trees were hand felled, limbed on site and skidded to a well-site where they were bucked to length. Four truck loads were delivered. Since that time, harvesting has been limited to salvaging wind-thrown and dead trees for firewood.

The forested areas are bisected by four pipelines and two roads. These features provide identifiable boundaries for various blocks of trees. Five of the blocks are primarily white spruce with a poplar mix. Two large blocks are primarily poplar with scattered spruce. I recently measured one of these lone spruce at twenty-eight inches diameter at breast height. One black poplar growing among the spruce is thirty inches. Nice tree!

My primary management objective is to retain the forested acreage and to increase the proportion of spruce. Towards this end, I underplanted some aspen with spruce seedlings from a roadside. These have grown extremely well. The logged-over aspen areas were planted with spruce seedlings obtained from various sources; shelter belt programs, Canadian Forest Service and private industry. Most have done well, but survival was disappointing on trees planted by a professional crew. I obtained three hundred Lodgepole pine seedlings through a federal program and planted them near our yard. Sadly, for the pine, the healthy deer population gobbled them up like candy. A similar fate doomed some hybrid poplar.

Since acquiring the woodlot, three forest fires have occurred within a mile of our property. These have strengthened my determination to lessen the chances of a destructive fire. Reducing the amount of flammable material on the ground is most important. Over the years, I've piled and burned countless tons of dead wood right within the forest. Most of this material was too punky for firewood. I build relatively small piles and keep enough clearance to avoid damage to adjacent spruce. I've also pruned a great many spruce to a height of about eight feet. In theory, this reduces the chance of a fire climbing into the crowns. It also gives a nice park like appearance. Surprisingly the white-tailed deer like to winter bed in these cleaned stands. Perhaps they can spot predators more easily.

Trees don't live forever and consequently some harvesting has to take place. The plan I foresee would involve clear- cutting one block at a time over a forty year period. This would result in a nice mix of age classes. Regeneration will be accomplished by scarification, either before or after logging.

I'm still kicking myself for not selling some of the spruce a few years ago when stumpage was sky high. It's certainly not worth much today! Whenever I see these little packets of poor firewood selling for seven dollars, I can't help but imagine how much a good sized spruce would bring for firewood.

Woodlot owners are urged to create bio-diversity; however, with the limited area and time at our disposal, we can't change much. In my case, I have to look beyond the fence lines and have found a fair amount of diversity. Alfalfa fields, spruce, poplar, willows, muskeg and a few beaver dams have combined to create great wildlife habitat. Twelve white-tails are in view as I write this article. Elk were plentiful when this was a no hunting area, but since then, their numbers have decline greatly.

There used to be a few flying squirrels but I believe the removal of large numbers of snags has not favoured their survival. I had made a point to leave some standing dead trees, particularly those that have woodpecker cavities.

I've kept a list of birds that have been seen on the property. Sixty-one species have been identified. I've yet to spot a Brown Creeper which is supposed to be common to boreal forests.

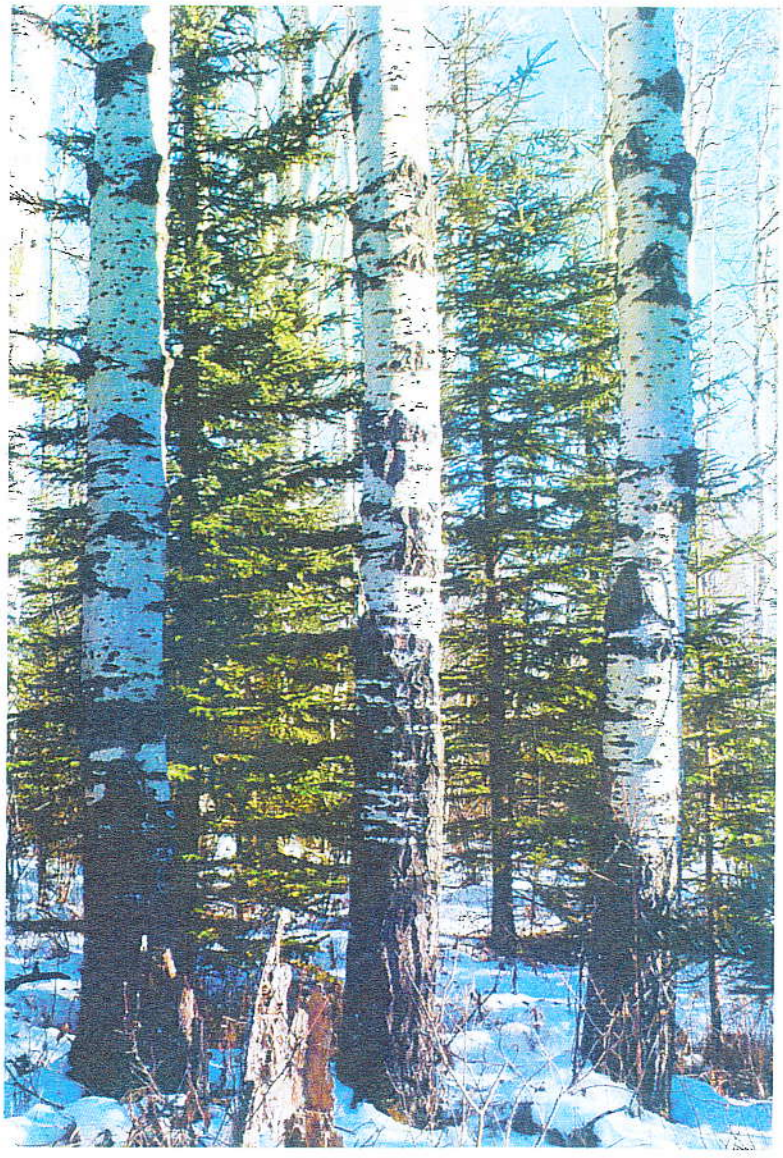
In conclusion, owning and working with this woodlot has brought me great satisfaction. Our children and grandchildren love visiting, but sadly none are in a position to take it over. We plan to remain here as long as health permits and can only hope a new owner will be someone who values the forest for things beyond its' monetary worth.

Thinned - Pruned - and Cleaned, Spruce Stand

## Pictures of

## Bernie Simpsons

## Woodlot



Spruce Understory
Planted 20 years ago
in Mature Aspen