



The Verdant Element

Inside this issue:

Root Rot and Mistletoe	2
White Cockle	2
Forest Fires	3
FireSmart Tips	3
Shelterbelt Trees	4
Environmental Farm Plans	5
Farm Safety	6

PROBLEMS WITH YOUR WILLOWS?

This year there have been many questions and concerns about willows. It seems that no matter which direction you travel, the willow leaves are turning yellow and brown and are dying. This is due to a large population of leaf miners. This infestation is spanning from Saskatchewan into the North West Territories.

The willow leaf miners, after hatching from the surface or in between the layers of the leaves spend the larval portion of their life cycle feeding in between the epidermal layers of the leaves. Often they start at the tip of the leaf, but can occur throughout. Leaf miner larvae can become one of four types of insects: moths, sawflies, flies or beetles. All of the insect larval stages are usually colorless, small, flat and worm-shaped. Some species of leaf miners create a linear maze pattern on the leaves, while others can form a blotchy pattern.

If the trees are being affected in early spring, you may find that galls form, as the tree's cells tend to reproduce quickly in response to the damage. But most damage is seen in mid to late summer. A heavy infestation may impair the trees growth, but cause no permanent damage. If the infestations last several years trees will become more susceptible to other insects and disease and could die out.

Malathion, dimethoate, diazinon or carbaryl can be sprayed but timing is critical to be effective as the miners are within the leaf surfaces. Keeping a healthy stand will prevent most permanent damage to the trees. Ensure trees have enough water and fertilize in early spring to promote healthy tree growth. Remove and burn fallen leaves as they may have eggs and larvae attached. Another option is to spray horticultural oil on the trees in the fall as a preventative measure for the following year.

There may also be fungal diseases occurring this year due to the large amounts of rain. Most leaf spot diseases are identified with scattered circular dead areas in the leaves. Fruiting bodies (like little mushrooms) may also be noticeable. As most fungus diseases are affected by the weather (preferring cool, moist conditions), the severity will be greatly variable year to year. To prevent spores from overwintering, remove debris from around the tree. If fungal diseases are heavily prevalent for more than two years in a row, trees become much more susceptible to winter kill, insect infestation, other diseases and reduce its growth potential.

Melampsora leaf rust (also a fungal disease) will also affect willow species. The most noticeable indicator of this disease is the pustules on the surface of the leaves. On the underside of the leaf, the pustules are highlighted by a powdery mass of orange-yellow spores. This disease will cause leaves to drop early in the season, which may reduce the trees ability to over winter.

Monitor your trees for health, and create a management plan that includes tree replacement, pest control and your thresholds for action. Trees are an essential part of erosion control, maintaining/improving biodiversity and can improve land property values and esthetics.





Root Rot and Mistletoe; Two Common Forest Diseases

Our Jack Pine forests are extremely beautiful and unique; however they are also suffering from disease. Dwarf Mistletoe is creating many problems for our forests. It is a parasitic flowering plant that causes the branches to form tangled clusters that resemble brooms, hence why it is also called witches broom. The mistletoe affects the trees normal growth cycle, causing it to deform and can eventually kill the tree. The brooms weaken the branches easily causing them to fall off, which can be dangerous to people using the forest for recreation. In Moose Lake Provincial Park there is a large Dwarf Mistletoe infestation. Last year, FRIAA (Forest Resource Improvement Association of Alberta) completed the Moose Lake Provincial Park Wildfire Hazard Reduction with funding of \$344,939 covering 24.5 hectares. This program was aimed at reducing the fire hazard from mistletoe infested mature jack pine stands, increasing the safety for park employees and users, as well as the protecting adjacent subdivisions. The program identified the forest inventory; thinning and pruning and reducing ground debris along roadways in the park. Certain areas were clear-cut between the aspen stands to slow a fire down and drop it to the ground. Much of the cut material was mulched/chunked and spread over the area to create a climate for new tree growth. The final stage was to create an interpretive trail to educate park users about the forest eco-system. This past November, it was noticed that jack pine seedlings were already emerging and only 17 hectares of land were cut, less than the original projected amount.

Armillaria Root Disease is one of the most common important and widespread diseases in Alberta. It is a fungal disease that affects all trees, but is very serious in conifers. It causes roots to decay and can be detected by finding white mycelia fans between the bark and roots at the collar of the tree, large amounts of resin at the base of the tree, brown coloured mushrooms at the base of the tree, and the discoloration of (dull green, yellow or reddish-brown) of foliage/needles in young trees. The fungus is easily spread, especially in new stands of trees. Healthy trees can become infected when their roots spread and come into contact or form root grafts with roots from infected trees. Two management strategies are to remove infected stumps, and regenerate woodland with resistant species.

White Cockle; Invasive Noxious Alien Species



White cockle is a common problem in North Eastern Alberta's hayfields. This plant is a heavy seed producer and its seeds are hard to differentiate from alfalfa, clover and some grass crop seeds. Another problem is that the seeds can be distributed in baled forage. White cockle can sometimes be confused with bladder campion or night-flowering catchfly.

White cockle is a perennial with hairy stems that can grow from 30 to 120 centimeters and can have several stems per plant. Each plant will have an abundant amount of white flowers with 5 notched petals. The leaves are opposite, hairy oval shaped with pointed tips. In early spring a tap root will form, followed by a lateral root system.

White cockle is most common in sunny, well drained soils. It is not recommended to cultivate white cockle as stem and root pieces can sprout new plants. Frequent mowing will reduce the seed production. White cockle is becoming resistant to several herbicides, but early spring application of dicamba is a management option.



Forest Fires

On February 7th, 2009 it was 52° Celsius in Koondrook Victoria Australia. I was there managing a walnut farm, and had never experienced temperatures like that. This day became known as Black Saturday, where as many as 400 fires were burning across the state, resulting in over 170 mortalities, hundreds of injuries and around 8000 people displaced from their homes. I was about 100 kilometers from the nearest fire, which made us worried as the winds were moving at over 100 kilometers an hour. This fire had deep impacts socially, economically and environmentally, not only in the communities it affected, but in the nation and globally. Closer to home, this year on May 15 Slave Lake had a devastating fire that destroyed over a third of the town site.

Fire has long been part of our natural landscape. It has swept the grasslands, rejuvenating the prairies and preventing shrub and brush encroachment, raged through our foothills and mountains, renewing our forests. Unlike the tropics, dead materials such as trees, leaves and needles do not decay quickly. Rather the ecosystem is dependent on fire to turn this material into ash and allowing the new growth access to the nutrients in the form of bio-char. The Jack Pine trees in this area are dependent on the heat of the fire to melt the resin coating their pine cones, allowing for the next generation of the forest to emerge. Fire also helps to clean out disease and pests. The Jack Pine forests currently have a mistletoe (witches broom) infestation, that would normally be controlled by fires. Fires also promote biodiversity, by providing a new food source and habitat for many species of wildlife such as woodpeckers and lynx.

Urban sprawl and people moving to acreages in remote forested areas has lead to fire suppression and manipulation of the natural forest ecology. As the forests mature, creating more quantities of dead fall the inherent risk of fire is multiplied each year. As in Australia, a record number of dry years (climate change) along with an intense week of temperatures and wind, coupled with a greater population living in remote locations, the prevention of fires and lack of forest debris management lead to the perfect storm.

FireSmart tips: Keep your house safe from wildfire.

From the SRD website: <http://www.srd.alberta.ca/Wildfire/FireSmart/Default.aspx>

Using FireSmart techniques in and around your home can significantly reduce the risk of damage from a wildfire. This year, consider doing these simple and inexpensive tasks:

Remove debris

Remove all long grass, shrubs, logs branches, twigs and needles within 10 meters of your home.

Clear the area around power lines.

Contact your utility company if trees or branches are not clear of power lines. Dead branches can fall on power lines and start a wildfire near your house.

Prune tree limbs.

Prune the first two meters of branches on tree trunks. Wildfires that are burning along the ground can climb up low-hanging branches and get into the tree tops.

Keep fuel safe.

Remove any vegetation near power lines, propane tanks and other fuel supplies. Wildfires near fuel supplies can cause them to explode.

Consider creating a woodlot/shelterbelt management plan for maintenance and stand rejuvenation. Scout your trees for pests, disease and wildlife and livestock damage which will impact the health of your trees.





10 TIPS for Planting, Care and Maintenance of Shelterbelt Trees

From the Oct 25, 2010 Issue of Agri-News

“Shelterbelts are an investment in the future and play an important role in the agricultural landscape and farming operations,” says Laura Poppy, agroforestry specialist, Agroforestry Development Centre, Agriculture and Agri-Food Canada. “Tree buffers improve crop and livestock production and reduce the environmental impact of agriculture. Keep shelterbelts functioning well by planning ahead and maintaining the health and vigor of individual trees.”

Pre-planting

1. Plan ahead – select tree species to suit the site, soil and objectives. Some trees can grow up to 18 m (60 feet) tall and 6 m (20 feet) wide. Do not plant trees where drainage, visibility and safety will be an issue. Do not plant too close to buildings, utility lines or roads. Choose trees suitable for the soil and environmental extremes in the area
2. Prepare planting site – stake the rows and begin preparing the site one year before planting. Remove grass and weeds with herbicides or mechanical cultivation. Site preparation is the best way to improve tree survival and growth.
3. Pre-planting care of seedlings – tree and shrub seedlings from the AAFC Prairie Shelterbelt Program are delivered in the early spring as bare-root stock (no soil around the roots). These seedlings must be planted immediately. The fragile, perishable seedlings can be stored for a short time in a cool, dark location. Do not soak the seedlings in water for more than a few hours or they will die. If you cannot plant within 5 days, it is recommended to temporarily heel-in the seedlings by digging a shallow trench, lining out the seedlings and covering the roots with soil.

Planting

4. Planting techniques – always plant seedlings into a weed-free, well prepared site. Plant seedlings slightly above the root collar swelling. Take care not to damage or bend the roots. Cover with soil and make sure not to bury branches, or leave roots exposed to the air. Tramp soil firmly to remove air pockets and water immediately. If planting a large number of trees, consider using a mechanical tree planter. Check with the local Ag fieldmen, Ag rep or AAFC-AESB office for availability.

Post-planting care and maintenance

5. Weed control and mulches – competition from weeds is the leading cause of failure and slow growth in newly planted shelterbelts. Control weeds and grass with mechanical cultivation, registered herbicides and/or mulches. Mulches such as black plastic, landscape fabric or wood chips reduce weed competition, retain soil moisture and moderate soil temperatures. Be aware of wind conditions and exercise caution when applying herbicides in or near shelterbelts and non-target vegetation. Some agricultural and lawn applied herbicides are lethal to trees, so read labels and consult local experts for recommendations.
6. Watering – water seedlings immediately after planting. In low rainfall regions or under drought conditions, supplemental water may be necessary for the survival and growth of newly planted trees and shrubs. Water heavily (but infrequently) to encourage deep root growth.

Only 5 countries in the world have the capacity to increase food production—Canada is one of them



Shelterbelt Trees Continued...

7. Pruning and fertilizing – in most cases, shelterbelts will not require pruning and fertilizing. Pruning is required only to remove dead, diseased or broken branches. Removal of branches close to the ground is not recommended as it reduces density and buffer efficiency. Incorrect pruning can severely damage trees. Topping or pollarding is not recommended and makes a tree more susceptible to disease and insect infestations. Do not fertilize late in the season, as this can lead to winter injury.

8. Protection from animals – newly planted trees and shrubs are susceptible to rodent damage. Control measures include fencing, keeping the site clean and applying animal repellents. Livestock can also harm trees. Fence livestock out of shelterbelts at all times, even when trees are mature. Manure from concentrated livestock operations or sewer pump-outs can kill trees over time.

9. Insects and Diseases – regular inspection and diagnosis allows for early control. Trees under stress from weeds, drought, damaging chemicals or flooding are more susceptible to insect and disease problems. Consult local experts for pest identification and control methods.

10. Replanting and renovation – seedlings that do not survive should be replaced the following spring to prevent gaps in the shelterbelt. Gaps or low-density areas can concentrate the force of the wind and reduce the effectiveness of the shelterbelt. Trees are living systems and eventually become old. Before removing old shelterbelts, consult a local expert for more details on effective renovation techniques.



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 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 highlight what they are doing well.

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

The EFP Process

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

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

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

If you wish to complete an EFP or have any questions regarding EFP please contact the LARA office



Check out what is new
with Growing Forward
at [http://
www.growingforward.a
lberta.ca/index.htm](http://www.growingforward.alberta.ca/index.htm)



Prevention And Supervision Are Key To Ensure Children's Safety On The Farm

On June 4th, over a hundred children participated in the Safe Children Festival in Bonnyville. I was lucky enough to be able to teach them about farm safety. Although more urban children attended, many have relatives such as grandparents that still farm. But even if they are never exposed to agriculture beyond what food ends up on their plate, it is still important to expose children to safe practices in different scenarios.

According to Canadian Agricultural Injury Surveillance Program, 158 children aged one to 19 were killed and another 1,300 were seriously injured on Canadian farms between 1990 and 2000. Children are prone to the same hazards that adults are, but are more at risk due to their inability to understand the dangers.

The leading cause of death in children aged 0-6 is by being runover by a tractor or motorized vehicle. In children aged 7-14 the largest cause of fatalities were due to rollovers, with numbers increasing dramatically due to increased use of ATVs. The second largest cause of fatalities for both children aged 0-6 and 7-14 were extra-rider events such as falling from a machine while riding and then being runover or involved in a rollover. Drowning is the third largest cause of fatalities in children aged 0-14.

Leading causes of non-fatal injury to children include animal trauma, falls from heights, machinery entanglements (most likely leading to amputation), and falling from a machine and being runover (or machine rollover) while being an extra rider.

Here are some tips from Alberta Agriculture to keep yourself, your family and your workers safe:

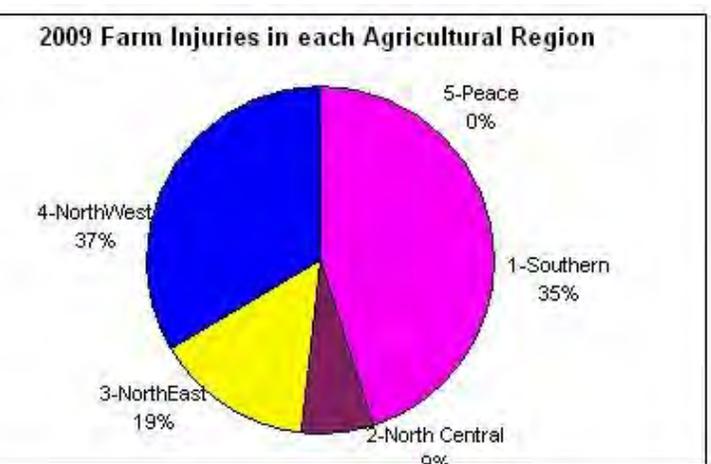


Prevention And Supervision Are Key To Ensure Children's Safety On The Farm

Farm children are one and a half times more likely to be fatally injured than urban children

- Decrease your risk of being crushed by using lockout procedures before beginning any maintenance or repair work. Lockout means to physically neutralize all energies in a piece of equipment. Machines, devices or power transmission lines can be de-energized by applying blocks to all parts under tension or pressure, bleeding the hydraulic pressure from the lines or by releasing pressure from a coil or spring.
- When moving large machinery, be sure to check the location of power lines. Make arrangements with your service provider to ensure a safe route along a route you will travel between fields with large implements in travel mode.
- When working with livestock always ensure you have an escape route planned and that you are wearing the appropriate gear for the job. For example – wear a helmet and appropriate footwear when riding a horse.
- Provide a safe, fenced play area for all children and supervise closely. The working area of the farm is not a playground anymore than a construction site or other industrial area would be a play area. Review the safety rules on your farm with your family often. Fence off all manure, retaining ponds and dugouts, and lock buildings containing hazardous goods.
- Maintain all farm machinery in good working order and ensure all safety devices are in place and working properly. Guards and shields on PTOs, augers and belts are imperative to avoid entanglements. Wear tight-fitting clothing such as overalls and avoid wearing any items that could easily become entangled such as long coats, scarves or clothing that is ripped.
- Never perform maintenance on a machine or attempt to clear an obstruction while the machine is still running. Ensure the equipment is completely shut down and the key is in your pocket.
- Commit to providing appropriate personal protective gear for all hazardous tasks on the farm. Set an example by wearing the gear in all situations.
- Communication is key. Always tell coworkers or family where you will be working and make a commitment that all workers will be checked on every few hours. Provide cell phones or radio for emergency communication. For young, inexperienced or elderly workers, check more often.

There are many ways to ensure the safety of your family and workers. Start with the development of a safety plan for your operation and a commitment to lead by example. Develop a farm safety plan that outlines the possible hazards for all areas of the farm. Eliminate all possible hazards and decide how to manage others such as providing personal protective gear or fencing off hazardous areas.



2009 Alberta Farm Injury Report
[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/aet13045](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/aet13045)



Children can be given age appropriate tasks around the farm. Ensure that they are supervised and are aware of dangers, especially around equipment,



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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.



Sustainable Resource Development: Rural Realities Firesmart

Start today to protect your forest home from fire!

Check to see how prepared you are...

1. Are evergreen trees, thinned/pruned and brush removed at least 10 to 30 meters from around your building?
2. Are tree branches pruned one to two meters above ground to prevent surface fires from spreading to tree-tops?
3. Are grass and weeds mowed for 10 meters around the house? Is your yard free from leaves and debris?
4. Are your street, lot number and name clearly visible from the road?
5. Is your driveway wide enough for emergency vehicle access?
6. Is the spark arrester or screen on your chimney or stove pipe adequate? Do you check and clean your chimney or stove pipe on a regular basis?
7. Are roof and gutters free of leaves, twigs and other debris?
8. Is firewood stacked a minimum of 10 meters from the house?
9. Is there adequate exterior water supply for emergency use?
10. Do you have a garden hose, ladder and firefighting tools within easy reach?
11. Is your outdoor fire pit or ring situated in a cleared area and all overhanging vegetation cut away?
12. Do you have an area in which chainsaws and small engines can be refueled safely?
13. Do you have fire extinguishers, 10 pounds or heavier, readily available?
14. Do you have a screened receptacle for disposing of debris? Did you check local burning regulations to determine if a fire permit is required? Do you haul debris to a refuse site?
15. Do you have a contingency plan in the event of a fire? Does your family know the escape routes, who to call and what to do?

If you don't check all of the items on the list, you may have given fire a place to start!



Growing Forward's Integrated Crop Management Program will be re-opening for one month starting July 25 and accepting applications until August 25th. The ARD office in Edmonton must have your application by August 26. This program is a 50/50 cost share with maximum funding of \$10,000 for all ICM projects and with a \$5,000 cap per individual category. Categories of funding include: variable rate technology, improved pest management (sprayer shrouds, low drift nozzles), improved seeding systems (coulters, openers, banders), safe product storage, shelter belt establishment, wetland health assessment and restoration and innovative integrated crop management. For more information visit the Growing Forward Website : <http://www.growingforward.alberta.ca/ProgramAreas/index.htm> or call the LARA office.

