

Improving Riparian Areas

What does the term riparian mean to you? A riparian area is the green zone around lakes, wetlands, rivers, dugouts and streams. This area has a high water table and supports water loving plants. These water systems can be year round or seasonal. Sometimes it is difficult to tell if an area is a riparian as land use can change the way the areas function. Riparian areas are important for various reasons. They trap and store sediment, build and maintain banks and shorelines, store water, recharge aquifers, filter water, reduce and dissipate energy from flowing water, maintain biodiversity and create primary productivity. With riparian areas performing so many positive functions it is important to keep them healthy.

So how do you know if your riparian area is healthy? The first step is to have a good look at the area, from a distance the area may look healthy but with closer inspection there may be some concerns. A healthy riparian area will have some or all of these characteristics:

- The area is covered by healthy trees, shrubs and deep rooted forbs and grasses at various stages in the life cycle.
- Weeds and disturbance vegetation with shallow roots are minimal to nonexistent.
- There is no bare ground exposed; the area is covered with vegetation.
- There has been no human alteration to the banks. The banks are strong and well bound.
- The areas are not compacted or hummocky.
- The water can access the floodplain.

If you suspect that your riparian area may be unhealthy it is best to determine the cause of the problem. Some of the common practices that can create unhealthy riparian areas are:

- Cultivating land too close to water ways this includes dugouts and seasonal wetlands such as sloughs and potholes.
- Wetlands have been drained and farmed right through.
- Animals are allowed to water directly out of the water system causing trampling and bank erosion.
- Animals have been intensively grazed in the riparian area causing hummocky soils and degradation of plant species.
- There has been a removal of herbaceous and woody plants in the riparian areas this includes tress and shrubs.



Continued on next page...

Riparian Areas...

Once the causes have been identified an action plan should be taken to reduce their impact. For cultivated land a vegetation buffer strip should be left to allow herbaceous and woody species to grow. Wetlands and sloughs should be left and farmed around. It has been found that the wetlands and sloughs that are farmed through usually have low returns due to salinity, flooding and low crop productivity. If livestock are causing the degradation, fencing of the riparian area and off site watering is a great option. If fencing is not feasible place supplemental feed, mineral and/or water away from the riparian area to entice animals to move upland. If a riparian area is in very poor health the planting of herbaceous and woody plants may be needed along with bank stabilization.



By looking after the water systems and riparian areas on your property not only will you see direct benefits you will also see benefits in the water

systems throughout your commu-

nity. Restoration can take time

but once the riparian area is healthy many benefits will be seen.

In the end there will be increased biodiversity, flood reduction,

groundwater recharge, assistance with salinity control, and im-

proved water quality. If you don't know where to start call the

NWACI and we can assist with an action plan to enhance your

"A riparian area is the green zone around lakes, wetlands, rivers, dugouts and streams."



Shelterbelt Maintenance

Keeping shelterbelts healthy is important to their longevity some of the things that should be done to maintain shelterbelts are:

- Avoiding animal impact. Mature livestock should be fenced out to ensure the health of the trees. Livestock (including horses) browse the foliage from the lower limbs and can break up entire trees. Livestock compact the soil reducing infiltration of water and cause increased runoff.
- Tree trimming. If trees are overcrowded they will have reduced height growth, dead lower branches and reduced trunk diameter. If severely over crowded the trees may die at an early age. When trees are stressed due to overcrowding they will be more susceptible to insect and disease infestations. When a shelterbelt is thinned the growing space for the remaining trees will increase. Sometimes a complete removal of an entire row will need to be completed to avoid overcrowding. Topping of trees should be avoided, as it leaves large wounds which are available for decay organisms to enter. It also leaves the trees deformed for the rest of the lifespan.
- Avoiding spray drift from adjacent fields. Pesticides can severely damage shelterbelts. Even if the shelterbelt species are tolerant to the herbicide care should still be taken. Try not to get too close and spray near the shelterbelts on a calm day to avoid drift. Some of the herbicides that trees are most sensitive to are 2,4-D, MCPA, dicamba (Banvell II, Dyvel, Target), bromoxynil (Pardner, Buctril M) and picloram (Tordon, Grazon, remedy).

By keeping animals away from shelterbelt trees, reducing spray drift and trimming overcrowded stands, shelterbelts will remain an asset on your farm for many years to come.

Clubroot Management Strategies

Clubroot is a serious disease that affects canola. This disease is soil borne and may survive for up to 20 years and spreads through the movement of soil. Clubroot develops large galls on the roots of the canola plant and can cause severe yield reduction.

Control methods for clubroot are very limited. Fungicides will not work to control clubroot as well there are no resistant varieties on the market. As there are "no quick fixes" in eliminating clubroot, best management practices should be followed to reduce the risk of clubroot spread.

1. The best practice to control clubroot is following a minimum 4 - 5 year rotation out of canola. Crop rotational methods will not prevent the introduction of clubroot to clean fields but will restrict a severe contamination. Cropping options such as peas, alfalfa, faba beans, flax and cereals can be used as an alternative.
2. Clean equipment by taking off soil and sanitizing with a bleach solution. For sanitation to be effective as much soil as possible must be removed from the implement before an application of bleach. Spores under the soil will not be controlled by bleach. Sanitization should be done before leaving each field. Grassing an area near the exit works well to ensure that soil will not be picked up by equipment after it has been cleaned and the spores are re-incorporated into the field.
3. Reducing tillage in fields already contaminated by clubroot can minimize the movement of spores to larger areas of the field and between fields through soil erosion and movement.
4. When using unclean seed there are higher chances of earth tag contaminated with clubroot to be present. It is recommended that clean treated seed be used, there is little research on the viability of fungicides as a control for clubroot.
5. Minimizing traffic to and from fields will reduce the amount of soil that is transferred from field to field that may potentially carry clubroot spores.
6. Reducing the amount of volunteer canola in contaminated fields will reduce the host plants for the clubroot to continue the life cycle.
7. Avoid the use of straw, hay, greenfeed or silage from contaminated fields. Clubroot infected soil may be in these feeds and the spores may survive through the digestive tract of an animal and be spread to other land.
8. Ensure that canola fields are scouted for clubroot and contaminations are documented to avoid moving soil from contaminated areas to clubroot free areas.
9. If there is a contamination of clubroot near the entrance of the field move the field entrances to reduce the risk of picking up the spores onto equipment and spreading.

Continued on next page...



Clubroot Management...

The best management practices are only a guideline to reducing the risk of clubroot. Every time soil is moved the clubroot contamination risk is increased. Other things that can be done to reduce soil movement from erosion are, grassing waterways, planting permanent cover along field edges and planting shelterbelts. All of these practices will reduce the amount of potential clubroot contaminated soil movement within and between fields. When clubroot may only be present at the entrance of the field, consider leaving the last round and driveway to the end of field work. This will reduce the risk of spreading clubroot into the remainder of the field.

Limited research has been found that increasing the pH of soil will reduce clubroot contamination. This would mean liming soils with agricultural lime or using products such as cement dust and wood ash to decrease the acidity of the soil. This will only reduce the chance of contamination not kill present spores. Using a green manure or bait crop may be an option to reducing clubroot. Planting cruciferous crops and working them down before the clubroot pathogen can reproduce may reduce soil inoculum levels. Clubroot resistant varieties are being developed but with multiple clubroot strains breeding has been difficult. New resistant varieties are still some time away.

Oil and gas activities need to be considered as a source of clubroot spread. For new construction such as well drilling, pipelines and road construction producers have the right to state in the contract that all equipment must arrive clean. The land owner has the right to check all equipment before it enters the property. For permanent oil activity where wells are being checked daily the land owner should ensure that they do not farm through the lease roads where potential clubroot spores could be situated. It is also recommended that a grass buffer be planted beside the lease roads to ensure any runoff is filtered.

By following the management practices listed above producers can reduce their risk for a potential clubroot contamination. Unfortunately there are no guarantees that clubroot may contaminate your land. Be prepared and willing to change cropping practices.



Healthy Canola Root



Moderate Clubroot Infection



Severe Clubroot Infection

Coming Events

- Clubroot Management Tour August 12th Bus to pick up on Westlock and Sturgeon Valley in St. Albert.
- Dylan Biggs 2 day Low stress Cattle handling Clinic August 20 and 21 - Smoky Lake, AB
- Electric Fencing Clinic September 10, 2008 Duffield, AB
- Well Abandonment demonstration — Date TBD

For more information on the events please contact the NWACI

Information from:

Alberta Agriculture and Food — www.agric.gov.ab.ca