



CANOLA INTEGRATED PEST MANAGEMENT

CANOLA

IPM

Journal

Nine Growers.
One Season.
In their own words.

CANOLA

IPM

Journal

Pest Management is a critical part of a production system and using "Integrated Pest Management" (IPM) means using all the pest management tools available, including biological, cultural and chemical. Canola growers are already using IPM in many different ways. Whether it's weeds, insects or diseases there are tools that can be used to prevent as well as manage the pests and growers start their pest management plans many months before they actually seed the crop.

Follow nine growers from across western Canada as they tell their stories on managing pests in their own words. "IPM notes" highlight the different techniques that you may want to try on your farm.

For more information on IPM contact your agricultural representative or the Canola Council of Canada at 204-982-2100 or visit our website at www.canola-council.org

FARMER:

Morley Sparrow

LOCATION:

Vanscoy,
Saskatchewan

Vanscoy is just south and west of Saskatoon in the dark brown soil zone. Annual field crops grown in the area include cereals, pulses and canola. Morley Sparrow crops about 3500 acres southeast of Vanscoy and about 800 to 900 acres of that is of canola.



Vanscoy

October

I select my fields for next year's canola about now. My plans can change but I'm about 90 percent sure of where I will put the canola. My rotational system is canola in some fields every fourth year (wheat/wheat/peas/canola) and some in every third year (wheat/wheat/canola). I like putting the canola on the peas because I can put on a little less nitrogen fertilizer in the canola. The peas also tend to leave the field clean. We're not in a high-risk sclerotinia area.

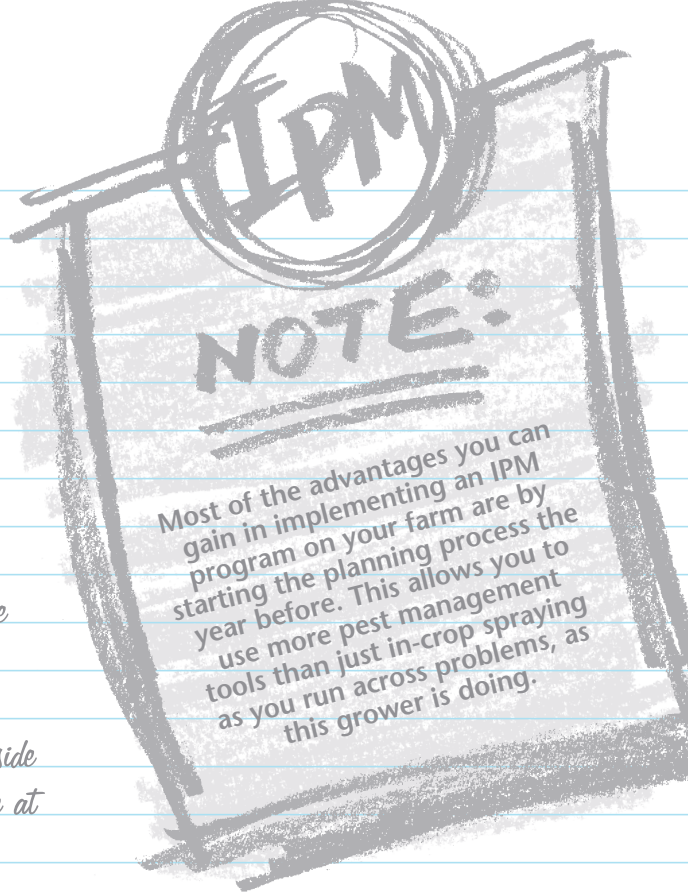
November

Choose my varieties. I won't grow anything that doesn't have blackleg resistance—either an MR or R. This year I will grow a little more of the Roundup Ready varieties due to the weeds that I have on my land. (millet, buckwheat, some wild oats, volunteer grain, and on the lighter land, lamb's quarters and Russian thistle).

May

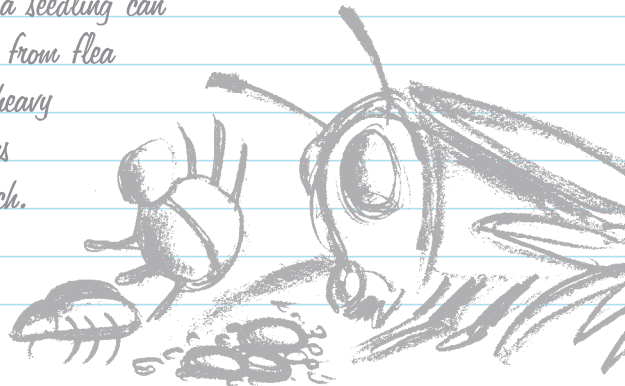
Prepare to seed.

This year on some fields I will use Helix Extra on the outside of the field and Helix on the inside. Flea beetles usually come in from the field edge so the Helix Extra seed treatment will handle those. The inside areas of the field are at lower risk.



On other fields I will just use Helix.

Scouting once per week using a Honda Big Red ATV. In warm weather, I look for grasshoppers, flea beetles and early germinating weeds. Started checking for flea beetles. I was okay on the fields with Helix Extra around the edges but I did find some trouble on other fields. On some of the fields with Helix I had to spray for flea beetles. I know that they say that a seedling can withstand a lot of damage from flea beetles but I believe that heavy damage to a seedling harms stand establishment too much.



June/early July

Continued checking the fields for weeds and in late June, diamondback moth larvae.

My input dealer flags problems like this for me.

Stepped up the scouting to every four days.

I will do some scouting with my ATV, and in other fields as I do passes with my high clearance sprayer because you can see things from a different angle from up there.

July

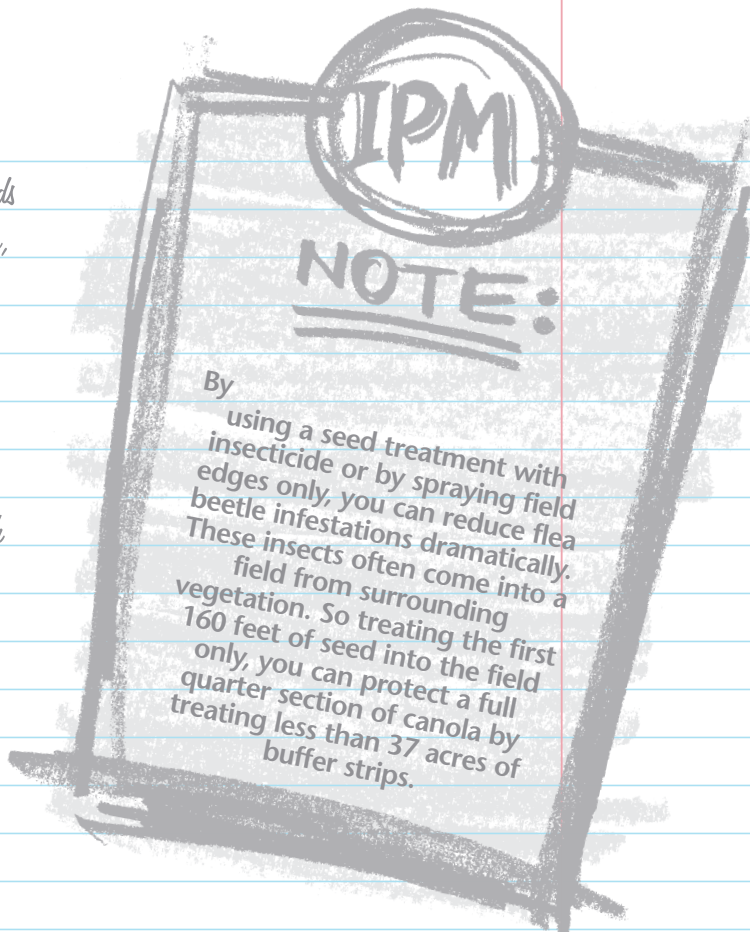
Sclerotinia scouting. Found none of the mushrooms (golf tee-shaped apothecia) so I will not petal test. It turned dry too so that is not favourable for the disease.

It would be nice to get a more 'instant test' for sclerotinia.

September

I will soil test this year. I think that there may be some extra fertilizer in the ground due to the dry year.

That way I can put on a little less in next year.



FARMER:

Kenton Ziegler

LOCATION:

Beiseker,
Alberta

Beiseker is about 50 km north and east of Calgary. Farmers in the area grow annual field crops including barley, canola and peas. Kenton seeds about one-quarter of the farm into canola each year. The planning cycle for pest control, like crop planning in general, starts in the previous fall.



Beiseker

August

I began the process of field selection for this season last August. I used to pick the cleanest fields for canola. Now with herbicide tolerant canola, I pick the dirtiest. I use my canola to clean up the field so that I can reduce my herbicide use in the year after the canola crop. I rotate my canola so that I am one year in four. I also listen to market signals and can change things a bit.

September/October

I pick my variety. I talk to peers. I choose based on yield and harvestability. I have an older swather (a Versatile 400) and so harvestability is important. I decide whether or not to soil test. I soil test occasionally if a field doesn't perform as it should. I think next spring I will soil test to see if there is some extra nitrogen there that normally isn't. It was dry this past season. I do some fall fertilizer banding. It helps me with controlling volunteer cereals and reduces the spring workload. I also think that tillage breaks up disease cycles.



NOTE:

Volunteer cereals can compete heavily with canola. Cereals are bred to germinate quickly so it's no surprise that they can be quite heavy. Fall tillage will control them. Here is an estimate as to how competitive they can be.

Volunteer problem	Yield loss (%)				
	% Canola loss at 1 per m ²	% Canola loss at 2 per m ²	% Canola loss at 4 per m ²	% Canola loss at 8 per m ²	% Canola loss at 16 per m ²
Volunteer wheat	1	3	6	10	15
Volunteer barley	3	5	8	12	18

April

I seed my canola first. That way I try and beat the mid-summer heat when the crop is flowering. I have always used lindane-treated canola seed in the past

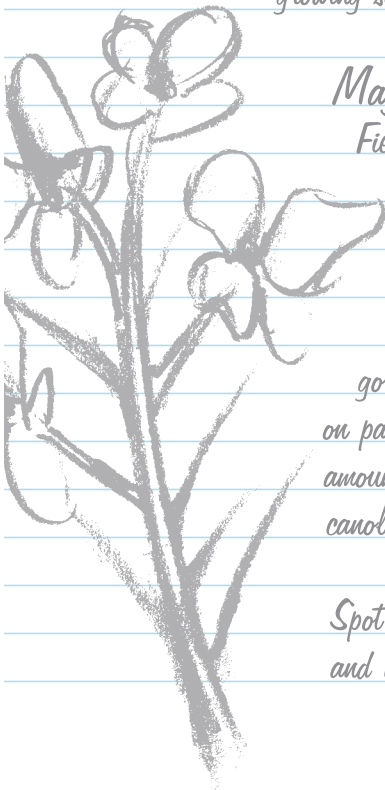
and have only had to spray for

flea beetles once in the past 17 years. This year I'm hearing that the new seed treatments will protect the plant longer into the growing season. I still plan on checking my fields often.

May/June

Field walking starts right after seeding, and for the months of May and June I'll check fields once a week. I check weeds and watch for flea beetles. I usually put my first application of Roundup down field-wide and often need to go in a second time. I will do a third application on patches only for thistle control. This can lessen the amount of herbicide I need to use the year after my canola crop (for thistles).

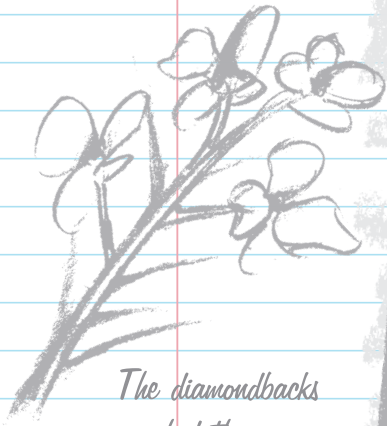
Spot spray low areas. We have a shrouded sprayer and we're very careful about wind.



July

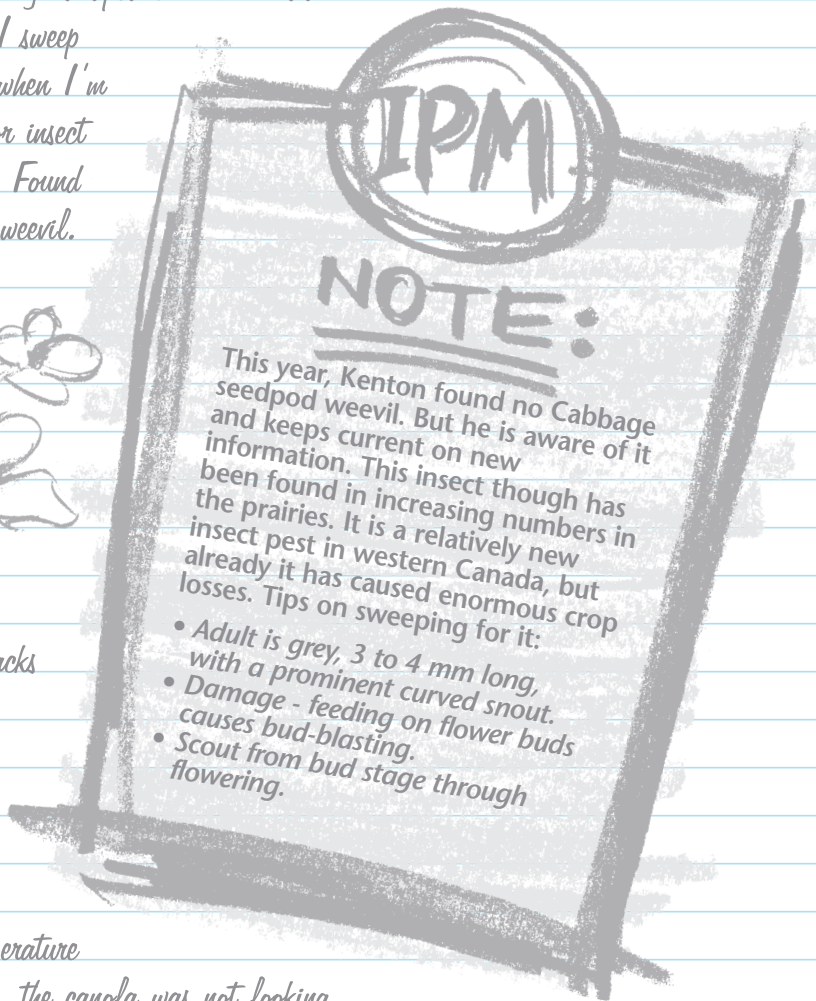
Keep an eye out for sclerotinia. In a wetter year I will usually park the truck and wade into the field. My dealer alerts me to risks and so does the Canola Commission. I don't use a petal test.

Usually in this area, dry weather will shut down the sclerotinia and I've never had to spray for it. This year had to check for diamondback moths, also for cabbage seedpod weevil. I used a sweep net. I sweep every day when I'm looking for insect outbreaks. Found no seedpod weevil.



The diamondbacks reached the economic threshold but I decided not to spray because temperature

was 32°C , the canola was not looking good and I decided to "let them eat". Turns out to have been a good decision but it was a tough choice.



FARMER:

John Kubin

LOCATION:

Vegreville,
Alberta

Vegreville is about one hour's drive east of Edmonton on the Yellowhead Highway. Crops grown in the area include peas, cereals, canola. John farms 2,800 acres with his son Joe. They also farm a quarter of their neighbour's. The farmers are slowly heading towards minimum disturbance tillage. They are still using 8" openers and an air seeder.



Vegreville

August

We check for thistles and then do a pre-harvest Roundup burn-off if needed. It gives a good control of thistles.

September through March

We have a fixed rotation. Normally we don't vary from this much. We alternate between cereals (wheat/oats/barley) and canola or a pulse crop. It's a one year in four for canola because of blackleg. This rotation seems to work well. It lets us rotate herbicides as well.





NOTE:

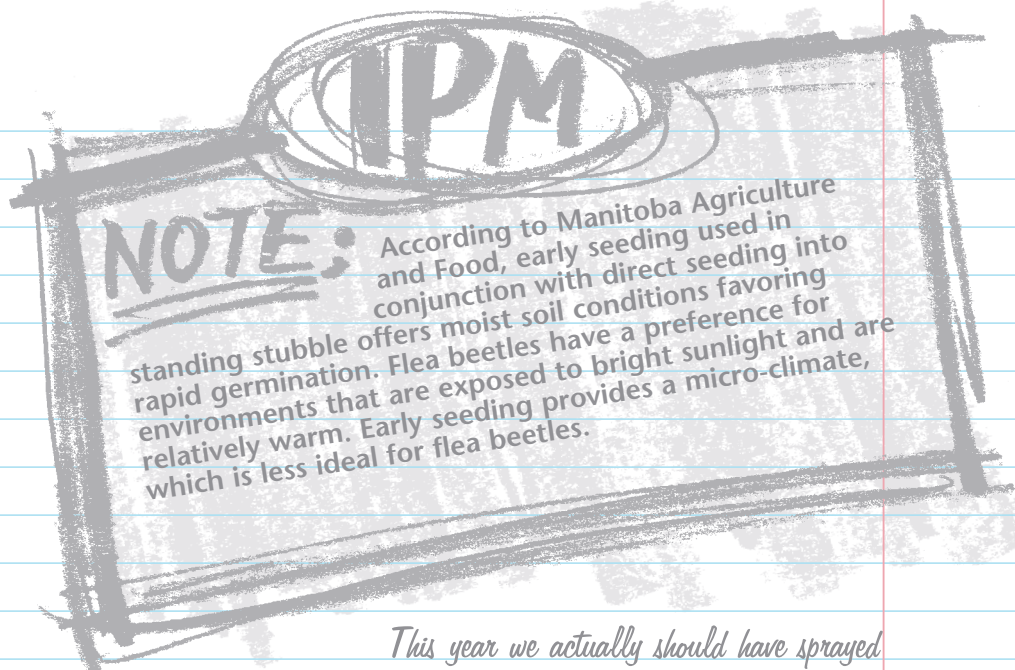
Squeezing canola into a one in three or even one in two year rotation is tempting when canola prices are high. But blackleg risk goes up dramatically. In the eastern/Interlake region of Manitoba in 1997, for example, a two year canola rotation averaged a 20 per cent incidence of blackleg. When rotations were lengthened to three, four and five years, the average incidence dropped to a very low three per cent. Similar trends were found in the other regions in Manitoba and in similar studies in Agriculture & Agri-Food Canada research.



I'm a firm believer in pedigreed seed. It has better vigour and the closer your seed is to the original seed variety, the better. I'm a big fan of using hybrids. I like the vigour. The additional vigour helps with weed control and in years where frosts hit or a cold spring comes, hybrids really bounce back. I really object to the chemical programs that make you look at buying products that you might not necessarily need. For instance, programs that give you better deals if you buy a second product from the same company.

April/May

We seed canola as early as we can. That way we get out of the sclerotinia cycle. Also if we seed early we can get the crop ahead of the flea beetles and then they can withstand some damage and we won't have to spray.



This year we actually should have sprayed the outside round for flea beetles. It would have paid. Our dealer/agronomist indicated that diamondback moth could end up being severe in the area.

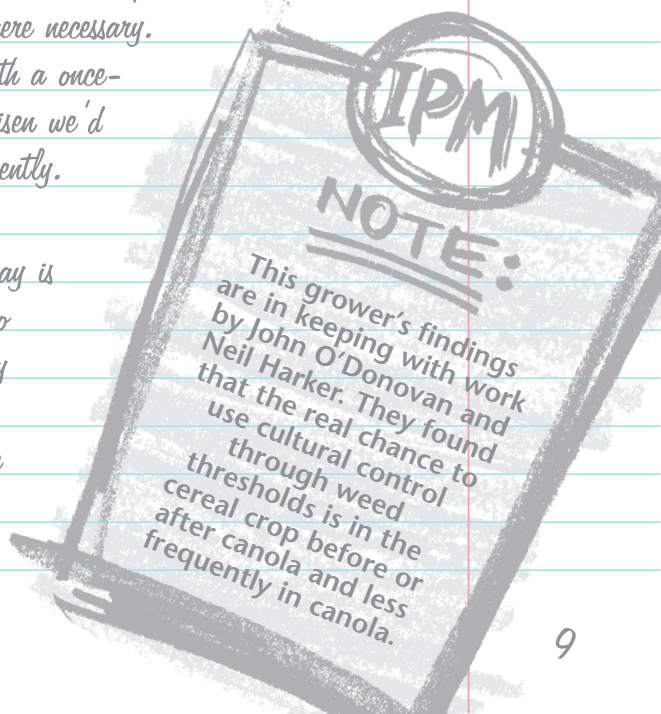
June

We check for weeds. We do a lot of spraying of part-fields.

We go after heavy flushes in early seeded crops and we also spray edges and draws where necessary.

We monitored for diamondback with a once-weekly check. If the counts had risen we'd have started monitoring more frequently.

Our big opportunity to skip a spray is in barley, not canola. We can go without a wild oat spray in barley sometimes. Normally a broadleaf spray is almost a must. Otherwise we have harvesting problems.



IPM

NOTE:

The best way to check for diamondback moth larvae is to stop at a number of spots in the field and pull plants out of a square metre. Shake the plants onto a dark surface (cardboard) and count the larvae. The action threshold is 100 to 150 larvae/m² in immature and flowering fields; 200 to 300 larvae/m² in podded canola fields.

July

Sweeping for insects continues. When you sweep, you see what you pick up. Three years ago we swept a lot of lygus bugs. We sprayed. We used the economic thresholds but the sweeping itself varies so much that sometimes you have to make a decision by the seat of your pants, judging partly by whether you have a good crop.

August

Planning for next year starts. We plan one year out for crops. If we rent land we automatically start with a cereal. It leaves your options open for weeds, diseases and insects.

**IPM
NOTE:**

For lygus bugs, sweep just prior to the crop reaching bud stage until the seeds in the pod are firm. If you get 10 to 18 bugs per 10 sweeps from bud to podding OR 15 to 25 per 10 sweeps as the pod ripens, consider using a foliar insecticide.

FARMER:

Allan Horner

LOCATION:

Minnedosa,
Manitoba

Minnedosa is in the black soil zone just north of Brandon. Although the area has some frost risk in fall, there is still ample growing season length to allow for growing Argentine canola varieties.



Minnedosa

August

I actually started planning for next year two years ahead but right now I'm taking off the cereal crop and getting the field ready for next year's canola. I will try to plan my rotation so that I grow canola no more often than one year in four. But in my alfalfa breaking I can crowd the rotation a little.

September

I stay away from fall tillage for winter annual weed control because the last few years we've been fighting the dry weather and our land will blow. In the last 10 years, our use of herbicides has gone up because of these concerns.

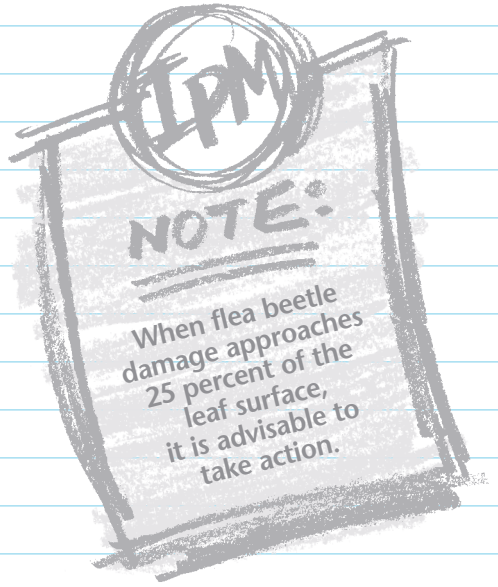
Winter

We pick the varieties we're going to grow based partially on blackleg.

April

I direct seed my canola. I seed shallow and always into moisture to get the crop up quickly and evenly. I seed the canola about in the middle of our seeding program.

I will use seed treatments for canola but not a granular insecticide. I haven't had a flea beetle problem for a few years. I like to watch and see if there's damage before spraying.

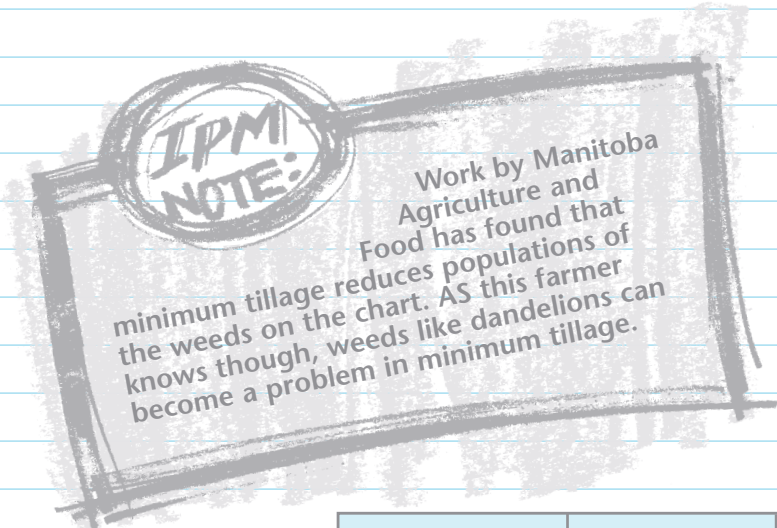


As I seed I leave wide buffers (30 to 50') around my potholes. This is for environmental and practical reasons. The water level in the potholes fluctuates so it makes sense to leave the areas around them undisturbed for wildlife and the wetland.

May/June

I will spray for weeds based partially on the levels of weeds and partially on crop prices. These days you learn to live with a little in the way of weeds. I will not spray just because of the weeds being in the field. I find that I can often skip spraying in a cereal, normally barley or wheat, canola not as often. Usually canola takes too long to cabbage out and cover the ground. The best you can do in canola is maybe one application of Roundup instead of two.

Going to minimal tillage took care of some of the traditional weeds. Quackgrass disappeared. Wild oats are not near what they used to be. Often we have a smattering in barley and it just doesn't justify spraying. Dandelions and Canada thistle have come up though to replace them.



Weed	Zero Tillage Density (#/m ²)	Conventional Tillage Density (#/m ²)
Green foxtail	22.2	33.1
Volunteer barley	0.9	3.6
Wild mustard	15.6	40.6
Redroot pigweed	1.6	9.2

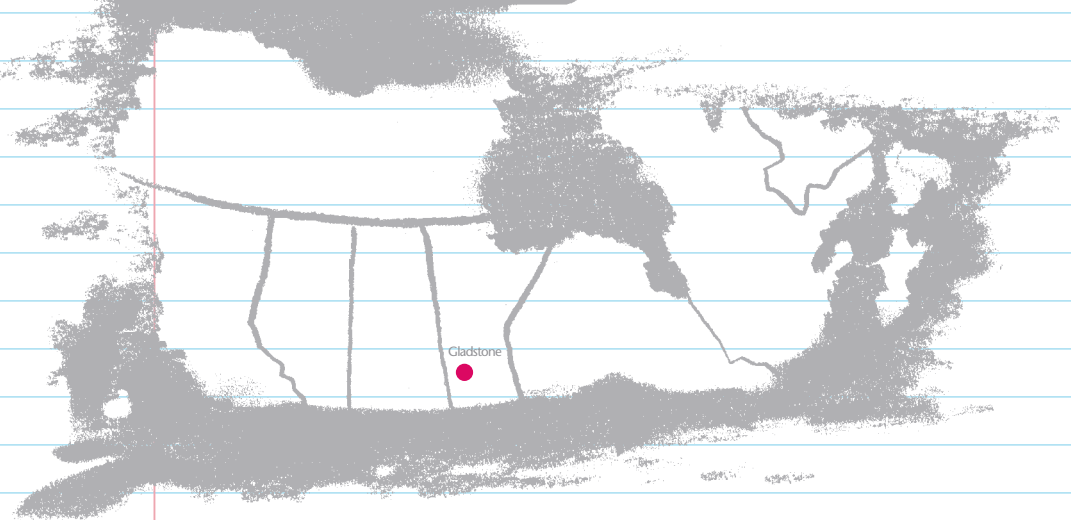


July

We stay in contact with Ken Kane {Alan's dealer} on outbreaks of disease or insects. We watch for sclerotinia. We look for the sclerotinia mushrooms and if the weather is wet and warm we are more inclined to spray.

FARMER: Rick Suderman
LOCATION: Gladstone,
Manitoba

Rick's farm is north and west of Portage la Prairie Manitoba. The land in the area is suitable for a wide variety of field crops and also allows for growing high value crops like potatoes. Rick farms just outside of Gladstone where he grows potatoes in rotation with corn, canola and oats.



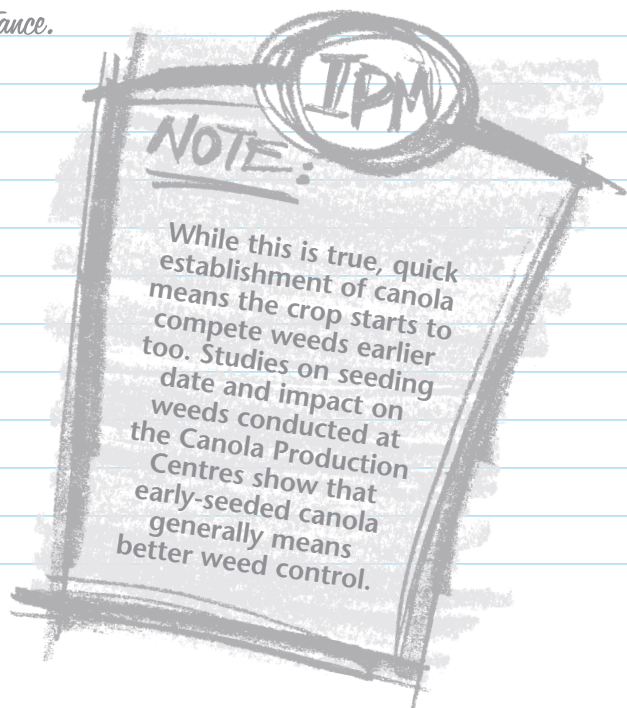
March

Selected a canola variety. The variety I chose was Skyhawk. It is a solid, non-GMO variety that I grew in combination with a scouting package from the company.

It has good blackleg resistance.

April/May

I like to seed early because the earlier planted crops will be better. That makes for more difficult weed control because you have to deal with weeds in-crop for a little longer.



May

Scouting revealed that there were breakthroughs from the trifluralin — mainly wild buckwheat.

Cool wet conditions prevail. A check of the field revealed that there are flea beetles. They are somewhat heavy on the east side along the bush. Damage does not warrant spraying.

June

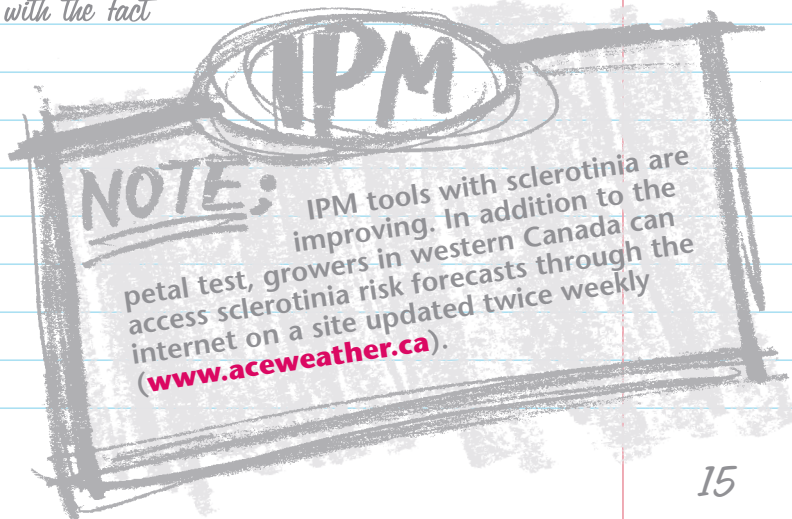
Elected not to do a Lontrel follow-up on the wild buckwheat that broke through the trifluralin treatment. The crop is fairly far ahead and the buckwheat is not growing very quickly. Also, wet conditions are putting moisture stress on the crop and this is reducing the yield potential. I will also leave a sprinkling of wild mustard. It will shell out ahead of the crop.

July

First scout for diamondback moth. There are less than four/m² on the last week in June and the first two weeks in July. Then numbers actually dropped to two to three/m² so I will not need to spray.

Petal test shows very little sclerotinia.

That in combination with the fact that the crop has been affected by very heavy June rains means that spraying for sclerotinia is not needed.



FARMER:

Sheldon Cooper

LOCATION:

Foam Lake,
Saskatchewan

Sheldon farms 20 miles south of Foam Lake Saskatchewan is in the black soil zone. Between Sheldon and other family members the Coopers farm about 4500 acres. Their canola acres go up and down based on markets. These days about 10 to 15 percent of their acres are in canola.



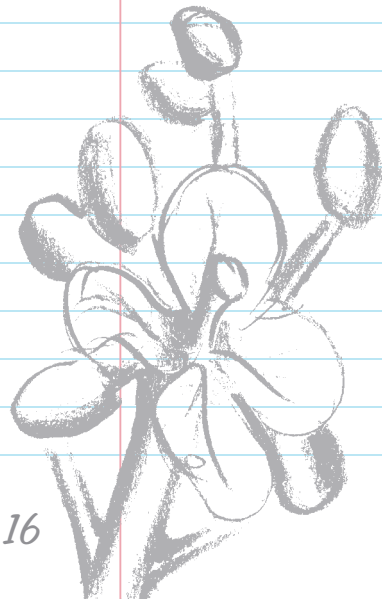
Foam Lake

August

August is when I finalize my field selection for canola. I was already starting to plan four months ago though, when I was seeding the crop the year previous to canola. So basically I'm planning the 2002 crop as I seed the 2001 crop. I watch for weeds through the year and see if I'm still on.

I'm never completely sure though until the seed goes in the ground because of market signals.

I manage certain weeds using preharvest glyphosate...like sow thistle, quackgrass, dandelion and Canada thistle. I find if we do this we don't have to deal with these weeds as much in the canola the next year.



September/ October

Do a little tillage in the fall. We find that even the "black" that comes from putting on anhydrous warms the soil up a little earlier in spring. We get an earlier flush of weeds that we can control with a pre-seeding glyphosate.

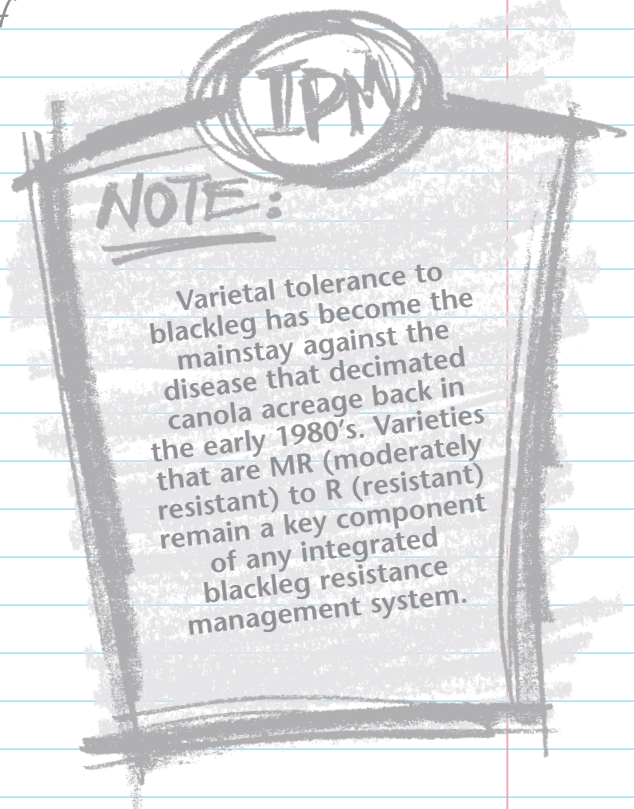
We soil test enough fields to get a read on whether we should adjust our fertilizer to put on more or less than we usually do.

December

I pick my variety. Generally I select the weed control system first, and then look at the individual variety within the system.

Blackleg resistance is part of the decision process but not the predominant one. Rightly or wrongly, yield comes first. We count on the rotation to handle the blackleg, although I would never pick a variety that is rated MS or worse on blackleg.

We never go beyond the one year in four rotation because of disease management.



May

I seed my canola about midpoint in our overall seeding, usually between the 5th and 10th of May and never after the 15th. That way the crop is not flowering in the heat and not running short of moisture in late July.

June

I scout fields at seedling emergence and will go back to problem areas. I check fields every week for weeds so that I am on top of staging. When I seed, I do everything I can to get the crop out evenly and quickly. I make sure I seed shallow — just want to cover the seed, and I put down phosphorus as well.

I have found that going to minimum tillage has meant less of some annual weeds like wild mustard, shepherd's-purse and stinkweed.

In our Clearfield canola we only had to spot spray the low areas for wild oats.

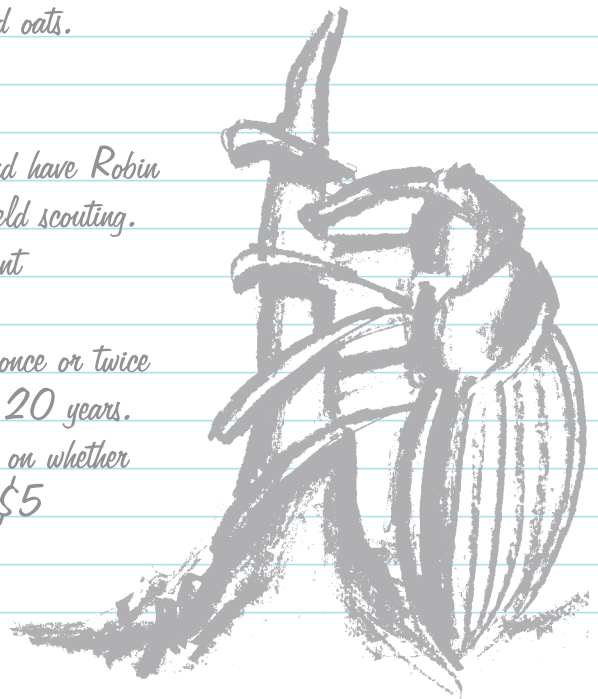
July

I monitor for sclerotinia and have Robin Morrall involved in the field scouting.

[Robin Morrall is a Plant Pathologist.]

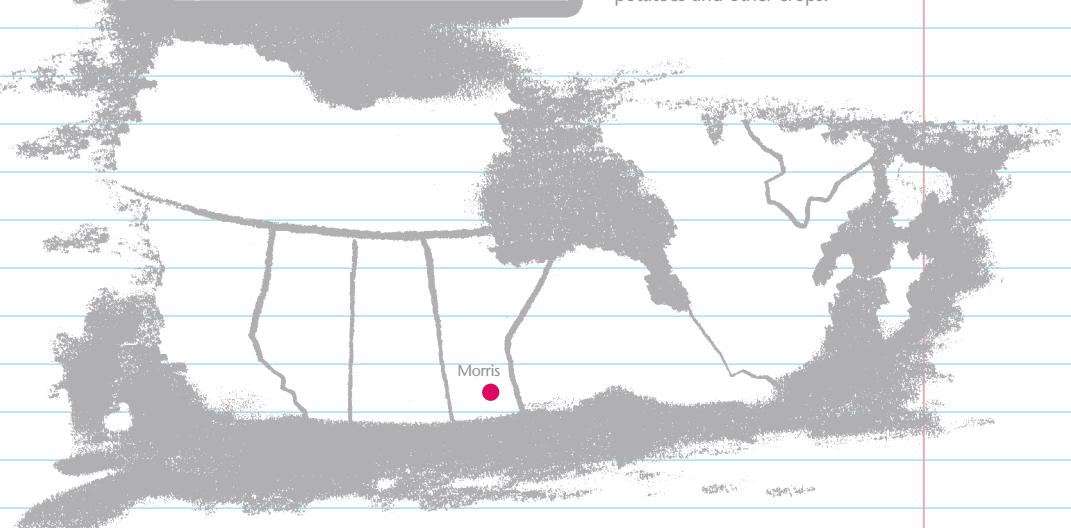
I have only had to spray once or twice for sclerotinia in the past 20 years.

Spray decisions are based on whether we have \$8 canola or \$5 canola, weather and disease risk.



FARMER: Art Enns
LOCATION: Morris,
Manitoba

Art farms 3,000 plus acres east of Morris on heavier clay. They are in minimum tillage. The area has a long growing season and farmers grow oats, flax, barley, canola, potatoes and other crops.



May

We start scouting and planning one year ahead of seeding our canola.

We watch for weeds that might be a problem the next year, such as Canada thistle or curled dock. We are careful of what residual herbicides we use.

Depending on crops, I also watch what the neighbours are doing on adjacent fields. I make a mental note or ask the guy what he's putting in. This is due to identity preserved crops that I grow.

I watch headlands and ditches through the summer for grasshoppers. If they're heavy you can take preventative measures for next year.

Fall

I revisit my records. We have 25 years of records in notebooks. Lately I've experimented with a palm pilot that I use in the field.

We soil test almost all of our fields every year. For us it's crucial. We have years where you grow a pulse crop or following a wet year, when you need to know what's going on. It's a must. How else can you have any idea?

January

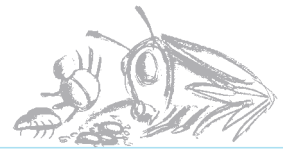
I settle on which varieties I'm going to grow. This is pretty well narrowed down in January. I may do some tinkering in spring but the decisions are pretty much made early. I break it into three weed control systems — conventional, transgenic and Clearfield. I keep an eye on blackleg and we're trying to move into more R varieties.

May

We seed as early as we can roll. I wait until the soil temperature is warm enough but we will go if it's a little cold. We use precision placement for canola with narrow openers and packer wheels to get a good stand. We may do a light cultivation to warm up the soil before we seed just to get rapid emergence. We use a seed-treatment with insecticide, but no granular insecticide because we haven't had many flea beetles in the last six to seven years. We walk the field every couple of days at least to watch for flea beetles. We walk extensively, not just here and there.

June

We walk the field and look for weeds. If there's doubt as to whether to spray or not I'll work with the agronomists at Cargill or other dealers. In canola if I decide not to spray I walk the field continuously until it cabbages out and covers the ground.



July

This year we had a pheromone trap for diamondback moths. The Cargill guys put it in. Diamondback counts were never above six/m² through June and early July. The field wasn't treated for diamondback. We had Bertha armyworms in 1995 and we saw many people lose their crop.

Walking right into the field is key because if you walk the outside edges you may miss it. We noticed that if you saw a flock of birds in the field in early morning it was a sign that the Bertha armyworm might be in the field and we would make sure we scouted that field. We watch for sclerotinia carefully. I feel that crop density, humidity and moisture are key. We look for the apothecia (mushrooms) but it seems to have more to do with the weather and if you walk in the crop at 11 a.m. and you come out with your pants wet it's a sign that moisture for disease development is high. This year I didn't feel the crop warranted spraying due to lower yield potential from wet weather and low crop prices.

FARMER:

Luc Laboissiere

LOCATION:

Somerset,
Manitoba

Luc farms about 2300 acres along with other family, near Somerset Manitoba. Somerset is in the black soil zone halfway between Portage la Prairie and the U.S. border.



Somerset

August/September

We plan two years ahead for canola. In the year prior we start looking out for cleavers- both the spring seedlings and in the fall, the fall germinating seedlings that could get in next year's canola. We have a few in the area on other farms. The year prior to canola I watch for thistles and resistant wild oats. When we're done combining and swathing, we clean off the equipment so we don't move weeds around.

I soil test every three or four years.

We follow the recommendation quite closely.

We do our tillage in the fall as we fertilize. I like to do tillage in the fall because then you can conserve spring moisture. The only soil disturbance in the spring is seeding. The fall tillage controls winter annuals like shepherd's purse and stinkweed as well as volunteers.

We use wide sweeps.

January

I usually have a good idea on varieties that I'll use. I try to go for the R varieties [blackleg resistant]. Also I look for standability.

May

We seed into moisture to try to get fast germination. This helps out with the weeds and the insects. If you get a vigorous stand you can reduce the use of insecticides for flea beetle control.

I scout headlands for flea beetles and for some weeds that move in from untarped trucks. In some years I'll put Counter 5G down in the first 2 or 4 rounds. That controls flea beetles along the field edges to protect the rest of the field.

June

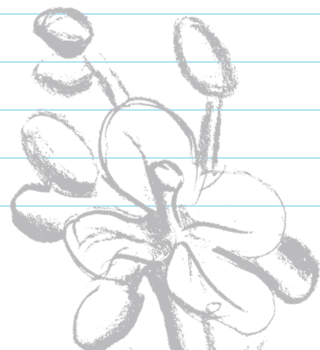
A few days before spraying, we walk the field for weeds. We have sprayed part-fields sometimes. That is quite time-consuming and a few times I should have sprayed but didn't. If the crop was late-seeded and the yield won't be there we won't spray unless we have to. It's a balance of risk and the opportunity. We also scout for other problems. We take the advice of agronomists like Trevor at St Leon Coop.

July

In high moisture years or in medium moisture years, spraying for sclerotinia has been a paying proposition. We go without a fungicide if the crop is seeded late or if it's dry. We'll risk up to a third of the crop.

But early-seeded crops or better crops we spray.

This year we did the petal test and didn't spray. About seven acres had bad sclerotinia. It can take three times as long to harvest that area as a good swath.



FARMER:

Bert Systrom

LOCATION:

Sylvan Lake,
Alberta

Sylvan Lake is near Red Deer Alberta. The area grows most field crops but farmers must manage frost potential due to a higher risk than other areas of the prairies. Bert grows 200 – 300 acres of canola although the acres planted have decreased in favour of improved crop rotation.



Sylvan
Lake

September through December

Other than the anhydrous applicator and seeding openers on my airseeder, there is virtually no tillage. Herbicide tolerant canola (HTC) has helped to make this approach to tillage possible. Planning for next year starts. I have a crop rotation plan that provides for canola, particularly HTC varieties. A three to four year canola rotation is the cornerstone of my IPM approach. I include oats in my crop rotations. I don't need any herbicide other than a low cost broadleaf treatment with MCPA in oats.

I do regular "benchmark" soil tests every year and keep an eye towards trends. Fertility monitoring has paid off in many areas such as the addition of copper, which has improved my wheat production. I rely on my dealer to provide input into fertility. Plant health begins with good nutrition and I treat my fertility regimes with high priority.

Late April/May

Finished seeding in late April- this opened up a broader selection of canola varieties. Earlier planting lets the crop get a head start on the weeds and begin flowering when environmental conditions are less prone to insects and disease.

June/July

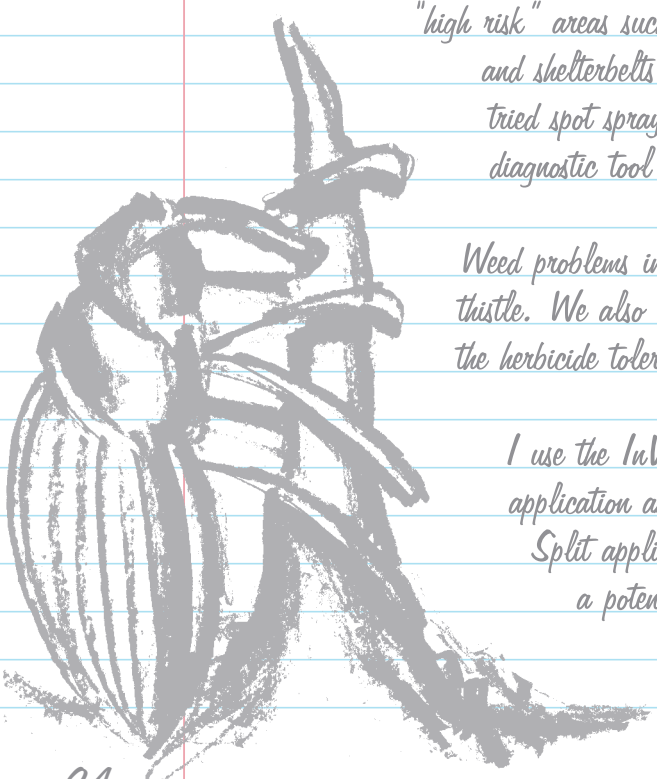
We've had few insect problems other than lygus bug in '99. Entomologists and farmers keep a close eye on cabbage seedpod weevil, which has been spreading northward at an alarming rate.

Disease concerns in canola have traditionally been blackleg, sclerotinia and to a lesser extent alternaria. Blackleg has been well managed through resistant varieties. Alternaria infection has been low, leaving me to manage the sclerotinia. I've noticed "high risk" areas such as the leeward side of bluffs and shelterbelts for sclerotinia — on which I've tried spot spraying. We need a user-friendly diagnostic tool for this.

Weed problems include cleavers and Canada thistle. We also watch for wild oats, particularly the herbicide tolerant wild oats.

I use the InVigor canolas and will use split application as part of my IPM program.

Split applications provide good control and a potential to eliminate the second application, which recently happened to me.







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