5/ Scouting, economic thresholds, record keeping

IPM technique	Value to the grower	What the study found	My assessment of how I do this on my farm
Scout fields to check for insects, weeds, diseases before spraying	May lead to the discovery that a field may not need to be sprayed, or may reduce pesticide use through using only spot applications	94% of growers (including family members) scouted for weeds and 88% scouted for diseases or insect problems	I scout my fields (or I make sure someone else does) Yes ____ No ____
Scout for weeds starting the previous season at key times	Scouting for canola pests starts the previous fall, and then resumes from early spring seeding right through until podding. This will alert growers to problems early	58% scouted the previous fall; 58% scouted just before seeding; 95% scouted early in crop development; 66% scouted late in crop development	I check the field that I plan for seeding canola the previous fall and I look for particular pests Yes ____ No ____
Frequent scouting for insects and disease	Allows for early alert and maximum time for action in controlling the pest	11% scouted for insects or diseases daily, 42% scouted twice a week; 24% scouted once a week; and 7% scouted once every two weeks	I scout my canola fields at least once a week during the time the crop is growing in the field Yes ____ No ____
Make a "no spray" decision based on low levels of pests	Allows growers to avoid spraying when it is unnecessary or does not pay off	14% of growers made a "no spray" decision based on weed population, and 36% of growers made a "no treat" decision based on low insect populations	I occasionally find that my scouting allows me to skip a spray operation that I thought I would have to make Yes ____ No ____
Use diagnostic tools, kits and weather monitoring to help in spray decisions	Excellent kits and disease maps are available for diseases like sclerotinia	Use of kits and diagnostic services were virtually zero. Some growers occasionally used weather reports in their threshold decisions	I have used diagnostic tools like petal tests and sclerotinia alerts in the past Yes ____ No ____
Record keeping for pest levels/spray applications	Allows for a post season review on how effective the control measure was and allows growers to prepare integrated plans for the next season	81% to 91% recorded products sprayed, rates, dates; 50% to 60% recorded weather at spraying and crop stage; less than 50% recorded escapes and effects on pollinators	I keep records for pests in a given field and refer to them from time to time in subsequent years Yes ____ No ____

IPM Self Scorecard

Number of "yes" answers	Where I stand
18 to 26	I have most of the elements for an IPM program to function on my farm
14 to 17	I am implementing many IPM tactics but may want to wrap them up into a "packaged" approach and review other things that I could implement
0 to 13	I have a great opportunity to realize more efficiencies in my pest control program

CANOLA COUNCIL OF CANADA

400 - 167 Lombard Avenue, Winnipeg, Manitoba R3B 0T6
For more information on IPM visit our website at: www.canola-council.org

Support for this publication provided by: B.C. Grain Producers Association, Alberta Canola Producers Commission, Saskatchewan Canola Development Commission, Saskatchewan Canola Growers Association, Manitoba Canola Growers Association, Canadian Adaptation and Rural Development Program through Manitoba Rural Adaptation Council Inc., Saskatchewan Council for Community Development - CARDS Secretariat, Agriculture & Food Council (Alberta), and British Columbia Investment Agriculture Foundation. These organizations do not assume any legal liability or responsibility for accuracy, completeness or usefulness of information contained in this publication.

INTEGRATED PEST MANAGEMENT IN YOUR CANOLA

Spring 2001

PESTS IN CANOLA: NEW CHALLENGES CALL FOR AN INTEGRATED APPROACH

Integrated pest management uses all the tools that are available to growers for controlling pests. This may include chemicals, but it means not exclusively using chemicals. For a grower using IPM, the goal is to maintain the economic viability of the farm and achieve effective management of pests in the safest manner possible.

WHAT ARE 800 OF YOUR NEIGHBOURS DOING TO MANAGE WEEDS, DISEASES, AND INSECTS IN CANOLA?

The past few years have been challenging for canola growers as they have worked their way through season after season of trying to protect their crops. They have been battling shifting weed spectrums and pests that are new and unfamiliar to the industry. They have had to learn and perfect new herbicide tolerance systems for their farms. All the while they have had to keep an eye on input costs as commodity prices have swung.

The canola industry conducted a survey on the crop protection techniques used by 881 western Canadian growers to find out how effective they thought their insect, disease and weed control programs have been. The survey provides the opportunity to sift through the collective pest management experience of 881 other growers. The survey also shows where the gaps in an integrated pest management (IPM) system might be.

New challenges mean that it is crucial that we make new strides in implementing better IPM techniques in canola. Why?

- Profitability. There is no doubt that in the past, canola has paid a lot of bills. It has been a lucrative crop for western Canada's growers. In past years, many growers have been able to realize fair returns from their crop despite the costs associated with crop protection and inputs. Nonetheless, during cyclical downturns in commodity prices, growers are looking for new ways of maximizing dollar returns. They want to make sure they are getting maximum effectiveness from their pest control program.

- Environmental issues. Consumers have shown that they do pay attention to the environmental issues surrounding soil resources and food production. If new strides can be made in IPM and sustainable agriculture, this will assure the public that their concerns are being addressed.

- Complexity! Pest management in canola is more complicated than it is in cereals, and more expensive. Growers often find themselves steering through waves of pest control decisions relating to everything from blackleg to bertha armyworm to wild buckwheat. Significant decisions need to be made every summer month in terms of one pest or another.

- Changes in pests. Weeds have shifted on farms over the last 20 years. There are more thistle, more cleavers and more buckwheat on some farms. Herbicide-resistant weeds are now a factor. New diseases like alternaria and root rot and new insects like lygus and cabbage seedpod weevil mean that it's time to really pay attention to a pest management approach that takes advantage of all the tools that IPM gives a grower.

CANOLA COUNCIL OF CANADA

Integrated pest management in canola: Results from 881 canola producers

Meeting the challenge:

IPM is not a new concept. There are four steps involved in implementing an IPM program on your farm. They are:

1. **Prevention -** Practices that reduce the severity of pest infestation or prevent pest build-up.
2. **Monitoring and Forecasting -** Determining when and what action is required to manage pests.
3. **Intervention -** Actions to reduce the economic crop damage from pests.
4. **Record Keeping -** Maintaining a field record system for effective planning.

Underpinning all four of these steps is the grower's ability to accurately identify insects, diseases and weeds. By knowing the pest and its life cycle, growers can plan their pest control programs.

In canola, IPM means the use of crop rotations, pest monitoring and resistant varieties. It also means using crop protection chemicals judiciously. The goal of a grower using IPM is to minimize the impact of pests on the crop, while maximizing the return from using different pest management tools. IPM allows this to be accomplished in a way that takes care of the farm environment.

1/ Rotation and seeding techniques

IPM technique	Value to the grower	What the study found	My assessment of how I do this on my farm
Seed canola no more frequently than one year in three to four on the same field	Prevents buildup of sclerotinia, blackleg, root rot, alternaria, cleavers, root maggot	Growers planted canola once in every 3.6 years (AB), 3.83 years, (SK), 3.6 years (MB)	I seed canola no more frequently than one year in every three to four years Yes _____ No _____
Review pest problems on a field before seeding to canola	Allows growers to preplan and pick the best field for their canola	50% of growers reviewed weeds prior to seeding decision, 11% reviewed insects, and 17% reviewed disease	I review my weed, insect and disease problems in a given field prior to seeding decisions Yes _____ No _____
Put canola on fields where there was a "beneficial crop" the year prior	Avoids disease buildup or volunteer problems carried over from the prior year. Beneficial crops include cereals, alfalfa & flax	65% of growers put canola on a "beneficial crop," 26% on summerfallow, and 6% "problem crops" (e.g. peas)	I put canola on a cereal, forage or summerfallow field Yes _____ No _____
Treated, pedigreed seed usage	Pedigreed seed is cleaned to high standards with weed seeds and disease presence identified on the tag. Treated seed controls soil borne diseases and some insects	86% of growers used pedigreed seed. Only 39% checked the tags for weed seed counts. In past blackleg problem areas, 75% check for this disease, 95% use treated seed	I use certified, treated seed and I check the tag on certified seed Yes _____ No _____
Checking adjacent fields for pest hosts (e.g. sclerotinia or flea beetles on mustard plants)	Checking and controlling pests on adjacent fields adds to the effectiveness of rotation because it cleans up pest hosts	95% of growers cleaned up weeds on adjacent summerfallow, 41% of these growers used cultural control (tillage), and the remainder used crop protection chemicals or a combination of cultivation and chemical controls	The year prior to seeding canola I check surrounding fields for pests that might be a problem in next year's canola Yes _____ No _____
Early seeding, checked against soil temperature	Allows for early growth of the crop to maximize crop competition	64% made a special effort to seed canola early (AB); 43% (SK); 40% (MB). About 23% checked soil temperature prior to seeding	I seed my canola as soon as possible (after I have double checked soil temperature) Yes _____ No _____

2/ Soil testing and tillage practices

IPM technique	Value to the grower	What the study found	My assessment of how I do this on my farm
Soil testing	Soil testing allows the grower to deliver fertilizer in just the right amount for maximum payback. This ensures good crop economics and minimizes the risk of groundwater contamination	Only 34% of growers soil tested the field prior to seeding canola. Of those, only 56% followed the recommendation with 16% applying less than recommended rates and 23% more than the rates recommended	I do soil test my canola field prior to seeding and apply fertilizer according to recommendations Yes _____ No _____
Direct seeding	Helps the grower to minimize soil disturbance and reduces germination of some annual weeds	67% of growers seeded canola on stubble and tilled only with a light harrowing	I seed my canola into stubble Yes _____ No _____
Light tillage for weed control prior to seeding	Light tillage can kill off a first flush of weeds prior to crop emergence. This is most effective when the tillage operation does not dry out the seedbed	74% of growers tilled lightly for weed control just prior to seeding	I do light tillage for early weed control in the field to be sown to canola Yes _____ No _____
Tillage equipment used if not minimum-tilling or zero tilling	Lighter duty tillage equipment can help control some pests (such as shallow germinating weeds) and leaves soil residues in place minimizing soil erosion	% of growers using the following equipment: 60% Harrowing, 46% Heavy duty cultivation 31% Medium duty cultivation 8% Disker	Where possible, I use tillage to control some pests, but I also try to keep enough trash on the soil surface to protect the soil from erosion Yes _____ No _____

Growers are using IPM already

In general, growers are using many of the tools that IPM offers. The challenge in terms of IPM is to pull together better "packages" to improve integration of the IPM tools.

The following findings shed light on the current situation in terms of real live examples of canola IPM. Use the Findings Worksheets on adjacent pages to look at how different practices are being implemented, and how your farming practices compare to over 800 of your farming neighbours. What are you doing to maximize profits from the amount of money spent on pest control? Where do you stand? Answer the questions in the last column. An "IPM Self Scorecard" legend is at the end of the worksheets.

3/ Sanitation

IPM technique	Value to the grower	What the study found	My assessment of how I do this on my farm
Clean tillage equipment when entering new fields	Prevents movement of disease organisms or weed seeds from one field to a previously uninfected field	31% of growers used this technique	I clean my tillage equipment to minimize spread of weed seeds and diseases from field to field Yes _____ No _____
Clean seeder after seeding a crop or variety	Lessens risk of serious volunteer crop problems and minimizes weed seed dispersal	71% of growers used this technique	I clean my seeding equipment to minimize spread of volunteer seeds and weeds from field to field Yes _____ No _____
Clean out herbicide tank after spraying operations	Lessens risk of herbicide damage to crops which are sensitive to in-tank residues	90% of growers used this technique	I clean my spray equipment to reduce the risk of herbicide damage Yes _____ No _____
Clean harvesting equipment	Lessens risk of transporting weed seeds, herbicide-resistant weeds and dispersing volunteer crop seed from field to field	53% of growers used this technique	I clean my harvesting equipment to minimize spread of weed seeds, volunteers and herbicide-resistant weeds from field to field Yes _____ No _____
Clean up field edges where weeds arise	Minimizes amounts that will need to be sprayed in coming years if weeds are kept out of the field	27% of growers used this technique	I clean field edges to minimize spread of weeds Yes _____ No _____
Use a chaff collector in harvesting operations	Minimizes weed seed spread through the field	1% of growers used this technique	I use a chaff collector as I harvest to capture weed seeds Yes _____ No _____

4/ Careful use of crop protection chemicals

IPM technique	Value to the grower	What the study found	My assessment of how I do this on my farm
Estimate how much their crop protection program is composed of chemical techniques and how much is non-chemical	Non-chemical techniques like crop rotation, sanitation and pest prevention minimize dollars for pesticides and amounts of crop protection chemicals applied	One grower in 10 relies exclusively on crop protection products. About half of growers feel that they rely on crop protection chemicals for 80% or more of their crop protection needs	I feel that I rely on crop protection chemicals for about ___% of my total crop protection program in canola
Calibrate sprayer	Accurate calibration ensures that pesticides are not wasted through over-application or under-application	74% of growers who applied their own crop protection products calibrated their sprayer at least once	I calibrate my sprayer at least once per season Yes _____ No _____
Spray only when wind conditions are safe	Spraying under safe wind conditions minimizes off target drift and impact on non-target organisms	70% of growers did not spray if windspeeds rose to moderate. Shields were always used by 27% of growers and used sometimes by 3% of growers	I shut down spraying in unsafe windspeeds OR I use a shield when windspeeds warrant Yes _____ No _____
Spot spray instead of spraying the whole field when feasible	Spot spraying contains pests, preventing them from becoming a larger problem through the field. Spot spraying also controls pests with a minimal amount of pesticide	82% of growers apply herbicides on a whole field basis only and do not spot treat	I use spot applications on specific parts of my fields when the infestation allows Yes _____ No _____
Use "buffers" - no spray zones around sensitive areas	Maintaining a buffer zone prevents pesticide contamination of environmentally sensitive areas like sloughs and woodlands	42% of growers use buffers to avoid sensitive areas	I use "no spray strips" to make sure I avoid contact with environmentally sensitive areas Yes _____ No _____
Time spraying to avoid pollinators (bees, etc.)	Spraying in the evening or when the crop is not in flower prevents impact on pollinators or beneficial insects	Only 9% of growers sprayed during flowering in daylight hours	I avoid spraying when beneficial insects (bees, etc.) are in the field Yes _____ No _____