CARROT IPM PROTOCOL
for
PRINCE EDWARD ISLAND

Integrated Pest Management (IPM):

A knowledge-based, decision-making process that uses all available techniques (Chemical, Cultural, and Biological) to suppress pests in an effective, economical, and environmentally sound manner.

This Protocol is designed to assist growers in determining what level of IPM they are currently practicing. It is designed to be used on a field by field basis so if you are using it to assess your ‘whole farm’ - you should answer the questions with respect to practices that you are using on the majority (>50%) of your acreage.
Pre & Planting Level IPM Decisions

What is your current crop rotation? (Check one only)
- 3-year ___ 3 points
- 4-year ___ 5 points
- 5-year ___ 8 points

Soil and Water Management Level IPM Decisions

Do you: (check all that apply)
- Soil test for fertility/nutrient levels ___ 4 points
- Soil test for pH and OM levels ___ 4 points
- Credit N for Manure/Compost or plow down crops ___ 4 points
- Do you add Manure/Compost or other OM to build your soil ___ 4 points
- Split your applications of Nitrogen over the growing season ___ 4 points
- Nutrient Management Plan implemented on your farm ___ 5 points

What soil conservation practices do you use on this field? (Check all that apply)
- Plant a winter cover crop or spread hay mulch (1.5 T/ac) on fields ___ 5 points
- that require a winter cover.
- Apply hay mulch across sloped areas of the field ___ 2 points
- Practice residue management ___ 4 points
- Leave a grassed headland on lower end of field if rows are ___ 5 points
- running up and down the slope
- Use of other soil conservation measures (terracing, strip cropping etc...) ___ 5 points

Scouting and IPM

What method of scouting do you most commonly use? (Check one only)
- Informal observations during routine farming operations ___ 1 points
- Observations based on what was happening on the edge of the field ___ 2 points
- Crop Scouts focused mainly on potential hot spots or where there is ___ 5 points
- a history of problems in the past.
- Crop scouts followed specific patterns through the field (field borders and interior) ___ 7 points
Whose scouting data did you primarily use to make management decisions for this field? (Check one only)
Independent crop consultants ___5 points
IPM trained Farm Employee/Owner ___6 points

How many scouting trips were made during growing season in this field? (Check only one)
Once every two weeks ___2 points
Once per week ___5 points
More than once per week if pest outbreak occurs ___7 points

Why did you scout? (Check all that apply)
To determine when levels of pests in a field reach threshold levels ___4 points and to reduce environmental impact by using less pesticide.
To check on effectiveness of a pest control measure? ___2 points
In response to a local or recent pest report you heard or read about? ___2 points
To monitor areas of the fields where you knew pests were already a problem ___2 points

Which of the following best represents how you or your farm manager kept track of the scouting information collected on this field? (Check one)
No written or electronic records of scouting data were kept ___0 points
Written records kept in a file ___1 point
Written records for each field and consecutive years kept together to track pest pressure over time for this field ___2 points

**Weed IPM Decisions**

When treating weed problems in this field do you (check all that apply)
Keep records of previous weed problems and control in this field ___3 points
Apply herbicides and cultivate to control weeds ___2 points
Manage problem weeds in rotational crops ___3 points
Use mechanical tillage only (i.e. Reigi Weeder, Einbock Tine, Lely) ___5 points
Clean all equipment when moving between fields to prevent weed spread ___3 points

**Insect IPM Decisions**

**Rust Fly and Carrot Weevil**

Do you scout for these pests once per week using regionally accepted scouting pattern and threshold levels (GDD for Rust Fly)
Do you control these pests using: (check one only)

Very High Hazard Insecticide ___0 points
Moderate Hazard Insecticide ___2 points
Low to Very Low Hazard Insecticide ___5 points
Leafhoppers

To monitor leafhopper populations do you scout densities once per week using regionally accepted scouting pattern and threshold levels ___3 points

Do you control leafhoppers using: (check one only)

Very High Hazard Insecticide ___0 points
Moderate Hazard Insecticide ___2 points
Low to Very Low Hazard Insecticide ___5 points

Nematodes:

Do you try to rotate your fields to provide spatial separation from last years fields ___5 points

Do you grow antagonistic crops in your rotation ___5 points

Do you use any of the following cultural methods to control insect pests and prevent resistance: (check all that apply).

Use of a floating rowcover to exclude pests from the crop ___5 points

Do you manage insecticide resistance by rotating chemical groups ___3 points

Disease IPM Decisions

Do you use any of the following sanitation techniques to prevent disease spread on your farm? (Check all that apply).

Use only certified seed ___3 points

Use disease tolerant varieties whenever possible ___3 points

Use crop rotation to control certain diseases (ie. clubroot, scab, rhizoe) ___3 points

To prevent disease infection of your field do you: (check all that apply)

Time fungicides according to Scouting Data/Weather Conditions ___4 points

Scout fields for diseases on a regular basis ___3 points

Apply Boron to prevent physiological problems ___3 points
Farm Management IPM Decisions

How often do you calibrate your spray equipment: (check one only)
All sprayers are calibrated at the start of the season ___3 points
Re-calibrate midseason ___4 points
Confirm that the appropriate rate has been applied through the use of a sprayer monitor. ___5 points

Do you maximize sprayer efficiency by: (check all that apply)
Adjust sprayer variables (nozzles, pressure, boom height, water volume, etc...) to ensure proper coverage through out the growing season. ___4 points
Using sprayers with new technology (air assist, electrostatic etc...) to ensure proper canopy coverage. ___3 points

Do you keep: (check all that apply)
Records of cultivar and planting date for each field ___3 points
Records of all weekly field monitoring/spray applications ___3 points
Records of the effectiveness of the control measures for each field ___3 points

Do you get involved in Research and Continuing Education: (check all that apply)
Do owners and employees receive safety training? ___3 points
Involved in demonstration/research plots to test emerging and innovative farming techniques ___5 points
Attend information sessions or field tours etc... to keep up to date ___3 points
Do you leave buffer zones on field edges near watercourses ___3 points
Are you involved in an ‘on-farm’ food safety program ___3 points
Any areas on farm left as Conservation areas (ie. Ducks Unlimited, Island Nature Trust, etc...) ___3 points

Harvest and Storage level IPM Decisions

During harvest do you: (check all that apply)
Evaluate all fields for potential harvest or storage disease problems ___3 points
Harvest during proper weather conditions ___2 points

During storage do you: (check all that apply)
Disinfect storage area prior to storage ___2 points
Inspect and clean bins prior to storage ___2 points
Monitor storage conditions and adjust if necessary ___2 points
SCORING - The protocol is based on a total value of 167 points (not including bonus points - in italics). Count up your total number of points obtained and use the scale below to determine where you fit in the IPM Continuum.

<table>
<thead>
<tr>
<th>No IPM</th>
<th>Emerging</th>
<th>Basic</th>
<th>Established</th>
<th>Advanced</th>
<th>Optimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;60%</td>
<td>60-75%</td>
<td>75-85%</td>
<td>85-95%</td>
<td>95-100%</td>
<td>&gt;100%</td>
</tr>
</tbody>
</table>

< 100  = No IPM  
101-125 = Emerging IPM  
126-142 = Basic IPM  
143-159 = Established IPM  
160-167 = Advanced IPM  
> 167  = Optimal IPM

Carrot - Registered Insecticides  
Toxicity List for IPM Protocol

LOW  
Currently nothing available

MODERATE  
Carbaryl  
Cypermethrin  
Phosmet  
Permethrin

HIGH  
Diazinon  
Parathion  
Chlorpyrifos