BIRD PREDATION MANAGEMENT PLAN

BLUEBERRIES

What is the Problem?

Birds eat an estimated 10% of the blueberry crop in British Columbia. Large flocks of birds, especially starlings, are capable of destroying entire blueberry crops in a few days. Some bird damage is obvious — pecked fruit which is unmarketable or clusters of ripening berries torn from the bush. Not as obvious is the loss of berries that are totally consumed by birds. Many farmers don’t realize the extent of their crop losses — and lost profits!

Some of the techniques farmers use to keep birds away from their crops can be of concern to those living near farms. The noise of propane cannons can be disturbing as can the sight of birds entangled in protective netting.

Good bird management that minimizes crop losses and disruption to neighbours is critical to the operation of a profitable blueberry farm.

What is Integrated Bird Management?

Good bird management, like managing other blueberry pests, requires an integrated approach. This approach requires knowing the bird species that are damaging the crop and their behavior patterns — information gained by frequent field observations. It also requires selecting the most appropriate combination of scaring devices or protective netting to keep the birds away from the crop, and using the devices in a way that maximizes their effectiveness and minimizes disruption to neighbours. The most potentially disruptive devices like propane cannons should only be used when flocks of birds are present in the area. Finally, an integrated approach requires evaluating and making necessary changes to the program to make sure it remains effective.

Why a Bird Predation Management Plan?

This guide is designed to assist in developing and maintaining an effective bird management plan on a blueberry farm. The enclosed form can be completed yearly and the previous years’ plans kept for reference when making changes to the bird management program.

Planning for bird control well ahead of harvest season minimizes the work needed during the busy harvest period. A well-planned program leads to better bird control and fewer crop losses, in addition to good neighbour relations.
GUIDE TO A BIRD PREDATION MANAGEMENT PLAN ("PLAN")

Use this guide to complete the “Bird Predation Management Plan” form accompanying this fact sheet. The numbers below correspond to the numbers on the form. Also refer to the example on the back page.

1 FARM OR FIELD

a NAME. Give the name you use to identify the farm. A separate form should be used for each field.

b LOCATION. Give the street address or a descriptive location of the farm or field.

c CANNON CONTACT PERSON AND TELEPHONE NUMBER. If propane cannons are used, assign a person who will attend to them should they discharge during non-operating hours.

   • To be protected by the Farm Practices Protection (Right to Farm) Act, cannons must not be operated before 6:30 a.m. or after 8:00 p.m. In addition, they must not operate between noon and 3:00 p.m.

d DATE. Give the Plan year.

2 FARM SIZE

a TOTAL ACREAGE. Give the total acreage of blueberries in the field covered by the Plan.

b ACREAGE BY HARVEST SEASON. Give the number of acres planted to varieties that ripen in the early, mid and late seasons.

   • Bird control will be first needed in the fields or areas planted to early season varieties-followed by areas planted to mid-and late season varieties.

3 PEST BIRDS

a FRUIT DAMAGE. Rate the severity of berry losses expected by the types of birds. Use your observations from past years to make this estimate. Use “L”, “M” or “H” to indicate low, medium and high pressure respectively.

   • Starlings usually are the most destructive birds but robins, songbirds and crows can also cause damage. Starlings gather in flocks of varying sizes – serious losses can occur quickly with large flocks. These birds eat whole berries from the bush – making yield losses difficult to estimate – or damage the fruit with peck marks. Robins and small songbirds do not flock and tend to be “ground-feeders”, eating berries on the lower portions of the bushes. Crop losses from robins or small songbirds is often less noticeable.

b COMMENTS. Make comments based on your observations about the types of birds present or the differences in numbers due to the time of day, areas within the field or year-to-year changes. Use more space if required.

4 BIRD CONTROL TECHNIQUES

a NETTING. Record the number of acres of blueberries covered by nets.

   • Overhead nets are the most effective method to protect berry crops. A mesh size of 20X20 mm is best for excluding birds while minimizing the number of birds getting caught in the net. Proper net installation and maintenance is critical.

b NOISE. List the noise-scaring devices that will be used in the field including propane cannons, electronic devices and orchard pistols.

   • To be protected by the Farm Practices Protection (Right to Farm) Act, use no more than 1 propane cannon per 5 acres (1 per 2 ha) of cropland at any one time. Propane cannons should only be used when birds are present in the area.

   • Devices with random, unpredictable sounds are more effective at scaring birds than ones with regular noises.

   • The noise of cracker or whistler shells occasionally fired near flocks of birds helps to reinforce the scaring effect of propane cannons or electronic noise makers.

5 BIRD CONTROL OPERATION

a NETTING. Give the date you expect to install the nets. Name the person assigned to maintain the nets during the harvest period.

   • Maintenance includes repairing holes in the nets, repositioning poorly hung nets to make sure birds cannot gain entry to bushes, making sure the nets are relatively tight to minimize the number of birds getting caught in the nets, and removing caught birds in a timely way.

b NOISE DEVICES. Give the date you expect to start the noise devices.

   • Noise devices should be started when the berries begin to ripen and the birds first begin to visit the field. This will help prevent the birds from establishing a feeding pattern.

   Give the frequency (in days) when the devices will be moved to new locations in the field.

   • Scaring devices must be moved frequently to prevent birds from becoming used to the location of the noise. This will help maintain the effectiveness of the devices. Give the expected setting for firing the propane cannon under low, medium and high bird pressure.
• Start propane cannons with infrequent firings at the beginning of the harvest season. Increase the firing frequency as the feeding pressure increases – usually as the harvest season progresses. This should help maintain the effectiveness of the propane cannon in scaring the birds. Ensure that single shot cannons do not fire more frequently than once every 5 minutes and multiple-shot cannons do not fire more than 33 times per hour.

• Use less frequent firings during periods of the day when the bird pressure is low – such as in the mid-afternoon periods. More frequent firings are most necessary when bird pressure on the crops is more intense. Bird pressure is usually most severe in the early morning and again in the late afternoon through to dusk. Cannons must be set to shut off between noon and 3 p.m. Other devices may be used during this period.

• Do not fire cannons when birds are not present in the area.

Assign a person to manage and maintain the devices throughout the season.

• Noise devices should be moved frequently throughout the harvest season, for best bird control. Cannons should be shut off when birds are not present in the area.

• Locate noise devices to best scare the birds while minimizing the impact on neighbours. Ensure a separation distance to residences of 200 m for propane cannons and 100 m for electronic devices. Propane cannons and speakers should be located above the bushes. Restrict the rotation of cannons or point stationary cannons away from neighbouring houses or work areas.

• Propane cannon maintenance includes checking timers to ensure proper functioning. When the propane is shut off at night to prevent the cannon from firing, close the valve tightly and make sure it doesn’t leak. Disconnect the hose if the valve leaks.

Name a person, and list their telephone number, who will attend to the cannon should it mistakenly discharge before 6:30 a.m. or after 8:00 p.m or during the mid-day break. (the same name as in “1.c” above.)

• This person should be able to attend to the propane cannon at any time during the off hours, if necessary.

• VISUAL DEVICES. Give the date you expect to install the devices.

• Devices should be installed when the berries start ripening to prevent the birds from establishing a feeding pattern. Once used to the field, the birds will be more difficult to scare away.

Give the name of the person assigned to putting the devices in the field and maintaining them throughout the season.

• Maintenance includes changing the scaring devices. Do not always use the same scare device. The first response of birds to an unexpected object is to flee. As the birds get used to the object, they start to explore it, then finally the object is ignored. Visual scare devices should be removed as soon as they appear to lose effectiveness.

• Maintenance also includes moving scaring devices to new locations in the field throughout the harvest period.

• Scaring devices should also be checked frequently to ensure they remain in good working condition.

6 EVALUATION

a OBSERVATIONS. Watch the birds throughout the season and note such items as changes in the type of birds in the fields, areas with intense bird pressure or little bird pressure, times of the day when birds are most present or are not present, places birds tend to perch in the day or roost at night, and scare devices that work well or appear ineffective.

b PLAN REVIEW. Make comments on the effectiveness of your bird control program. Include comments on the overall effectiveness of the combination of scaring devices used as well as comments on individual devices.

c CHANGES FOR NEXT YEAR. Make notes on changes you want to make in your strategy for next year based on your observations and Plan review. The notes can include new bird control techniques or locations for scaring devices as well as changes to modify perching sites. For example, a lone tree may need to be removed or strips of spikes placed along roof ridges. These changes will become part of next year’s Plan.

7 FIELD MAP

Draw a diagram of the field that shows your Plan. Include buildings, neighbouring houses, blocks of early, mid and late season blueberries and bird perching sites (e.g. power lines and trees). Also include the prevailing wind direction as noise is carried by the wind. Mark the location of the various scaring devices at the start of the season. Be sure to adhere to required separation distances between noise devices and neighbouring residences (200 m for propane cannons, 100 m for electronic devices). Locate the scaring devices where high bird pressure is expected and birds perch.

Photo Credits: Robin image from www.symbolic-meanings.com
Starling image from University of Washington

FOR MORE INFORMATION . . .

B&C contacts

Mark Sweeney, Berry Industry Specialist. (604) 556-3056

Bert van Dalfsen, Manager, Strengthening Farming Program (604) 556-3109

BCMAL publications

Available from offices of the BC Ministry of Agriculture and Lands:
Berry Production Guide for Commercial Growers (2009/2010, pg. 18-20, $30.00)
Suppliers of Bird Control Materials & Equipment for BC Producers (2004, free)
Netting for Bird Control in Blueberries – A Decision Making Guide (2002, free)
Installation of Bird-proof Netting for Horticultural Crops (2004, factsheet 336.100-1, free)

Available from the BC Farm Industry Review Board: (250) 356-8945
Review of the Use and Regulation of Propane Cannons in the South Coastal Region (March 2009, free).
# Bird Predation Management Plan

## Blueberries

### Farm or Field
- **Name:** Blue's Berry Farm Ltd
- **Date:** May 16, 2009
- **Location:** 321 Berry Road, Surrey, B.C.
- **Contact Person:** Bob Blue, (604) 909-1111

### Farm or Field Size

<table>
<thead>
<tr>
<th>Acreage Category</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Acreage</td>
<td>18.5</td>
</tr>
<tr>
<td>Acreage by Harvest Season</td>
<td></td>
</tr>
<tr>
<td>Early season varieties</td>
<td>8.5</td>
</tr>
<tr>
<td>Mid season varieties</td>
<td>5</td>
</tr>
<tr>
<td>Late season varieties</td>
<td>6</td>
</tr>
</tbody>
</table>

### Pest Birds

- **Fruit Damage:**
  - Starlings: Low
  - Robins: Medium
  - Small song birds: Low
  - Crows: Medium
  - Other (specify)

- **Comments:** Sometimes get large flocks of starlings

### Bird Control Techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propane cannons</td>
<td>2</td>
</tr>
<tr>
<td>Electronic noise makers</td>
<td>1</td>
</tr>
<tr>
<td>Bird distress and predator calls</td>
<td>1</td>
</tr>
<tr>
<td>Orchard pistol</td>
<td>1</td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

### Noise
- **Propane cannons:** 2
- **Electronic noise makers:** 1
- **Bird distress and predator calls:** 1
- **Orchard pistol:** 1
- **Other (specify):**

### Bird Control Operation

<table>
<thead>
<tr>
<th>Technique</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scarecrows</td>
<td></td>
</tr>
<tr>
<td>Scare-eye balloons</td>
<td></td>
</tr>
<tr>
<td>Streamers and flash tape (ft)</td>
<td></td>
</tr>
<tr>
<td>Hawk kites and plastic owls</td>
<td>2</td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visual Devices</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scarecrows</td>
<td></td>
</tr>
<tr>
<td>Scare-eye balloons</td>
<td></td>
</tr>
<tr>
<td>Streamers and flash tape (ft)</td>
<td></td>
</tr>
<tr>
<td>Hawk kites and plastic owls</td>
<td>2</td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

- **Netting:** 0 Acres
- **Estimated date of installation:** June 24
- **Frequency of moving the devices:** Every 4 days
- **Propane cannon firing frequency:** Single
- **Low bird pressure:** Fire 1-cycle per 8-16 minutes
- **Medium bird pressure:** Fire 1-cycle per 8-16 minutes
- **High bird pressure:** Fire 1-cycle per 4-8 minutes

### Observations
- **Observations:** (to be completed by end of season)
- **Total Acreage:**
- **Changes for next year:**

### Map and Diagram

Draw in the stocks of different varieties. Include trees, powerlines, buildings and other areas where birds perch. Locate the neighboring houses. Mark prevailing wind directions (sound travels). Mark the areas where bird control devices are to be located.

- **B:** Scare-eye balloon
- **C:** Cannon
- **D:** Bird distress or predator calls
- **E:** Electronic extender
- **R:** Hawk, kite, silhouette or stuffed owls
- **=** House
- **=** Powerline
- **=** Trees
- **=** Property line
BIRD PREDATION MANAGEMENT PLAN

Blueberries

1. FARM OR FIELD
   a. NAME ____________________________  d. DATE ______________
   b. LOCATION _________________________
   c. CANNON CONTACT PERSON AND TELEPHONE NUMBER ________

2. FARM OR FIELD SIZE
   Acres
   a. TOTAL ACREAGE __________
   b. ACREAGE BY HARVEST SEASON
      Early season varieties ______
      Mid season varieties ______
      Late season varieties ______

3. PEST BIRDS
   a. FRUIT DAMAGE
      Starlings ______
      Robins ______
      Small song birds ______
      Crows ______
      Other (specify) ______
   b. COMMENTS

4. BIRD CONTROL TECHNIQUES
   a. NETTING
      Acres
      Propane cannons ______
      Electronic noise makers ______
      Bird distress and predator calls ______
      Orchard pistol ______
      Other (specify) ______
   b. NOISE
      Number
      Propane cannons ______
      Electronic noise makers ______
      Bird distress and predator calls ______
      Orchard pistol ______
      Other (specify) ______
   c. VISUAL
      Number
      Scarecrows ______
      Scare-eye balloons ______
      Streamers and flash tape (ft) ______
      Hawk kites and plastic owls ______
      Other (specify) ______

5. BIRD CONTROL OPERATION
   a. NETTING
      Estimated date of installation ____________
      Maintenance by __________________________
   b. NOISE DEVICES
      Estimated start date ____________
      Frequency of moving the devices, every _______ days
      Maintenance by __________________________
      Propane cannon firing frequency (single or tripe-fired)
      Low bird pressure fire 1-cycle per _______ minutes
      Medium bird pressure fire 1-cycle per _______ minutes
      High bird pressure fire 1-cycle per _______ minutes
   c. VISUAL DEVICES
      Estimated date of installation ____________
      Frequency of moving the devices, every _______ days
      Maintenance by __________________________
      Contact __________________________
      Telephone __________________________

6. FARM OR FIELD SIZE
   a. OBSERVATIONS ________________________
   b. TOTAL ACREAGE _______________________
   c. CHANGES FOR NEXT YEAR ________________________
Draw in the blocks of different varieties. Include trees, powerlines, buildings and other areas where birds perch. Locate the neighbouring houses. Mark the prevailing wind directions (sound travels). Mark the areas where bird control devices are to be located.

B = scare-eye balloon
C = cannon
D = bird distress or predator calls
E = electronic noisemaker
R = hawk, kites, silhouettes or stuffed owls

= house
= powerline
= property line
= trees