

BIRD CONTROL FOR WHATCOM Co. WASHINGTON BLUEBERRY CROPS

last edit: 7/14/08

A Sampling of Agricultural Bird Scarer Tactics

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INTRODUCTION

In a recent survey, some blueberry growers in the United States estimated that nearly 30% of their crop is lost to bird depredation. Across the country, 10% of the blueberry crop is probably lost -- at a cost of \$10 million.¹

Surveys in 2007 indicate consumer interest in berries continues to grow.² The need for alternative bird scaring tools other than noisemakers is increasing dramatically in Whatcom County, Washington, especially with the planting of many more blueberry acres.³ Across the Canadian border resistance to the existing government support of air cannons is growing rapidly – see www.banthe cannons.com. The problem is exacerbated when some growers misuse the cannons and blast away from dawn to dusk at 40-second intervals. The cannons produce up to 140 decibels bursts. 85 decibels is considered potentially hazardous. Sounds over 120 db are painful according to ASHA. Rural neighbors are becoming increasingly vocal about their opposition to the noise pollution created by these devices. The need for information and access to effective alternatives is escalating.

Creative Scarecrows is promoting use and research for quiet and effective bird deterrent tactics. A major current effort is the ongoing “noiseless” blueberry field test in a Whatcom field is being journaled at: <http://creativescarecrows.blogspot.com/>.

Whatcom County has issued new interim guidelines for cannon use, from June 1 through December 31, 2008, at <http://www.wcfarmfriends.com/go/doc/1579/203759/>. These guidelines are at the end of this booklet as Appendix A. Additional information is at the Washington Extension IPM manual: <http://whatcom.wsu.edu/ag/comhort/nooksack/ipmweb/blue/index.html>

The purpose of this booklet is to provide an introduction to some of the large variety of agricultural bird control techniques, and to promote discussion and progress toward solutions that do not include the noise pollution of air cannons and tweeters. Our rural farmlands are treasures to be protected and encouraged and I am sure that we can find non-noise-polluting and cost effective alternative methods for farmers to protect their blueberry crops. You can find more Creative Scarecrows materials www.creativescarecrows.org (<http://www.banthe cannons.com/creative-scarecrows.html>)

After the discussion of techniques and listing of noiseless techniques for bird control, we have included a short list of local vendors for these devices. There are many vendors in the States, and they can be found if you Google search on agricultural bird scarers or deterrents.

De-Bird or Not to De-Bird, That is the Question...

On many farms bird damage is minimal. Growers may choose to ignore the problem or consider small losses incurred as part of the costs of small fruit production. Other growers may have experienced substantial losses with large portions of the crop being consumed or damaged. If bird damage in your plantings has been minimal, you may only need to address bird management in years when damage is likely to increase significantly.

How do you decide how much bird management is warranted? A study done in New Zealand (Spurr and Coleman, 2005) suggests a simple pretreatment cost-benefit analysis of the bird control repellents being considered. Cost effectiveness was calculated based on the cost and effectiveness of each repellent, the value of the crop, and the loss to birds if the crop was not

¹ <http://www.fruit.cornell.edu/Berries/bbhtml/bbird.html>

² New York Berry News, Vol. 6, No. 6, p.5 www.nysaes.cornell.edu/pp/extension/tfabp/newslett/nybn68b.pdf

³ <http://www.capitalpress.info/main.asp?SectionID=67&SubSectionID=792&ArticleID=31868>

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protected (Table 1). Total cost was based on cost of raw materials + labor to make an application x the number of applications needed.

Here is a quick look at treatment costs and break evens:

Table 1. Maximum total cost per acre allowable for a bird repellent treatment to be cost-effective on a berry crop yielding \$10,000/acre¹. (Source: Spurr and Coleman, 2005 with some revision by the author⁴)

Loss to Birds	Effectiveness of treatment (i.e. reduction in loss to birds)			
	25%	50%	75%	100%
5%	<\$125	<250	<\$375	<\$500
10%	<\$250	<\$500	<\$750	<\$1,000
20%	<\$500	<\$1,000	<\$1,500	<\$2,000
30%	<\$750	<\$1,500	<\$2,250	<\$3,000

So, for example, if your berry crop is worth \$10,000/acre, the expected loss to birds without treatment is 20%, and the bird repellent under consideration is 50% effective, then the repellent should cost less than \$1,000/acre to be cost effective. The same sort of simple cost benefit analysis would also be applicable to other bird management techniques. In the case of netting or other durable equipment such as distress callers or cannons, however, the duration of the technique (i.e. life of the netting) would need to be factored in as well.

As a good management practice, growers need to use IPM scouting techniques and keep good detailed records from year to year on amounts of bird damage occurring, species of birds causing the damage, control tactics used, and their success (or lack thereof), along with environmental conditions of years when bird damage increased. While being actively vigilant in observation and scouting, growers must begin planning their integrated bird control strategy and tactics long before fruit begins to ripen and feeding habits of birds become established.⁵

THE BIRDS and THEIR BEHAVIOR

A British Columbia agriculture report identifies the European starling as its most destructive bird, however native robins, crows and various songbirds also eat their crops.⁶

Here is a list of crop-eating birds behaviors.

1. Large flocks of birds are easier to scare than small ones.
2. Starlings will fly 25 km from a roosting site to feed, flying at up to 70 km/hr in short bursts.
3. Bird damage patterns can vary considerably from year to year and from farm to farm.
4. Bird damage is usually localized and not uniformly distributed throughout an area.
5. Birds are opportunists, feeding on whatever is available.
6. It is difficult to break birds of the habit of feeding in a particular area once they are established.
7. Birds establish their home territory in late April and May and often remain in the area until the crop ripens.
8. Crops near roosting or nesting areas, woodlots or ponds are more vulnerable than those in the open.

4 New York Berry News, Vol. 6, No. 6, p. 9 www.nysaes.cornell.edu/pp/extension/tfabp/newslett/nybn68b.pdf

5 New York Berry News, Vol. 6, No. 6, p. 12 www.nysaes.cornell.edu/pp/extension/tfabp/newslett/nybn68b.pdf

6 British Columbia Ministry of Agriculture, Food and Fisheries, 2001 report .

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9. Birds acclimate quickly to uniform movements or noise patterns.
10. Different species of birds respond differently to various repellent methods.
11. Birds can be diverted to other nearby feeding areas.
12. Birds will endure significant hardship to feed.
13. Birds often follow the same flight patterns to feed.
14. Birds usually feed early in the morning around sunrise and late in the afternoon around sunset.
15. Birds like to drink water when they feed.
16. Some birds travel in migratory flocks, while others fly in from local woods.
17. Birds feeding on your crop will attract other birds, compounding the problem.
18. The sweeter and earlier the grape or cherry variety, the more attractive it is to the birds.
19. Even if crops are protected with netting, birds may perch on the nets and feed through them or find small holes.⁷

An Australian manual states different species react differently, and describes scared birds' behavior: A bird's first reaction to being scared is flight. This is often followed by a period of curiosity, during which the bird tries to gather information about the scaring stimulus. Each time it encounters the stimulus, it gains more information. Eventually, it accumulates enough information to know that unless the stimulus presents a real threat, it can be ignored — that is, the bird has become habituated to the stimulus.⁸

The Choice to De-Bird.....

TYPES OF BIRD MANAGEMENT

There are 4 types of bird repellents: visual, physical, biochemical, and sound. **Netting** is presented first, as it is the most effective bird control device of all. **Starling traps** are extremely effective preventive measures and discussed second. In the list of tactics below, preferred solutions (no or low noise, non-toxic) have a *. The hands down best technique, without needing extra devices, is netting.

If you do not use netting, the most important thing to remember is that a mixed approach is best. "When you use just one aspect, they fail individually. But when you put them together, they are much more effective," said Tom Waliser as manager of Pepper Bridge Vineyard.⁹ This concept is repeated in most of the references cited in this booklet.

NETTING

*******Nets** – Netting is by far the best technique to reduce bird damage in small fruit plantings. It is relatively expensive compared to other methods and probably the most labor intensive. However, it is also the most durable. Netting materials, with proper care, may last 3 to 10 years¹⁰ (some are advertised for up to 20 years). Overhead nets need to be removed for picker machines. Install and remove labor is estimated at 20 hours/acre.¹¹ Nets are sometimes used near residences/businesses to negate the need for any noisy bird controls, and other field devices

⁷<http://www.omafra.gov.on.ca/english/engineer/facts/98-035.htm>

⁸ <http://www.affashop.gov.au/product.asp?prodid=13796>, pg 39.

⁹ <http://www.banthe cannons.com/sidenets.html> from March 15 2001 Goodfruit magazine

¹⁰ New York Berry News, Vol. 6, No. 6, p. 13 www.nysaes.cornell.edu/pp/extension/tfabp/newslett/nybn68b.pdf

¹¹ www.banthe cannons.com from British Columbia Ministry of Agriculture figures taken from their 2002 Blueberry Industry Factsheet

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used further away from buildings.

Automatic netting comes on spools. An attachment that suspends the spool above the crop can speed installation up to 4-5 acres an hour.¹²

Side netting. Tom Waliser, manager of Pepper Bridge Vineyard, cuts his netting rolls into thirds and drives down the middle of the row with a tractor, installing netting vertically on the sides of vines. Workers walk on each side tying and clipping the netting to trellis wires and cross arms. The 4.5 feet wide netting protects the fruiting zone on each side of the vine he added. Birds can get up inside the netting, but have so little room that they spend all their time trying climb back out. For removal the tractor three-point lay-out device turns counter or backwards to roll the netting up after harvest. He's able to leave the netting in place during harvest because grapes are picked by hand at Pepper Bridge and the netting is easy to lift out of the way. However, netting would need to be removed for grapes mechanically harvested. The 2001 cost for 4-5 years of netting was \$200/acre.¹³

Biodegradable spray-on net is being developed. It was useful with insects, may be with birds, but is slow and may be expensive.¹⁴.

STARLING TRAPS

Starlings are a non-native species that flourish here. They displace native species and can severely damage crops. They are very mobile.¹⁵ They are far and away the number one pest of blueberry crops. Whatcom County has a USDA-affiliated starling trapping program. For approximately \$400 a season, the USDA will install a starling trap (at a suspect location) and bait it and clear it every couple days, and humanely dispose of these birds. The Whatcom County manager for these traps is Whatcom Farm Friends, P.O. Box 735, 1796 Front Street, Lynden, WA 98264 360-354-1337, [Whatcom farmers are asked to voluntarily contribute to this successful program annually. Decreasing the population of the birds is a much better solution than just chasing them around. "Darryl Ehlers, a berry grower recently commented, 'This program has been so effective for my farm that I have temporarily discontinued the use of propane cannons, however I do hold the cannons as a back up if the trapping doesn't continue. The cost of propane, labor for turning guns on and off, on-going maintenance of guns, all argue for more solutions than just propane cannons. Contributing to the Starling Program has been a good investment for my operation'.¹⁶](mailto:farmfriends>wcfarmfriends.com</p></div><div data-bbox=)

VISUAL REPELLENTS

Of visual scarers, motion is important to prolong their effectiveness, either using wind or a motor.¹⁷ The most effective qualities are: -appear lifelike, -have motion, -are highly visible, -are moved frequently to new locations, -supported by additional control methods, -are started before birds form the habit of feeding at the site.¹⁸

******Helikites** have been successfully used by one Whatcom farmer. The helikite is a combination predator kite/helium balloon that soars and swoops from zero to 200 feet protecting acres in up to 20 mph winds. Wet weather can bring the deterrent down, but when favorable

12 <http://www.wildlife-control.com/newproducts.html>

13 www.banthe cannons.com/sidenets.html from March 15 2001 Goodfruit magazine

14 <http://www.fruit.cornell.edu/Berries/bbhtml/bbbird.html>

15 <http://www.affashop.gov.au/product.asp?prodid=13796>, p40

16 Whatcom Farm Friends Newsletter, Farm Flash, Feb 2008 Starling Control Article

17 <http://www.affashop.gov.au/product.asp?prodid=13796>, p42

18 <http://www.affashop.gov.au/product.asp?prodid=13796>, p42

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conditions return it will re-launch itself, but a local farmer simply brought the kites in each evening. Each predator balloon generally lasts about 1 month. Helium is required for inflation. Kits have multiple kites/balloons. The British distributor www.helikites.com has some wonderful research results and testimonials posted for these devices.

******Jackites** are successful. They look like various large birds of prey, made of tough material with fiberglass struts. Their wings move, and they soar in a breeze. They can fly like a kite or be suspended like a windsock. The Lynden farm experiments found success by attaching the jackite with a short line on a swivel to a long bamboo pole. The bamboo pole was moved around the field every other day to prevent habituation. Used in conjunction with live falcons (see "falconers" below) jackites are even more threatening to birds. **You can see one in operation at <http://www.youtube.com/watch?v=0voXUdrK-nY> (which uses the "vigilante" helikite). The jackites generally last for the full season, needing several helium topping offs during the period. Our phone calls to growers found an Oregon farm that was using them successfully also.**

Predatory bird kites (jackites) suspended from helium filled balloons are effective.¹⁹ They were used 30-60 meters above the ground and one per hectare (2.5 acres).

Scarecrows - A scarecrow is a device (traditionally a mannequin) that is used to discourage birds such as crows from disturbing crops. Modern scarecrows seldom take a human shape but human shapes are effective scarers.²⁰ Humans themselves--clapping, yelling, banging tins, and making disturbances while in motion—work well. Popup scarecrows are effective.²¹

Balloons Beach ball size scare-eye balloons have graphics representing the gaping mouth of a hawk and have been effective world wide. The yellow ones seemed more effective. They are tethered on a string and bounce in the air, and can be hung from tall t-poles in the field. Good with blackbirds, somewhat with sparrows and finches, not good with robins.²²

Owl or hawk models - The owl mounts on a bearing on top of a post, allowing the owl to swivel in the slightest breeze. In addition, the owl emits a loud shriek at intervals, powered by a solar cell. One farmer reported it was very effective.²³ One farmer created an **animated owl model holding a crow model** mounted on a moving weathervane. It had moving wings, and there are also battery operated motors. This reduced crop damage by 81% compared to an unprotected plot in an Australian experiment.²⁴

Field windmill. "ScareWyndmill" has blades painted with uv light reflecting paint. It's thought the painted spinning blades look like the flapping of wings of a flock of birds taking off in fright. The 36" diameter blades repel birds in up to a one acre area. Approximate cost for these is \$79 each-JWB Marketing. They have been found effective on small birds, and tested in blueberry plantings.²⁵

The Eagle Eye™ bird scarer disorients and irritates birds by **reflected light beams that flash at various angles from a rotating unit.** <http://www.eagleeye.co.za/index.php> This item may be tested locally in the future.

Flashing lights at dawn/dusk, and **mirrors flashing** disturb birds. **Hanging cds on string**²⁶ is effective - they will flash in a breeze and move, providing an inexpensive addition to a

19 <http://www.affashop.gov.au/product.asp?prodid=13796>, p41

20 <http://www.affashop.gov.au/product.asp?prodid=13796>, p43

21 <http://www.affashop.gov.au/product.asp?prodid=13796>, p42

22 <http://www.omafra.gov.on.ca/english/engineer/facts/98-035.htm>

23 <http://www.fruit.cornell.edu/Berries/bbhtml/bbbird.html>

24 <http://www.affashop.gov.au/product.asp?prodid=13796>, p42

25 New York Berry News, Vol. 6, No. 6, p. 15 www.nysaes.cornell.edu/pp/extension/tfabp/newslett/nybn68b.pdf

26 <http://www.affashop.gov.au/product.asp?prodid=13796>, p42

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bird control arsenal.

Man-made dead bird decoys – Mockups of dead birds should be in unnatural positions, for example, with a bent neck. The effectiveness of this and **snake models** is questionable.²⁷

Reflective ribbons – usually from mylar, also produce a humming noise that scares birds.²⁸ One report states that this is ineffective with starlings.²⁹

Flags – often from mylar with scare eyes and streamers.

“Firefly” bird diverter – a flat acrylic rectangle suspended on wires over crops, incorporates motion, reflectivity, and light emissions to alert the birds to an upcoming obstruction.³⁰

Laser guns – Some birds may be resistant and the handheld equipment requires training. Best in low light conditions. The very bright burst of laser light startles birds, and the laser can be tuned to specific settings to annoy particular birds.³¹

Lasers – An infrared field laser for fields on a tall tripod has been developed. Birds are very sensitive to infrared light but humans can't see it.³²

Miscellaneous visual scarers include **plastic shopping bags, spinning metal strips, plastic bird silhouettes.**³³

PHYSICAL REPELLANTS

*******Nets** – See first control item listed in this booklet. Netting continues to be the most complete and effective way to reduce bird damage in small fruit plantings.

****Dogs (and cats)** – small dog breeds work best so they don't knock the berries off. If there are persistent birds, then the dog must remain present. Growers with dogs have seen obvious results from the dogs chasing the birds. And the dogs have fun, too!

******Kestrels**³⁴ – **falcons, and owls.** These native birds can nest in boxes on your property if installed and maintained properly, and also eat insects and rodents.³⁵ This is also true with barn owls.

******Hawks** – like tall trees. They need to live on or near the property for effectiveness. Once a hawk starts circling a field, problem birds leave the area very quickly. One Whatcom county berry grower has a resident pair of hawks and has no bird problems.

Falconers - There are companies³⁶ who will visit your property and bring trained hawks or falcons with them to attack your bird situation. When hawk silhouettes or helikites that simulate hawks in flight are flown at the same time, the problem birds will stay away for a good while thinking that the silhouettes are the real thing.

Model airplanes -- This method has been shown to be very effective and birds habituate more slowly to a treatment in which they are being actively hazed.³⁷ And it is fun!

27 <http://www.affashop.gov.au/product.asp?prodid=13796>, p42

28 http://www.birdbusters.com/scare_bird_tape.html

29 <http://www.affashop.gov.au/product.asp?prodid=13796>, p43

30 http://www.birdbusters.com/agricultural_bird_control_product.htm

31 http://en.wikipedia.org/wiki/Bird_scarer

32 <http://carpediemtechnologies.com/details.htm> (from www.banthe cannons.com)

33 <http://www.affashop.gov.au/product.asp?prodid=13796>, p41

34 <http://www.orchardguard.com/>

35 brochure, Ben Dover, Orchard Guard, 1714 s. 69th Ave, Yakima WA 98908, 509-972-3415 bsdover@msn.com

36 <http://www.tacticalavianpredators.com/> is a California falconry service with information on their website.

37 <http://humhumhum.wordpress.com/2008/01/22/interesting-facts-scare-crow-trivia-questions/>

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BIOCHEMICAL DETERRENTS

For the sprays mentioned below, rather than spray the entire field, try spraying alternating row sections which will cost 50% less.

Non-toxic spray made from Concord grapes with foul fowl taste, is FruitShield, made made from bitter, smelly part of concord grapes (active ingredient methyl anthranilate), which renders fruit and foliage unpalatable to starlings, robins, and crows. It is a biodegradable non-toxic repellent registered for agriculture. Dilute 99:1, spray full-orchard application directly on dry fruit and foliage to runoff. Reapply weekly until one week before harvest.³⁸ Biodegradable.

Methyl anthranilate sprays- this is the repellent component found in concord grape waste, but the chemical is manufactured and widely used by food manufacturers with FDA approval. Biodegradable. Now registered for use in blueberry plantings (Bird-Shield and Rejex-It). This seems to be effective for about 3 days in one study.³⁹ Rejex-it Migrate for Agriculture is a new formulation that is giving better results than its former label as Crop Shield.⁴⁰

Sugar - Applications of sugar syrup have been shown to repel starlings and robins from blueberry plantings. It may work because many bird species cannot digest disaccharides. Birds damage is 50% less where sugar is applied but yellow jackets increased some. 2007 cost was \$40-50/acre, sprayed four times.⁴¹

Fogging is a fine aerosol mist that irritates birds' eyes and mucous membranes without harming them, and has an unpleasant taste when attempting to preen their feathers. Fog early in the morning or late in the evening when the population counts are high. Typically, four to six applications are sufficient to repel established flocks for the season.⁴²

Sprayable biodegradable netting was useful with insects, may be with birds, but is slow and may be expensive.⁴³

SOUND SCARING DEVICES

Bear in mind that rural neighbors and their homes do not have wings and will be present and suffering during any prolonged noisemaking. Many neighbors silently suffer and do not complain because they do want neighboring farms to prosper, but the whole purpose of this booklet is to show that noisemakers are only one option, with a very short term effectiveness. Summers can be enjoyed by rural neighbors enjoying their yards, barbecues, the weather, and open windows, and by farmers harvesting abundant crops, if some alternatives to noise devices are used to protect crops.

These devices generally work for a few days, perhaps before the harvest: **horns, clanging aluminum pie plates, shiny flashing metal objects, firecrackers** and **Mylar humming lines**. They could be effective deterrents used by a person in the field.

There is conflicting information about whether birds can hear **ultrasonic sound**, plus, some people get headaches from it and other animals can hear it. Plus, all species eventually habituate to nearly all sounds in one series of tests.⁴⁴

We do not promote *propane air cannons* or *tweeters* here because they are often very disturbing and disruptive to residents near farms. They should be used only as a last resort. Both

38 <http://www.biconet.com/birds/fruitShield.html>

39 <http://www.fruit.cornell.edu/Berries/bbhtml/bbbird.html>

40 <http://www.rejexit.com/ag.html>

41 <http://www.fruit.cornell.edu/Berries/bbhtml/bbbird.html>

42 http://www.birdbusters.com/migrate_taste_deterrent.html

43 <http://www.fruit.cornell.edu/Berries/bbhtml/bbbird.html>

44 <http://www.affashop.gov.au/product.asp?prodid=13796>, p47

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are controversial – about their effectiveness and their detrimental noise pollution effect on rural neighbors. Plus, several studies cite the behavior of birds learning to associate the sound of cannons with sweet, ripe grapes and berries.⁴⁵

Tweeters, or bird distress calls- New York studies have shown distress call devices to be effective for 7-10 days. Using a model bird increased results.⁴⁶

Air cannons guidelines – a United Kingdom Farmers Union policy⁴⁷ states

- **“Do not fire them more than four times in any hour** (remember to consider situations where several guns protect a single field). Birds can take much more than 15 minutes to regroup. If the intervals are too short, the birds will quickly get used to the scarer. All the reports from a multiple discharge gun should count as one report if heard within 30 seconds.
- Liaise with neighbouring farmers to ensure that, between you, you do not cause a nuisance.”
- When they are in use, the disturbance of scarers on nearby hospitals, homes or schools should be minimised. For example, place the scarers as far away as practicable, align them to point away from neighbours, and use baffles.
- Avoid using auditory scarers within at least 200 metres (220 yards) of sensitive buildings before 7.00am, or before 6.00am elsewhere, when sunrise is earlier. Use another method in the early morning and do not use after 10.00pm when sunset is later. [This is the UK.]
- Take account of the prevailing wind when siting scarers. Remember that noise travels much further downwind.
- Where mechanical timers are used, ensure that they are regularly re-set to take account of continuous changes in sunrise and sunset times.
- Where a photoelectric cell controls the guns' operation, ensure that this is kept clean and free from obstruction. Preferably, ensure that a mechanical timer backs up a photoelectric switch.
- Use reflective or absorbent baffles (of say corrugated iron or straw bales) to concentrate the sound on to your field and away from neighbours wherever nuisance could be caused. These can be very effective in reducing noise levels in the required direction.
- Try not to use auditory scarers on Sundays. Try another type of scarer instead.
- Ensure that your neighbours have the name of a responsible person to contact if the control on a scarer fails. Also display the name and telephone number at the nearest point of public access or inform the local Environmental Health Department where the scarer is located and give them contact details of the person responsible.
- Ensure that scarers are properly maintained and checked regularly to detect any malfunctions that could cause complaints.⁴⁸

If You Can't Beat 'Em, Feed 'Em

As a last resort, after a feeding pattern has already been established and other methods have failed, consider placing feeders filled with sunflower, millet, nectar, and peanuts away from plantings to distract birds from fruit. A good secondary effect is that predatory birds like sharp-shinned hawks will frequent feeders for easy prey, which makes the prey fly away.

45 <http://www.encyclopedia.com/doc/1G1-15400935.html>; <http://www.affashop.gov.au/product.asp?prodid=13796>, p39

46 New York Berry News, Vol. 6, No. 6, p. 14 www.nysaes.cornell.edu/pp/extension/tfabp/newslett/nybn68b.pdf

47 <http://www.nfuonline.com/x5317.xml>

48 <http://www.nfuonline.com/x5317.xml>

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Planting border rows with smaller berried plants outside the main planting can be an alternative food source to the larger berried varieties inside the planting.⁴⁹

The NEED FOR CONTROLLED STUDIES

Reports contradict each other about many techniques. One local source acknowledges that there is not a successful "plan" for bird management in this area.⁵⁰ However, an area farmer and his industrious neighbor succeeded in almost 100% success using helikites and jackites in a Lynden blueberry field last year and it may be that the biggest need is for information and education on the best use of the many existing tools for bird control. There is a very strong need for controlled research in Whatcom County, Washington, to determine region-specific practical bird control solutions that avoid or minimize using propane air cannons and tweeters. An idea suggested at one local meeting was having some studies of techniques and devices coordinated with the local colleges and perhaps young farmers groups. Currently, a committee is being formed to plan a path toward finding good solutions.

Information from BC's Ban the Cannons Group

Here is a brief summary with elinks of some quiet and economical bird scarers from www.banthe cannons.com in British Columbia.

The Good:

- **NEW! The Eagle** is the latest silent bird scare device our group has found on the internet. This device is a model of a bird, or eagle, that soars on a tethered line and patrols fields up to 2.5 acres. For more details, please visit our [Eagle page](#).
- **Helikites** and **jackites** have been successful locally (from Creative Scarecrows).
- **NEW! Inflatables**, recently a UK group sent us an e-mail describing their new bird scare device designed initially for airports, by people in the aviation industry. The device can also be used in other applications, including agriculture, and is currently in the testing phase. For more details, please see our [Inflatables page](#).
- **Nets**, our number one recommendation for bird control. Nets that totally enclose a blueberry crop are environmentally friendly, and virtually 100% effective in protecting a crop from birds.
- **Side Netting**, a variation of total canopy netting described above. This approach has been used by an Oregon grape grower with great success and is described in more detail on our [side netting page](#).
- **Automated Netting Systems**, are now available that greatly reduce the number of man hours required to cover crops with nets, making netting a much more viable option for berry and grape farmers. For more information, see our [automated netting page](#).
- **The Silent Sentinel**, recently the Right to Quiet Society of Vancouver found an article in a local paper about a new device designed to deter birds. The device is a series of flags strung over rows of berries that rotate and flap to scare birds. For more details, please see our [Silent Sentinel page](#).
- **Lasers**, a Cloverdale berry farmer has invented a laser unit that is effective in scaring birds from his fields. Lasers are totally silent and work better than cannons according to the inventor. The details can be found on our [laser page](#).
- **Scare Windmills**, [reflective windmills](#), powered by the wind. The reflective blade surfaces flash UV light that scares birds, silently.
- **Streamers** and [reflective tapes](#), quiet and environmentally friendly.
- **Overhead Scare Eye Balloons** and heli-kites, that simulate hawks in flight, or large owl eyes.
- **Mylar vibrating line**, a thin line that flashes and also vibrates and hums to scare birds.
- **Metal and mirrored flashers**, such as hanging pie plates, mirrors, etc.
- **High frequency noise devices**, products that put out a high frequency noise that humans can't hear, but birds can

49 New York Berry News, Vol. 6, No. 6, p. 15

50 <http://www.ipmcenters.org/pmsp/pdf/ORWABlueberry.pdf> pp. 45-46

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hear and are frightened by.

- **Hawk & Owl silhouettes**, similar to balloons and kites.
- **Natural Predators**, one of our members recently pointed out that hawks and owls are natural predators of starlings, and these birds should be encouraged to nest in the vicinity of berry fields. I did a little more research into this alternative, and more details can be found on our [Natural Predators](#) page.
- **Canine Patrols** used successfully by golf courses to discourage birds and waterfowl. Also used at airports to deter birds for safety reasons.
- **Professional Trapping**, recently one of our members came across a solution used by Washington State berry growers to reduce fruit damage caused by European Starlings. Their approach is described in more detail on our [Pro-Trapping page](#).
- **Bird Traps**, to catch and dispatch the European Starling.
- **ScareCrows**

Key Sites with Bird Control Information

- www.banthe cannons.com A British Columbia group. This site is loaded with information.
- New York Berry News, Vol. 6, No. 6, pp.9-16 "Bye Bye Birdie..." has a solid bit of info on bird control—found at www.nysaes.cornell.edu/pp/extension/tfabp/newslett/nybn68b.pdf
- This Australian report is 278 pages, but pages 57-70 include bird control information details of what is cited here <http://www.affashop.gov.au/product.asp?prodid=13796>
- The UK Farmers Union has a brochure and policy and air cannon usage <http://www.nfuonline.com/x5317.xml>

Where to Buy Bird Control Tools - Vendors⁵¹

There are many sources who sell bird control devices, some are footnoted in this booklet, and key-word searches on the internet will bring up many pages of links.

To encourage noiseless use of bird deterrents one of our members has gotten a license to distribute **JackKites**. He can also tell you an effective way to use them. Briefly, start using the kits before the birds target the berries and vary the kites: high, low, absent, combined with other deterrents, move them around the field, vary how many are up.

Peregrine JackKites for sale at \$26 each, plus tax.

Bamboo poles 18-20' for sale at \$8 each, plus tax.

Contact Jeff Littlejohn at CreativeScarecrows@gmail.com.

Helikites

www.helikites.com/bird

<http://www.biconet.com/birds/helikite.html>

<http://www.birdcontrol.net/html/Helikites.htm>

Jackite

<http://www.biconet.com/birds/jackite.html>

<http://scarecrow.jackite.com/index.php>

<http://www.jackite.com>

<http://www.birdcontrol.net/html/Hawkkite.htm>

Scare windmill

<http://www.scarewindmill.com/>

Biodegradable bird repellent spray

Rejex-it Migrate for Agriculture <http://www.rejexit.com/ag.html>

⁵¹ Part of this list is from Good Fruit Grower Magazine, January 15th, 2008, Vol. 59 No. 2. www.goodfruit.com. Good Fruit Grower, 105 South 18th Street, Suite 217, Yakima, Washington 98901, phone: (509) 575-2315; (800) 487-9946; fax: (509) 454-4186.

Creative Scarecrows is a Whatcom County group formed in 2007 to find quiet, practical, and effective solutions to reduce bird predation of blueberries to benefit berry farmers and their neighbors. We do this through public meetings, addressing legislation, and outreach to the rural community. Contact us at creativescarecrows@gmail.com

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Falcons - Tactical Avian Predators

interested in working with Whatcom blueberry growers using falcons to control pest bird populations. Currently working in the vineyards for Huntington Wine in Napa valley.

www.tacticalavianpredators.com

Kestrels - ORCHARD GUARD

1714 South 69th Avenue

Yakima, WA 98908

(509) 972-3415

E-mail: bsdover@msn.com

Web site: www.orchardguard.com

Ben Dover

American Kestrel Hawks need a home and will drive away damage-causing birds.

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746 Vertin Avenue

Salinas, CA 93901

(831) 442-9693, (866) 280-6229

FAX (800) 482-4240

E-mail: info@suttonag.com

Web site: www.suttonag.com

For more than 50 years, Sutton Ag has lead the pest bird control industry with a variety of sonic, visual, and physical deterrents.

WILSON ORCHARD & VINEYARD SUPPLY

1104 East Mead Avenue

Yakima, WA 98903

(509) 453-9983, (800) 232-1174

FAX (509) 453-1258

E-mail: roger@wilsonirr.com

Web site: www.wilsonirr.com

Wilson, the complete fruit equipment supplier. See our Web site www.wilsonirr.com, shop on line. Call toll free (800) 232-1174.

--booklet compiled by Mary Starz for Creative Scarecrows

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APPENDIX A from <http://www.wcfarmfriends.com/go/doc/1579/203759/>

FINAL DRAFT

Good Management Practices – Interim Guidelines for the Use of Propane Air Cannons and Other Bird Scare Auditory Devices

Dated June 1, 2008, Whatcom County, WA

The following Interim Guidelines, effective June 1, 2008 through December, 31, 2008, currently define “Good Management Practices” protected under the Whatcom County Right to Farm Ordinance (Chapter 14.02 WCC). These “Guidelines” are an effort to establish an acceptable program between all parties affected by current agricultural operations with regard to the use of propane air cannons and other loud auditory bird scare devices further referred to as **LAD’s**. These guidelines apply when there are residences or businesses within a quarter mile of the crop field.

The purpose of these guidelines is to help small fruit growers deploy effective crop protection tactics and equipment by reducing bird predation while providing neighboring homes and businesses with reasonable levels of peace and quiet.

It is recommended that on a regular basis, growers, nearby residents, or businesses, establish lines of communication and continue to correspond with each other in an attempt to remain aware of the grower’s plans to implement crop protection strategies.

Guidelines

1. No-noise or low-noise bird deterrents are preferred and thus recommended “first resort” practices. These include devices such as JackKites, Helikites, falconry services, trapping, kestrel boxes, netting, and other visual and sensory deterrents.
2. LAD’s should not be used when birds are not present and threatening predation of fruit. Careful consideration of controlling pests without becoming one should be taken into account with the use of any type of auditory control measures.
3. Birds quickly become habituated to LADs when they are used incorrectly. To be most effective, LADs should be used in conjunction with a wide range of scaring tactics and regularly altered by:
 - a. Changing positioning or direction of LAD

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- b. Altering times, pitch, or magnitude of sound
 - c. Regular monitoring of bird activity to ensure effectiveness of LADs
 - d. Including some threat of physical harm to birds to accompany LADs
4. LAD's are to be used only during daylight hours corresponding with avian feed cycles.
 5. LAD's are to be used on the lowest practical decibel setting.
 6. When possible, LADs should be positioned with the cannon barrel, or speaker box pointed away from residences or businesses.
 7. When possible, use of hay bales or other sound buffering devices are recommended in order to mitigate noise impacts to residences or businesses.
 8. If intervals between firing are too short, birds will quickly become used to the scarer. LADs should be fired a minimum number of times per hour (suggested no more than a maximum of once every 15 minutes if a single blast cannon; once every 20 minutes if the source is a multi-blast cannon).

More information on bird deterrent tactics can be found in the [WSU/Whatcom County Extension Integrated Pest Management for Blueberries Manual](#). The WSU Extension Office can be reached at 676-6736. A copy of the guidelines is available at:

<http://whatcom.wsu.edu/ag/comhort/nooksack/ipmweb/blue/index.html>

7/14/08 Note from Creative Scarecrows: Please email us at creativescarecrows@gmail.com to help us build a county voice and find quieter solutions for our farmers. More information and suggestions for action to help create positive solutions will be posted very soon at www.creativescarecrows.org (<http://www.banthe cannons.com/creative-scarecrows.html>)