

Blueberry Spraying: A Chemical Horror Story

Lowbush blueberry spraying is a major and growing problem for people living in areas where blueberries are being produced. Five eastern Canadian provinces produce lowbush blueberries. In Nova Scotia, a 1988 Situation Report estimated there were about 26,000 acres in production and over 1,000 growers. The Report notes that there has been an "overall steady increase in production over the past thirty years". The quantities of wild blueberries grown in 1987 in North America were, in millions of pounds: Maine 34.0, Quebec 24.0, Nova Scotia 13.5, New Brunswick 7.0, Newfoundland 5.7 and Prince Edward Island 1.0. (Source: Wild Blueberry Bulletin, April 1988) Within Nova Scotia, Cumberland County produces about 75% the present production. However, Central, Western and Eastern Nova Scotia and Cape Breton, all have commercial operations.

Blueberry spraying is considered an agricultural activity and is essentially unregulated. The only requirement is that aircraft used for pesticide spraying must have a permit granted under the 1986 Pest Control Products (Nova Scotia) Act. All other agricultural pesticide applications are exempt from this Act. This means that – for consideration of the impact of differing soil types upon pesticides, wind speeds, stream buffer zones, whether workers who spray or work on recently sprayed fields should wear protective equipment etc. – we are forced to rely on the unsupervised "good sense" of the sprayers. Yet people who use blueberry sprays often know nothing about the real dangers of the chemicals they are using, relying for their information on company pesticide labels and chemical promotional information from the provincial Department of Agriculture.

Pesticide Residues

With all the different chemicals being used (see information on page three of this leaflet), there will always be some pesticide residues on the blueberries. (Note column "days from last spray to harvest".) Some pesticide residues are "legally" allowed. Captan, a fungicide, can be sprayed up to 2 days before harvest. Yet this chemical is banned in some countries e.g. Sweden, and has been linked to cancers, birth defects and abortions. It should be noted that for the recommended insecticides and fungicides for blueberry spraying, all but two are applied in the year the fruit is picked. Pesticide residues on commercially grown blueberries are becoming an increasing concern for consumers. Pesticide residues will also impact on the pickers in the blueberry fields and on wildlife which consume blueberries or blueberry plants.

The following pesticides which are promoted for use in lowbush blueberry spraying, are listed as known to be toxic to fish, birds and honey bees:

Fish: permethrin;

Birds: dimethoate, azinphos-methyl, methidathion;

Bees: dimethoate, trichlorfon, azinphos-methyl, phosmet, methidathion, dicamba.

From Pesticides Safety Handbook (1986), Ontario Ministry of the Environment, pp. 22-24.

Groundwater Contamination

If you don't look for problems you are not going to find them, and there is very little monitoring of pesticides in groundwater in Nova Scotia. Despite this, the types of chemicals used in blueberry spraying are turning up in wells and groundwater. A report out of Parrsboro, Cumberland County, noted three wells contained "high levels of the herbicide Velpar" and that the wells were "close to several acres of blueberry land" (Chronicle Herald, March 12, 1988). In general, triazine herbicides (atrazine, simazine and Velpar), have been found in the Maritime provinces, as well as in the United States and in Europe.

2,4-D, mixed with fuel or diesel oil, is used against hardwoods. Many studies have linked this herbicide to various health problems. A study of farmers using 2,4-D, published in the Journal of the American Medical Association, September 5, 1986 (*Agricultural Herbicide Use and Risk of Lymphoma and Soft-Tissue Sarcoma*), showed conclusively the link of this chemical to non-Hodgkin's Lymphoma, a specific type of cancer. The large amount of oil used with 2,4-D is also a source of groundwater contamination. The sloping, gravelly character of many blueberry fields increases the possibility of run-off and contaminated groundwater.

Pesticides and Wildlife

Of particular concern with blueberry spraying are the organophosphate insecticides, with the "common names" dimethoate, trichlorfon, azinphos-methyl, phosmet, and methidathion. The history of organophosphate chemicals started as nerve gases in the First World War. These chemicals attack the nervous system. As a category, these chemicals are very toxic to fish, bees, and mammals (including humans), not just the target insects, e.g. blueberry maggot. Bees are important for pollination of blueberry plants. Commentators have noted the decline in pollinating insects: "There appears to be an increasing scarcity of native pollinating insects on some good blueberry land". (Lowbush Blueberry Protection Guide, 1986)

Some blueberry growers have been quoted in newspapers as calling for the killing of deer, bears, and birds, which are seen as encroaching on blueberry fields. Kills of deer are common knowledge. Yet it is human activity which increasingly threatens wildlife habitat. If we want wildlife to be part of the natural world, then it is we who must adjust to the presence of wild animals, not the animals to us.

Burning

Blueberry growers routinely burn their fields, on a two-year basis. Burning is a method of pruning the plants. The other method of pruning is close mowing of the plants. The provincial Department of Agriculture, in its literature, favours burning. Burning is done to encourage more vigorous sprouting of blueberry plants, to kill weeds and insects which are considered harmful, and to remove diseased plants. However, all burning removes some organic matter from fields. The deeper the burn, the more organic matter is destroyed. The removal of plant cover can also lead to soil erosion. When burning of blueberry fields is carried out in the fall – a fairly common practice – there is no frost in the ground, thus eliminating more organic matter. As organic matter is depleted, nitrogen fertilizers are used "to help build up the nitrogen supply lost through 'hard' burning". (*Pruning Lowbush Blueberries*, Fact Sheet, June 1987) The use of fertilizers is increasing.

Nitrogen fertilizers can lead to the nitrate contamination of wells and groundwater. This has already occurred in some areas of Kings County, where nitrogen fertilizers are used in farming operations. Nitrates are known to cause shortness of breath because they reduce the ability of red blood cells to carry oxygen. Young children and infants are known to be especially vulnerable. Nitrates are also implicated in cancer formation.

Burning can lead to "run out" fields, which give poor yields of blueberries. It also kills "non-target" insects and small animals which use the fields for habitat. Toxic contaminants are released into the air. In the long term, burning fields is obviously not ecologically sustainable.

WHAT CAN BE DONE?

1. People living close to commercial blueberry fields should organize their communities to

eliminate the use of pesticides on the fields. Basically, people should have the right to give an informed consent or informed rejection to commercial blueberry spraying. No blueberry grower should be allowed to spray any pesticide without written permission from all the people living within one kilometre of the field.

2. Lobby for the concept of moving to an organic, non-pesticide agriculture. While this may entail a lower production level, people's health, the environment, and wildlife would benefit.
3. Publicize the information in this leaflet to people and/or organizations that would be concerned.
4. BOYCOTT PESTICIDE-SPRAYED BLUEBERRIES. Let store owners/restaurants know that you want organically grown berries.

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This leaflet was produced by the Green Web, an independent research group serving the needs of the green movement. Your comments/criticisms/financial support and help to disseminate this information will be appreciated and are crucial. Requests for other environmental information, topics for the Green Web to investigate, offers to help in research etc., should be sent to Helga Hoffmann or David Orton, R.R#3, Saltsprings, Pictou County, Nova Scotia, Canada, BOK 1PO. Please make contributions payable to the Green Web. (Permission to reproduce this information is gladly given; acknowledgement to the Green Web would be nice.)

Addendum: Chemicals Used In Lowbush Blueberry Production

The following pesticides are used on a routine basis in commercial lowbush blueberry production in the Atlantic Provinces. All chemicals listed are taken from literature distributed to blueberry growers.

Recommended Insecticides and Fungicides (Lowbush Blueberry Protection Guide, 1986)

TRADE NAME(S)	COMMON NAME	DAYS FROM LAST SPRAY TO HARVEST
Ambush, Pounce	permethrin	Vegetative year
Captan, Orthocide	captan	2
Cygon, System, Dimethoate	dimethoate	15
Dylox	trichlorfon	30
Easout	thiophanate-methyl	60
Ferbam	ferbam	40
Funginex	triforine	60
Guthion, APM	azinphos-methyl	14
Imidan	phosmet	15
Supracide	methidathion	Vegetative year

Recommended Herbicides

<i>Herbicide</i>	<i>Trade name and Formulation</i>	<i>Recommended use</i>	<i>Effect on blueberries if sprayed directly</i>
Asulum	Asulox F 400 g/L	Applied in mid summer for control of bracken fern	None
Atrazine	Aatrex 500 g/L	Applied in spring, after the burn, for control of many herbaceous weeds	Some injury
2,4-D	Various products (i) amines and estamines (ii) esters	(i) Water-soluble. Applied as a spray or wiping treatment for control of woody species (ii) Oil soluble. Use as a basal bark or stump treatment and applied in a fuel oil.	Killed
Dicamba	Banvel L.H. 400g/L	Water-soluble. Applied in combination with 2,4-D as a spray or wiping treatment for control of woody weeds	Killed
Glyphosate	Roundup 360g/L	Handwiping of certain weed species	Killed
Hexazinone	Velpar 90% SP Velpar 250 g/L	Applied in spring, after the burn, for control of many herbaceous and woody weeds	Moderate injury
Terbacil	Sinbar 80% WP	Effective against most grasses and hay-scented fern	Injury

(Lowbush Blueberry Weed Control Guide, Atlantic Canada, no date)

Use of Oil in Blueberry Spraying

Oil mixtures for “All types of hardwood bushes - For basal or stump treatment with gun and hose equipment”, for non-crop fields.

Low Oil Mixture

Add 225 L of water to tank.

Add 4.50 L of suitable adjuvant, such as Triton XR, SuperSpred, or Agral-90

Add 7.25 L of 2,4-D Amine 500 plus 4.5 L of Banvel.

Add 70 L of oil (diesel or furnace).

With constant agitation, fill the tank with water to the 450 L mark.

High Oil Mixture

1.5 L of 2,4-D ester L.V. 700 in 45 litres of fuel oil.

(Lowbush Blueberry Newsletter, June 6, 1988)

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