

BC *Organic Grower*

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*British
Columbia
Certified
Organic*



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COABC 3402 32nd Ave. Vernon BC V1T 2N1

President's Message

by Deb Foote

I am pleased to announce that as of June 1st 2005, Kirsten Kane has been appointed Executive Director of COABC. Congratulations Kirsten - the title is well deserved!

It is hard to believe that summer is almost over. The harvest season is all but upon us. I have been enjoying the bounty of your harvests as I wander through various Farmers Markets in Lower Mainland and other communities while on my travels through the Province. I have enjoyed meeting many new faces along the way, as well as reconnecting with folks I have known for many years. It is very encouraging to know that the Organic Community is blessed with so many committed and creative individuals. You truly are pioneers.

One issue that a number of people I met brought to my attention was the use of the term Organic at some Farmers' Markets, the problem being that some people were using the term without having any Certification to support their claim. Some Farmers' Markets stipulate that only Certified Organic growers are allowed to advertise their products as such and that they must display their Certificate on site as proof of status. Those of you who operate at Markets who do not have this as a guideline may want to petition the Market Board over the winter to set new guidelines before the spring of 2006. It is appropriate to point out that a National Standards for Organic is just around the corner, and in all likelihood there will be requirement that use of the term Organic when associated with a food product will only be allowed if the Grower and/or Processor is third

party Certified. This may encourage the board to take action over the winter.

Another issue that we have been dealing with this summer is the issue of West Nile Virus and the concern that the Ministry of Health Services has legislation in place that would allow them to use Malathion as a control for West Nile in the event of a threat to human health. We were approached by the Ministry of Agriculture and Lands asking for COABC to recommend buffer zones for Organic Farms in the event that the Ministry of Health saw need to spray. Our most radical position was that the whole Province should be our buffer zone - but we soon realized not only was this unreasonable, it was also unrealistic. While we do not support the use of Malathion in any way - given the fact that it is toxic to beneficials as well as pests, not to mention the human health issues - it was extremely challenging for those of us involved in the conversation not to focus on these issues.

Needless to say this was a very hot topic for the Board and the SRC. There were many emails circulated, and a sub committee was formed to research the issues and to discuss the matter further with our liaisons at MAL. At the end of the day we agreed that it was not the role of COABC to establish buffer zones that would be suitable for all situations. We recommended a



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change to the "Pesticide Use Permit for controlling Mosquitoes for reducing the risk of West Nile Virus transmission" issued to the BC Ministry of Health Services on Aug 15, 2003. It contains a clause restricting the application of adulticides near water bodies that could be adapted to organic farms as follows:

"Any spraying for adult mosquito control shall maintain a 10 metre (measured horizontally) pesticide-free zone along all ~~water bodies~~ organic farms. Appropriate sized buffer zones must be established to protect the 10 meter pesticide-free zone during mosquito adulticide applications, and the boundaries of the buffer zone must be clearly visible during applications."

and we would suggest an additional clause.....

The applying authority must scientifically verify compliance and make those results publicly available within 14 days of adulticide application. Any organic farms whose pesticide-free zones show elevated adulticide residues must receive further testing to establish extent of contamination and be compensated appropriately.

The second clause would provide the necessary assurances to organic certification agencies that pesticides did not drift onto the farms they certify and establish the necessity for compensation should contamination occur despite all precautions.

Recently we received a response from MAL thanking us for our recommendation and inviting COABC to meet with them this fall to begin the process of formulating a compensation program. In order to establish a compensation program we will be looking to the CBs to provide the office with reliable data on crop values for all of their constituents. I cannot overstate the importance of having reliable data in this context; without it any compensation program would be flawed.

In closing I want to thank Rebecca Kneen and Abra Brynne of the SRC for their valued input into the issues around West Nile as well as the following members of the board: Sonia Stairs, Hermman Bruns, Peter Johnston, Lee McFadyen and Tony Cetinski, and of course Kirsten Kane our Executive Director.

Happy Harvest!

Deb Foote, President of the Board of Directors



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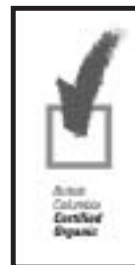
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**Next Issue Deadline:
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What's Going on in COABC?



Greetings All- here is a bit of an update on some of the projects I reported on in the last issue of BCOG:

After some confusion around coordination of the **2006 AGM**, the contract was awarded to Rural Resource Associates Ltd, a "small company of interesting professionals working in southern BC and northern Washington State. RRA focuses on organisational development for non-profit and other community related groups, plus management of events and projects".

Michelle Boshard, Larry Bailey, and Susan Scarberry are the principals in this firm, and have shown great enthusiasm and initiative on the AGM 06 front. At the time of writing this, I understand that the exact location is just being finalised, so we should soon have details available on our new and improved (thank you so much Rob the Web Guy and Committee) website. We do know it is somewhere in the Fraser Valley, the 24-26 of February, 2006. Stay tuned.

After much deliberation, the final categories for the first **Organic Harvest Awards** have been nailed down: Best non-alcoholic beverage; Best alcoholic beverage; Best bakery product; Best Dairy Producer; Best Dairy Product; Best Livestock Producer; Best Horticultural Producer; Best processed meat product; Best processed (non-livestock based) product; Best direct farm marketing business (innovation in farm's marketing practices); Best farm-based home delivery business (CSA/'Box' Program); Best integrated-farm system (sustainable practices); Best Retailer; Best Home Delivery System (non-farm). Applications are available on the COABC website, along with the criteria you should be considering if you are putting in an application. The event will be held in Vancouver on November 5th.

The COABC Regional Production Seminars Proposal received funding from the OSDP in August. Roughly 12 seminars tailored to a given region's needs will be organised and held in the upcoming winter and spring. The coordinator of the project will be Rochelle Eisen, who

will be contacting the CBs who have indicated their support for the project (KOGS, NOAA, BOPA, IOPA, BCARA), as well as making contact with regions of the Province not covered by these CBs (ie PROPA/CROPS/COPA) in order to determine each area's seminar topic. Potential topics include Riparian management, Compost Making, Soil Building and Seed Saving. Contact Rochelle through the COABC office if your CB or region would also like to be included. Any member of any CB can attend any of the seminars in the specific region, though attendance may be limited to around 15 participants.

Jeff Nimmo of BCMAL has completed a draft needs assessment of the production chain, and has come up with some very interesting observations. I expect there is a project in there somewhere, and hope to continue working closely with MAL in this area. Further, Jeff has also completed the **Parasite Survey**. The data he has collected will be very useful for putting together a research project but we are also looking into ways to make this information available to producers.

News from the **COABC office** includes the addition of a new tenant! As NOAA is now operating out of Administrator Cara Nunn's home office, we had some space to rent. COABC and PACS are pleased to welcome Elina Falck and her practice, Gateway Counselling, to our cute little white house on 32nd Ave. We have even finally managed to put up curtains in anticipation of our new roomie. Progress!

The next **deadline for Organic Sector Development Proposals is November 19th, 2005**. Your letter of intent ideally should arrive 2 weeks before that. Contact me at the COABC office to discuss a proposal idea, or access the application and further information about the program under COABC Programs, on the website's homepage.



Organic Recognised as Specialty Product *by Paddy Doherty*

It isn't over yet, says Brian Hughes, chair of the COABC Consultation Team, "but it's the best news we've had in many years".

The Farm Industry Review Board's (FIRB) report, *Specialty Market and New Entrant Submissions, Policy, Analysis, Principles and Directions*, released September 1, 2005 has officially accepted organic certification as a specialty class of supply-managed product. This recognition is a major breakthrough in the seven years the COABC has been dealing with the marketing boards. For years, the marketing boards have argued that a chicken (or egg, or milk, or turkey, or hatching egg) is a chicken and that an organic chicken is no different. The FIRB report recognises that organic product is different and directs the Boards to treat organic product differently.

The Report directs the marketing boards to draft orders respecting over thirty principles.

Some of the principles:

- All supply managed producers should be registered, regardless of their size
- All producers should be subject to government-approved food safety and biosecurity protocols
- Specialty production (i.e. organic) must be certified
- Specialty (organic) quota will be issued for specialty production above exemption and permit levels
- Boards are to provide annually renewable small lot permit programs authorizing production levels greater than the personal use exemption level and less than the quota incentives provided through the new entrant programs. These small lot permit programs should provide for, among other things, product/market innovation, local/regional

Specialty Organics continued on page 6...

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small lot agriculture, heritage breeds, and farmer-direct marketing initiatives.

- The number of small lot permits issued should be unrestricted, subject to eligibility criteria which should include only one permit issued per property and that direct marketing by the permittee be encouraged. The suggested levels for small lot programs:

a) *Chicken*: 3,000kg/year

b) *Layers*: 399

c) *Dairy*: "The Cottage Industry Program should be amended to meet the requirements of a small herd program to manage on-farm, value-added manufactured milk production or heritage breed needs" - amounts are not clear

d) *Turkeys*: 300

- Personal use exemption levels should remain unchanged.

This report is not the last word. The Marketing Boards have been directed to draft orders for review by the FRIB by the end of October.

COABC will then have two weeks to comment on the draft orders. After that, the FIRB intends to issues final directions to the Marketing Boards.

The COABC Consultation Team will meet to review the FIRB report and will provide its comments to the FIRB. From a brief review of the FIRB report, some of the issues for COABC may be:

1. Amounts allocated to the small lot permit systems may not be adequate
2. The requirement that all outstanding levies be paid
3. That some non-licensed producers (such as Fred Reid) had their production removed or curtailed by the Marketing Boards, thus being disadvantaged for the January 1, 2005 grandfather clause, while some non-licensed producers did not. This has created an unfair situation where some organic producers will benefit from the sacrifice of others.

The full report can be obtained at:
www.firb.gov.bc.ca/whats_new.htm



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The UBC Farm Cover-up

by Greg Rekken and Art Bomke

Cover-cropping with over-winter broccoli, that is.

Greg Rekken is UBC Farm Market Garden Manager/Global Resource Systems student) and Art Bomke is Associate Professor of Agroecology/Soils at UBC.

Over-winter cover cropping provides ground cover to protect the soil from erosion and structural degradation caused by rain, while in colder climates cover crops help to retain snow cover and improve infiltration of spring snow melt. Many winter hardy cereals such as fall rye and winter wheat are excellent nutrient scavengers, making them useful for retaining readily leached nutrients, such as nitrogen, from the soil during the coastal rainy season. The use of legume species in an over-winter cover cropping regime can increase available soil nitrogen levels for subsequent crops.

During the winter of 2004 three legume-fall rye cover crop mixes were compared to fall rye alone for their proficiency at providing winter ground cover, suppressing weeds and contributing green manure. This was done within the organically managed UBC Farm market garden. Additionally, broccoli was assessed as a potential intercrop for generating some early spring revenue. The mild winter climate and sandy soils make the UBC Farm <http://www.landfood.ubc.ca/ubcfarm/> an excellent site for using over-winter cover crops to conserve residual nitrate and supplement the farm nitrogen cycle.

Green Goliath broccoli was transplanted after 50 days on September 25. To maximize density, a staggered orientation with 45 cm spacing was selected. Transplants were fertilized with worm castings and compost tea at time of transplanting. Cover crops were broadcast seeded on

October 5, with all legumes inoculated with the appropriate Rhizobium bacteria to maximize nodulation. The experimental design included three blocks of four replicated treatments: 1) fall rye, 2) fall rye + hairy vetch, 3) fall rye + crimson clover and 4) fall rye + fava beans planted in 1.2 m by 4.5 m plots.

Seeding densities were fall rye @ 80 kg/ha for all treatments, hairy vetch @ 31.5 kg/ha, crimson clover @ 19.5 kg/ha, and fava beans at 125 kg/ha. Legume densities were based on recommendations in the West Coast Seeds catalogue, with vetch and clover seeded at 70% of the full rate and fava beans at 50% of the full rate.

Broccoli Performance

Over-wintering broccoli proved to be tricky business, and is highly dependent upon fall weather. The key is to have healthy, well-established plants prior to the onset of winter, without allowing floral initiation. Once broccoli begins flowering cold hardiness diminishes. To further the challenge, prolonged exposure to temperatures below 5°C induces buttoning, where only tiny heads form. All broccoli plants produced mature button heads between mid March and early April. It is speculated that the

buttoning was due to late transplanting, and, while plants appeared healthy at winter onset, they had little time to establish. A separate Green Goliath broccoli plot transplanted approximately two weeks earlier produced marketable heads, but not until early May.

Disease was also an issue in early March, after a cold spell, when many broccoli plants became infected with botrytis. Most plants experienced leaf damage with similar losses in each treatment. At this time broccoli plants and cover crops were the same height, creating a humid, stagnant environment, perfect conditions for botrytis.



Greg Rekken in a fall rye cover crop at UBC Farm

Cover Crop continued on page 8...

Cover Crop Results

Despite the late seeding date, all cover crop species germinated well and survived the winter. Fall rye's limited growth prior to winter, achieving an average height of only 7.5cm, limited its ability to scavenge nitrate - nitrogen, although it captured around 40 kg/ha that likely would have been lost to leaching.

Fall legume growth was low, resulting in the rye having the greatest effect on winter ground cover. In fact, all legumes provided the same amount of cover at 12%. Since the rye provided the bulk of the winter ground cover, all of the cover crops averaged 43% cover, which is adequate to protect the soil in most cases but not to suppress weeds. Spring cover increased with the vetch and clover mixes' dense canopies providing good weed suppression. Fava beans produced less ground cover due to its upright growth habit and lower plant density.



staggered broccoli plantings

ous treatments, but does not include tillage or seeding costs. The nitrogen cost appears high for this experiment and, based upon other studies, the price per kilogram can be much lower, but is variable due to weather and seeding date. For example, research done in Delta, BC showed that nitrogen costs for crimson clover planted the third week of August, at a density of 12 kg/ha, ranged from \$0.34/kg to \$0.95/kg, significantly better value than what was achieved in this study. So, seed early, and hope for good weather!

Despite its relatively high cost, we feel that a fall rye/hairy vetch mix is the best choice for weed suppression, nitrogen contribution, organic matter, and

winter hardiness. Crimson clover/fall rye was not far behind, though it is definitely better when planted earlier and has slightly lower tolerance to cold and poor drainage than the hairy vetch. Crimson clover would not likely be hardy enough for over-winter cover-cropping in the BC Interior. Fava beans were an expensive component, did not provide sufficient ground cover, and biomass accumulation was low.

The broccoli component may have been better planted in straight rows with the cover crops restricted to inter-row pathways allowing for easier management and disease reduction.

Table 1. Dry Matter Characteristics

Treatment	Dry Matter Yield (kg/ha)	Nitrogen Contribution		
		Plant N (%)	N Content (kg/ha)	Legume N Content (kg/ha)
Fall Rye	3505	1.2%	42	N/A
Fall Rye + Hairy Vetch	1349	3.5%	89	47
Fall Rye + Crimson Clover	1163	2.5%	71	29
Fall Rye + Fava Bean	544	4.0%	64	22

The cover crops put on the bulk of their growth in the spring and were harvested for evaluation on May 6. Total cover crop dry weight yields did not differ among treatments, which was surprising but may indicate that the control treatment rye compensated in the absence of competition from a legume component. Both hairy vetch and crimson clover out-yielded the fava beans in the mixes with fall rye (Table 1).

What about the economics?

Table 2 breaks down the seed costs of the vari-

Table 2. Cover Crop Costs

Crop (\$/kg)	Exp. Seeding Rate (kg/ha)/ Cost (/ha)	Nitrogen cost (/kg)	
		Rye + Legume	Legume Component
Rye (0.39)	80 \$ 31.20	\$ 0.74	N/A
Rye + Hairy Vetch (4.33)	80 + 31.5 \$ 167.72	\$ 3.55	\$ 2.89
Rye + Crimson Clover (3.50)	80 + 19.5 \$ 99.41	\$ 3.42	\$ 2.35
Rye + Fava Bean (1.05)	80 + 125 \$ 163.20	\$ 7.50	\$ 6.07

*Seed costs provided in August 2005 by Quality Seeds West, Surrey, B.C.

Agriculture, Food and Fossil Fuels

by Peter Johnston

Between 1945 and 1994, energy input to agriculture increased 4-fold while crop yields only increased 3-fold. Since then, energy input has continued to increase without a corresponding increase in crop yield. We have reached the point of marginal returns. Yet, due to soil degradation, increased demands of pest management and increasing energy costs for irrigation ... modern agriculture must continue increasing its energy expenditures simply to maintain current crop yields. The Green Revolution is becoming bankrupt. (EFF) See references at end of article.

Energy

The earth receives its energy from the sun. Every part of the world receives the same total amount of solar energy each year. This is a fixed amount. There will be no more. (There is research on apparent "global dimming", indication that the solar energy reaching the earth

has dimmed by approximately 3% per decade over the last fifty years. Do a web search on global dimming, but not when you're feeling depressed!)

Plants harness the energy from the sun, and use it to build complex structures and molecules, mostly carbohydrates. Plants have evolved into a myriad of forms, from microscopic to gigantic, simple to incredibly complex, all over the globe.

From the beginning of life on earth, the remnants and wastes of all the plants and animals that have ever lived have been available for use by other plants and animals, and have been taken up in a vast recycling and accumulation of nutrients and resources.

The legacies of the millennia during which plants have turned sunlight into food include

Fossil Fuels continued on page 10...



<p>Kamloops Saturday October 15th</p> <p>To register contact Elaine Spearing tel: 250-747-3237 elaines@quesnel- bc.com</p>	<p>Salmon Arm Saturday October 22nd</p> <p>To register contact Rosie Smit tel: 250-545-6576 drtgirl@telus.net</p>	<p>COABC Environmental Farm Planning Fall Workshops</p> <p>For further information about Environmental Farm Planning call: On Vancouver Island and the Islands, Derek Masselink (250) 629-6934 dmasselink@cablelan.net On the mainland, Elaine Spearing (250) 747-3237 elaines@quesnel- bc.com</p>
<p>Cawston Saturday November 26th</p> <p>To register contact Rochelle Eisen tel: 250-306-7980 rare@telus.net</p>	<p>Langley Tuesday November 29th</p> <p>To register contact Elaine Spearing tel: 250-747-3237 elaines@quesnelbc.com</p>	

Workshops are free but you need to register.

COABC has an agreement with the British Columbia Agriculture Council to be a delivery group for the Canada-British Columbia Environmental Farm Plan Program. Brochures describing the program can be obtained from the COABC office.

large stores of coal and oil, formed from the bodies of long-dead plants and animals, and stores of organic matter accumulated in forests and soils.

As of about 1990 the US had used up half of its fossil oil. By the end of this decade, the world supply will be more than half gone.

Agriculture

Before the industrial revolution, farming relied upon human and animal energy. The animals that provided the bulk of the motive force typically took from one-third to one-half the farm for pasture and feed. Their manures were produced from and used on the farm.

The industrial revolution gave us the capacity to build machines to take over from the animals that did so much work on farms. Large stationary and traction steam engines began replacing the animals, and mandating larger farms.

The growing petroleum industry brought inexpensive, convenient and energy-rich gasoline and diesel fuels and the proliferation of powerful internal combustion machinery.

Fossil fuels in the field

Modern intensive agriculture is unsustainable. It is damaging the land, draining water supplies and polluting the environment. And all of this requires more and more fossil fuel input to pump irrigation water, to replace nutrients, to provide pest protection, to remediate the environment and simply to hold crop production at a constant. Yet this necessary fossil fuel input is going to

crash headlong into declining fossil fuel production. (EFF)

Fossil fuel use in modern farming is almost unlimited. The power of hundreds of horses - complete with three-point hitch, power take-off and lights - is available and is used to pull larger and larger implements, tilling, sowing, cultivating and harvesting crops on more and more land, much of it previously unsuitable for crops.

These behemoth machines have necessitated larger and larger farms, and the elimination of wetlands, bushes, edges and everything but cropland.

Today, virtually all of the productive land on this planet is being exploited by agriculture. What remains unused is too steep, too wet, too dry or lacking in soil nutrients. (EFF)

We have been told that modern farms are efficient, as one person can produce crops on thousands of acres. However, yields per acre, never very high, have fallen (due to loss of organic matter and soil erosion and industrial agricultural methods), so that North American agriculture is, measured by yield per unit of area, extremely inefficient.

Fossil fuels are also used to manufacture fertilizer, especially Nitrogen, in order to stem the drop in fertility from repeated cultivation and loss of organic material. The natural gas industry provides the feedstock and the fuel for the production of Nitrogen.

(P)roduction of one kilogram of nitrogen for fertilizer requires the energy equivalent of from 1.4 to 1.8 liters of diesel fuel. This is not considering the natural gas feedstock [that nitrogen fertilizer is made from]. According to The Fertilizer Institute, in the year from June 30 2001 until June 30 2002 the United States used 12,009,300 short tons of nitrogen fertilizer. Using the low figure of 1.4 liters diesel equivalent per kilogram of nitrogen, this equates to the energy content of 15.3 billion liters of diesel fuel, or 96.2 million barrels. (EFF)

Nitrogen is easy to produce, but it isn't easy to use, in either its natural or its synthetic forms. Much of what is applied to crop lands runs off,



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contaminating water, poisoning wells, and through the process of eutrophication (promoting large algal blooms which use up all available oxygen) killing fish and all other life in lakes, rivers and even large areas of ocean.

Fossil fuels are also used heavily in production of P, K and minor nutrients, in the mining of deposits from the earth, and in grinding, processing and transporting them.

Pesticides are produced largely from oil. The environment throughout the globe is heavily contaminated with pesticides.

In the last two decades, the use of hydrocarbon-based pesticides in the U.S. has increased 33-fold, yet each year we lose more crops to pests. (EFF)

Fossil fuels are used in vast and wasteful irrigation of lands and crops. Agriculture uses 85% of the US fresh water supply.

A corn crop that produces 118 bushels/acre/year requires more than 500,000 gallons/acre of water during the growing season. The production of 1 pound of maize requires 1,400 pounds (or 175 gallons) of water. Unless something is done to lower these consumption rates, modern agriculture will help to propel the United States into a water crisis. (EFF)

Total fossil fuel use in the United States has increased 20-fold in the last four decades. In the US, we consume 20 to 30 times more fossil fuel energy per capita than people in developing nations. Agriculture directly accounts for 17% of all the energy used in this country. As of 1990, we were using approximately 1,000 liters (6.41 barrels) of oil to produce food [on] one hectare of land. (EFF)

Every single calorie we eat is backed by at least a calorie of oil, more like ten. In 1940 the average farm in the United States produced 2.3 calories of food energy for every calorie of fossil energy it used. By 1974 (the last year in which anyone looked closely at this issue), that ratio was 1:1. And this understates the problem, because at the same time that there is more oil in our food there is less oil in our oil. A couple of generations ago we spent a lot less energy drilling, pumping, and distributing than we do now. In the 1940s we got about 100 barrels of oil back for every barrel of oil we spent getting it. Today each barrel invested in the process returns only ten, a calculation that no doubt fails to include the fuel burned by the Hummers and Blackhawks we use to maintain access to the oil in Iraq. (TOWE)

A study by Eliot Coleman found that the energy cost of producing an organic lettuce under plastic in Maine was 6% of the energy cost of shipping a lettuce from California to Maine. (SSI)

Fossil Fuels continued on page 12...

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Agricultural energy consumption in the US breaks down as follows:

- 31% for the manufacture of inorganic fertilizer
- 16% for the operation of field machinery
- 16% for transportation
- 13% for irrigation
- 8% for raising livestock (not including livestock feed)
- 5% for crop drying
- 3% for pesticide production
- 3% miscellaneous

Energy costs for packaging, refrigeration, transportation to retail outlets, and household cooking are not considered in these figures

(This is reported incorrectly in EEF and SSI-miscellaneous as 8%, totalling 105%. The original research by McLaughlin, NB et al, published in Canadian Agricultural Engineering Vol 42, No 1, 2000 is given here.)

Farming as Catastrophe

Corn, rice, and wheat are especially adapted to catastrophe. It is their niche. In the natural scheme of things, a catastrophe would create a blank slate, bare soil, that was good for them. Then, under normal circumstances, succession would quickly close that niche. The annuals would colonize. Their roots would stabilize the soil, accumulate organic matter, provide cover. Eventually the catastrophic niche would close. Farming is the process of ripping that niche open again and again. It is an annual artificial catastrophe, and it requires the equivalent of three or four tons of TNT per acre for a modern American farm. Iowa's fields require the energy of 4,000 Nagasaki bombs every year. (TOWE)

Processed foods

America's biggest crop, grain corn, is completely unpalatable. It is raw material for an industry that manufactures food substitutes. Likewise, you can't eat unprocessed wheat. You certainly can't eat hay. You can eat unprocessed soybeans, but mostly we don't. These four crops cover 82 percent of American cropland. Agriculture in this country is not about food; it's about

commodities that require the outlay of still more energy to become food.

There is another energy matter to consider here, though. The grinding, milling, wetting, drying, and baking of a breakfast cereal requires about four calories of energy for every calorie of food energy it produces. A two-pound bag of breakfast cereal burns the energy of a half-gallon of gasoline in its making. All together the food-processing industry in the United States uses about ten calories of fossil-fuel energy for every calorie of food energy it produces.

That number does not include the fuel used in transporting the food from the factory to a store near you, or the fuel used by millions of people driving to thousands of super discount stores on the edge of town, where the land is cheap. (TOWE)

Sources:

(TOWE) - The Oil We Eat by Richard Manning www.harpers.org/TheOilWeEat.html

(EFF) - Eating Fossil Fuels by Dale Allen Pfeiffer www.fromthewilderness.com/free/ww3/100303_eating_oil.html

(SSI) - Salt Spring Island Community Energy Strategy Baseline Report pdf file available at: <http://www.islandstrust.bc.ca/stewardshipprograms/energyplanning/energyplanning.htm>

Virtually all information I have found on this subject is from US sources. There is no reason to think that Canadian agriculture is significantly different. It is important that we become aware of what we're doing, and for farmers and cooks and eaters to begin to make changes. Please contact me with information or opinion, either on the COABC list-serve coabc_list@certifiedorganic.bc.ca or directly at pjohnst@island.net.



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A Peace Perspective on Oil

by Tim Ewert

As organic producers, we are somewhat self-congratulatory about the sustainability of our farming. We need to examine our use of fossil fuels in our production (and in our personal life).

We use much more energy to produce food than the energy embodied in that food. Although we avoid synthetic fertilizer and pesticides which require huge amounts of fossil fuel to produce, we do use inputs that require mining and transportation-all heavily fuel dependant.

As a society, we are addicted to fossil fuel. I would propose that a workable definition of 'addiction' could be: dependence on a substance which we could, or have, lived without, but the withdrawal of that substance would cause us pain or discomfort. Does the fact that we smugly label the users of illegal drugs, smokers and so on, as addicts prevent the self-righteous majority from seeing the possible addictions in our own lives? Those of us who have developed a dependency on pharmaceuticals, fossil fuels and other profitable corporate enterprises which our society has sanctioned would feel indignant to have our legal dependencies referred to as addictions. We are really down on the desperate junkie who commits a crime to procure a fix. We never think about what we, and our corporate leadership, do for our oil fix. We seem willing to invade any ecosystem, or any other country to pump out its oil. This is the major cause of the war in Iraq. Oil is also the cause of civil war and strife from South America to Sudan. These wars are financed by oil revenue and are about control, profit and power - all generated by our insatiable need for petroleum. Can someone who believes that war is wrong have someone else do the killing to keep his oil flowing, and still feel absolved of any implication in the matter?

Here in the Peace Country, we see examples of how the great faraway market values us in comparison with their need for petroleum. We have rigs drilling for potentially lethal gas as close as 80 metres from houses and schools. We have had the preposterous scene where school busses are parked with engines running

all day in front of a school in preparation for a possible evacuation because a gas well was being drilled just beyond the school playground.

Our revenue hungry government sanctions this risk; after all, it's about money and petroleum, our cravings for which take precedence over any other values.

With the notable exception of Canada and Norway, almost all of the world's oil exporting countries are very undemocratic, and have terrible human rights records. In most cases income disparity has increased greatly since oil exports began. In these countries the ruling elite is kept in power by oil income. Our "developed" economies send vast quantities of arms as well as security advisors, and military training to ensure the power of the regimes as long as they co-operate with us by keeping the oil flowing.

Peace Perspective continued on page 14...

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Without petroleum, upon which our economy is now based, huge multinational corporations could never have attained the power over us which they now have. Our patterns of human settlement are predicated on automobiles. Most information we receive comes through a corporate filter-independent media reaches very few people. Our tastes, desires, and social values are increasingly brought to us by vast media conglomerates, sponsored by corporate advertising.

We have become not only addicted to oil itself, but have become dependant on those who supply it for our jobs, our values and our way of life. Our exploitation of fossil fuels and the power it gives us has fueled our belief that we have the right to dominate all of nature rather than accept that we are intrinsically tied to, and dependant upon it - a very dangerous form of hubris. This pattern of oil export/ import has created a very negative dependency at each end, and is a social threat, a looming ecological threat, and a threat to any chance of peace.

Although we acknowledge that vehicle exhaust is toxic and environmentally degrading, we usually aren't aware that a large amount of fuel is burned to extract and deliver it to us. Thus the pollution we allow ourselves to take responsibility for, is only a small amount of the damage we actually do. For example: There are thousands of pick-up trucks as well as huge transport trucks hauling workers, drilling rigs and large equipment on a daily basis around the clock (it takes 100 large transport trucks for each rig move). Large machines are constantly clearing the right of way and digging trenches for pipelines; clearing seismic lines; building rig roads; and drilling lease sites. The amount of forested land bulldozed for the oil and gas industry in Alberta, exceeds that cut by the forestry industry.

The petroleum industry uses a tremendous amount of steel in the form of equipment, such as bulldozers, and the fleets of trucks, drilling rigs, etc. Also used are thousands of kilometres of steel pipe to case the wells, and build pipelines. There are more miles of pipeline in Alberta than public roads. The steel industry consumes vast quantities of fossil fuel to rip

apart landscapes for coking coal and ore. These raw materials are usually transported halfway around the world, melted down using more fuel, manufactured into equipment which is then transported to the oil patch to begin burning fuel to explore for, and extract petroleum.

This system is dependent, to some extent at least, on our collaboration. Each of us can examine our lives to see where we can replace fuel use with something more sustainable and rewarding. The ways are almost endless. Before turning the key, ask yourself, "Is this trip necessary?". If so, "can I carpool?" "Can I do several errands with this trip to save another one?" "Is my off-farm job really necessary?" Try to form a sense of community with people who are within walking or biking distance. Get together to play sports, make music, discuss books - be creative! Shop and do business as close to home as possible. There are so many things you could be involved in that may prove far more rewarding than always being a consumer of recreation and entertainment. By reducing what you buy, and involvement in your local community, you can drastically reduce the influence that the corporate world has on you, and the size of your ecological footprint.



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National Regulation Questions & Answers *by Paddy Doherty*

Q Once a national regulation (law) is in place, what will happen to vendors in farmers' markets who have been calling themselves 'organic' (and following an organic standard) but who are not certified?

A The intention of the national regulatory process is that everyone will be included in the regulation. If you sell a product as organic, you will have to follow the law (no matter where or how you sell that product). The law will say that in order to market a product as organic, you will need organic certification from an accredited certification body. There will be no exceptions.

Q When the national program is in place, will COABC continue to be an accreditor?

A COABC intends to continue to accredit in BC under the national regulation – the BC Ministry of Agriculture and Lands has confirmed this. COABC intends to continue to

operate an accreditation program for export beyond BC (ISO 65 Compliant Accreditation) and to operate a program for product produced and sold in BC (Regional Accreditation).

The federal (CFIA) Organic Task Force is not certain about some issues regarding provincial jurisdiction. They have sent questions to government layers for legal interpretation. Unfortunately, (or fortunately, depending on your point of view) there is a shortage of lawyers in Ottawa so the answers have been delayed. No-one is quite certain just how far provincial jurisdiction will extend into the national organic regulation.

Q When the national standard is in place, will BC be able to continue to certify to our own Standard?

A The Organic Task Force has stated that certification bodies may certify to some other standard—provided it meets the minimum Canada Organic Standard, and provided they do not claim it is better than the Canada Standard.

Q What will happen to the COABC Standards Review Committee?

A It is up to COABC to decide whether to adopt the Canada Standard, or to continue to maintain a BC standard. This decision will determine the future of the Standards Review Committee.

Q What is the process for any alterations or amendments to the national standard?

A That process is not fully developed. The Organic Regulatory Committee has proposed a government/organic sector partnership to oversee the regulation. However, this concept requires a formal organisation to represent the organic sector. In the absence of a national representative organic organisation, the Organic Task Force is leaning toward maintaining the Canadian General Standards Board (CGSB) review process to update the Canada organic standard. COABC currently does not have a voting position on the CGSB Technical Committee.



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Cherry Fruit Fly a Threat no Longer by Linda Edwards

There are two products containing spinosad - a biological insecticide - that can now be used by organic growers or anyone else who wishes to get away from conventional pesticides for the control of cherry fruit fly (CFF). One is named Entrust and is registered for a wide range of crops and other pests. (See article on p.19.) The other is GF-120, a product developed specifically for cherry fruit fly control. Entrust was registered early June. GF-120 has been submitted for registration based on research done in Washington and paid for by the Kootenay/Okanagan Cherry Growers Association and the Organic Trust. However we were advised that GF-120 would not be registered in time for this season. We also learned that because Entrust was registered we could do limited trials with GF-120 because the amount of active ingredient per



Macerating cherries in a high-sugar solution floats fruit fly larvae, making them easy to count.

acre was much less than Entrust.

So we quickly set up a project to learn to work with both Entrust and GF-120 and to assess their efficacy locally. Fifteen different orchard blocks in the Cawston/Keremeos area and in Oliver were divided into five groups with three treatments in each group: Entrust only, GF-120 only and a combination of the two determined by circumstances. Organic blocks where no controls for cherry fruit fly had been used except sanitation and early picking were compared with each other while blocks that had had low populations last year (conventional blocks in transition and conventional blocks) were compared. All of the former had primarily early cherries - nothing later than Lamberts - while all of the other blocks had both early and



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late varieties such as Lapins and Sweethearts. A number of untreated backyard trees were also identified to be monitored for CFF.

Intensive monitoring using yellow sticky traps and the trap attractant ammonium carbonate was used to determine when sprays should be applied. Samples were collected on a daily basis during picking in each block and tests for CFF larva made. This is done by mixing a brown sugar and water solution to a Brix level of at least 15. The fruit samples were then crushed and poured into the sugar mix. Any larvae present quickly float to the surface. This is a test developed and used by the Canadian Food Inspection Agency (CFIA) for all cherries destined for export to countries with quarantines for this pest.

In addition to the comparisons of the five groups of orchards, a number of untreated trees in the general area were also sampled and the fruit tested. There were also two control blocks – one planned and the other accidental.

The results? Both products worked amazingly well.

Two examples: 1. Two long term organic



Linda Edwards and Cathleen Kneen trying hard to find any fruit fly larvae.



Brewster Kneen helps by macerating cherries

orchards (identified hereafter as A and B) side by side with the same age and varieties of trees. Both had had only sanitation as a form of CFF control before this season. Monitoring in Orchard A in 2004 had resulted in CFF number in excess of 50 per week. No data was available for Orchard B. This summer, both orchards were monitored. Orchard A applied Entrust when trap counts indicated CFF were emerging. Orchard B did nothing. Trap counts in Orchard A dropped to a grand total of 5 for the whole season while Orchard B averaged over 50 per week. Extensive testing of fruit in Orchard A found no cherry fruit fly larvae. Unfortunately these tests were not done in Orchard B but the orchardist did confirm there were at least some larvae found.

2. A conventional orchard surrounded with backyards most of which contained highly infested trees used only GF-120, again applied when there were trap catches. These ranged from 1 to 7 per week and averaged 2 per week. The backyard trees were sprayed once a week using a squirt bottle. This was a mature orchard of Staccato and Sweethearts - two of the latest cherry varieties with 200 young Staccato in the middle of the block. The fruit from the mature trees was tested several times for CFF by both someone hired by the project and by the Canadian Food Inspection agency because some of it was exported. No larvae were found. After the fruit had been picked in the older trees, the orchardist and his wife went in to pick the fruit on the young trees. The orchardist had not sprayed these trees with GF-120...he felt there was not enough fruit to make it worthwhile. They tested about 150 of these fruit. Eight contained CFF larvae. While not spraying these young trees is not something I would recommend, it did serve as a control and an amazing example of the efficacy of GF-120.

All of the conventional or transitional blocks had trap catches but no larvae. Two of the

Cherry Fruit Fly continued on page 18...

organic blocks had one larva each. Based on when the larvae were found and the stage of their development at that time, both of these were from CFF that had to have emerged and laid eggs before the experiment began. Next year we are recommending use of a degree day model to know when to put up the traps and when to apply controls.

All of the untreated trees - mainly small home-owner blocks ranging from one tree to 5 - had CFF larvae. The highest count was 71 CFF larvae from a sample of 150 fruit.

An exciting part of this project was learning to use new application methods. While Entrust was applied by air blast sprayers, GF-120 was applied in two dramatically different ways. For acreages, ATVs/quads were equipped with 68 litre tanks, small electric pumps and two large nozzles - one on each side of the tank. The application rate is 20 fluid ounces of GF-120 per acre. One litre equals 33.8 fluid ounces so one litre of GF-120 will treat 1.7 acres. The GF-120 is mostly molasses, yeast and water. Only 0.2 % is spinosad. One gram of spinosad will treat 7.5 acres. The GF-120 is diluted 4 to one with water. So you are applying a total of about 2.4 litres of spray per acre. This does not take more than 3 or 4 minutes per acre when applying it with a quad. There is no question of trying to cover the whole tree - all you need to do is leave some beads of bait with spinosad in each tree for the flies to find.

The other application method is by using a squirt bottle. This is the most practical way to control CFF on anything under a half acre. For this, GF-120 is mixed 3 to one with water. All that is needed is 0.8 fluid ounces per tree of

GF-120. Approximately 25 squirts every 7 days from when the flies first emerge until the cherries are picked will provide control.

Unfortunately, if you only have one tree, the amounts are too small to really work with. Neighbours may have to work together on this. We are asking the company to get a domestic registration and put together small amounts of product and some kind of applicator that would work for one tree. Otherwise, those with a tree or two in the backyard will have to find an orchardist to get product from.



Linda Edwards stirs up a batch of macerated cherries in sugar before counting larvae.

As has happened in the US, many commercial cherry growers - both organic as well as conventional - will use GF-120 as much as possible. In 2004, 9000 acres in Washington State used GF-120. There are only 700 acres that are certified organic. It is much faster and easier to apply than Entrust. Estimates for this year were expected to be at least double that. GF-120 is cheaper and because of the extremely low levels of active ingredient, there are zero days to harvest. With Entrust, it is 7 days. However, if you have leafroller as well as cherry fruit fly, Entrust would be a better choice. Also, GF-120 to be totally effective must be on the trees as soon as the CFF adults begin emergence. There is about 10 days before egg laying will occur but you must give them that much time to

find the baits, feed and die. Entrust works immediately and can be applied up to 6-8 days after the flies emerge. Entrust could be applied with a backpack sprayer for people wishing to use it on only a few trees.

It is expected that GF-120 will become registered this winter for the coming season. A fact sheet on how to use it will be prepared as part of the project and will be made available to all who request it from the COABC office. Our thanks to the Kootenay/Okanagan Cherry Growers Association and the COABC Organic Trust for funding this project and to Dow AgriSciences for giving us the product to work with.



The Continuing Saga of Spinosad

by Linda Edwards

A product containing the biological insecticide named **ENTRUST** was registered in June 2005 for use in Canada. It is also an OMRI approved product so it can be used by organic growers. Registrations include a wide range of crops and pests. They are listed below.

Brassica Leafy Vegetables

(broccoli, Brussels sprouts, cabbages of all kinds, cauliflower, Bok Choy, mustard greens, kale): cabbage looper, cabbage worm, diamond back moth

Fruiting Vegetables Except Cucurbits

(eggplant, ground cherry, peppers, tomatillo, tomato): cabbage looper, cabbage worm, diamond back moth, European corn borer

Leafy vegetables

(arugula, cresses, all lettuces, spinaches, fennel, Swiss chard, celery, rhubarb): cabbage looper, cabbage worm, diamond back moth.

Pome Fruits

(apples, crabapples, pears and quince): leafrollers and eyespotted bud moth

Potatoes

Colorado potato beetle, European corn borer

Root and Tuber Vegetables

(turnips, rutabaga, radish, horseradish, Oriental radish): cabbage looper, cabbage worm, diamond back moth.

Snap Beans

European corn borer

Stone Fruits

(cherries, apricots, nectarines, plums and prunes, peaches): leafrollers, eyespotted bud-moth, cherry fruit fly

Sweet Corn

European corn borer

Turf and Outdoor Ornamentals

sawfly, tent caterpillar, elm leaf beetle, gypsy moth, will leaf beetle, western flower thrips

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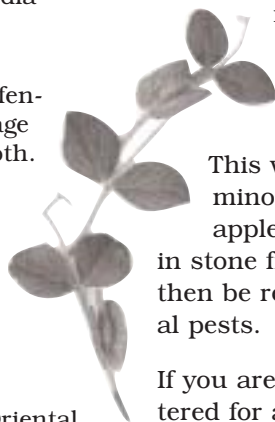
sod webworm

To view the label go to www.dowagro.com/au/prod/entrust.htm It contains a wealth of information about how to use this product on the crops and pests noted above.

There are a number of other pests and crops where Entrust could be useful. In the US, Entrust is also registered for asparagus beetle on asparagus, for a wide variety of leafrollers and fruitworms and thrips on berry crops, for cereal leaf beetle and army worms on cereal grains, worms, loopers, leafminers and thrips on cucurbits, codling moth and thrips on apples and pears, thrips and twig borer on stone fruits and army worms, leafrollers and thrips on strawberries. Growers, consultants and researchers from the US report that Entrust works very well for the control of all of these pests. However, these uses are currently not allowed in Canada and it would be illegal to use the substance on any of these crops and/or for pests where there is no registration.

This winter, there are plans to submit minor use registrations for codling moth in apples and pears and thrips and twig borer in stone fruits. If these succeed, Entrust will then be registered in Canada for these additional pests.

If you are interested in getting Entrust registered for any other pests not currently on the label, please contact me. Email ledwards@nethop.net or call (250) 499-5303.



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Standards Review Committee Update

by Abra Brynne

SRC members have been busy farming over the summer months, so not much has happened with regards to standards review. However, a draft Submissions Policy was drafted by Abra Brynne and circulated to the rest of the SRC members. It will be reviewed at the September meeting of the Committee.

The SRC Co-Chairs were involved in the consultation on a buffer zone for organic farms in the event of pesticide applications for the control of West Nile Virus in our province. Rebecca Kneen and Abra consulted the rest of the Committee as well as others with knowledge of the issues associated with, particularly, the fogging application of Malathion. After numerous emails with the COABC Board of Directors and staff as well as a conference call with the BC Ministry of Agriculture and Land a letter was sent to the Ministry for their use in identifying appropriate



buffers for the BC Centres for Disease Control. (See the President's Report on page 2 for details on the letter's content.)

Although the report from the SRC in the May Grower indicated that we would provide an update on the outstanding standards under review, we cannot report on this until after our September meeting. Please check the COABC website for an update in October, as well as the next Grower.

Lastly, the SRC is confident that we will receive direction shortly from the COABC Board with regards to the implications of the proposed National Organic Program on our work. We anticipate that there will still be a need for an SRC but that our work may be focused solely on standards not covered in the national program. This too will be reported on the COABC website and in the next Grower. ✓

SOD Granted Leave to Appeal

On August 30, the Saskatchewan Court of Appeal released Honourable Mr. Justice Cameron's decision granting the certified organic farmers of Saskatchewan leave to appeal the Court of Queen's Bench decision dated May 11, 2005 denying them class certification under Saskatchewan's Class Actions Act. The farmers are seeking compensation for losses due to contamination of organic fields and crops by Monsanto's and Bayer's genetically engineered canolas.

Judge Cameron agreed that the issues raised by the plaintiffs should be dealt with by the Appeal Court. He agreed that the questions of whether Judge Smith erred in her finding of no cause of action - an error which cascades through her decisions on the remaining four tests required to grant class certification - and whether she applied an overly rigorous standard for class certifications should be examined by the Appeal Court.

Justice Cameron stated, "I am satisfied the pro-

posed appeal raises some comparatively new and potentially controversial points of law, that it transcends the particular in its implications, and that it is of sufficient importance to the practice pertaining to this subject to warrant attention by this Court."

Plaintiff Larry Hoffman says he feels encouraged by the decision. "It gives us a chance to argue how the Class Actions Act should be applied. If we can join together in a class action, our combined strength can make it possible to hold these companies accountable for their actions."

Plaintiff Dale Beaudoin adds, "On behalf of 1000 plus organic farmers we can continue to fight for our right to remain stewards for sustainable agriculture. This is no minor issue. It is a matter of independence and survival for all farmers world-wide."

For details, please see www.saskorganic.com ✓

Organic Farmers & Rural Development

by Jennifer Sumner

A recent study reveals that organic farmers make a major contribution to rural development. Funded by the Social Sciences and Humanities Research Council of Canada, the study found that organic farmers in southwestern Ontario contribute to community sustainability on three levels: economically, socially and environmentally.

But in an era fixated on unsustainable growth, their contributions to rural development have not been recognized. On the contrary, Debi Barker, deputy director of the International Forum on Globalization (IFG), notes that current public policy promotes an increasingly industrialized form of agriculture that tends to cater to a global export market and bypasses rural communities and thus has serious negative consequences for the environment and for people. She argues that it replaces local, self-reliant food systems, suppresses biodiversity, causes widespread soil, water and air pollution,

requires huge increases in environmentally destructive transportation infrastructures, results in additional packaging and fuel use, fosters the spread of exotic species, viruses, bacteria and disease, strips away local control of common resources and introduces biopollution in the form of genetically modified organisms.

In contrast to what Barker sees as an inherently destructive form of agriculture, the study reveals that organic agriculture has much more positive outcomes. Organic farmers directly engage with their local communities and promote rural development by making a wide range of economic, social and environmental contributions.

Economically, organic farmers contribute to rural development in terms of both supply and demand. On the one hand, the study reveals that over half (56%) are involved in direct sales to local businesses, while approximately one-quarter of the respondents engage in farm-gate, farm-store or produce-stand sales (27%), sales to family, friends and local farmers (26%), or run a Community Supported Agriculture (CSA) project (21%). On the other hand, almost all of the organic farmers interviewed (93%) make a point of purchasing both farm supplies and household needs as locally as possible. They patronize local feed mills, shop at nearby supermarkets, buy from regional organic suppliers and spend money at local health-food stores. In this way, they contribute not only to their own financial stability, but to the financial stability of their rural communities.

Socially, organic farmers are involved in four main areas: social, cultural, political and human development. First, more than three quarters of the farmers interviewed (76%) volunteer in their rural community. They help at local churches, schools and community events. Seventy percent of them belong to a local club or organization, such as the Lion's Club, the choir or the Women's Institute. Second, more than three-quarters of the organic farmers interviewed actively support local cultural

Rural Development continued on page 22...



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events and institutions. They attend fall fairs, watch school plays and recitals, participate in church-led projects and help their neighbours. Third, organic farmers play a vital part in local political activities. Seventy-one percent of the respondents had engaged with their local government regarding community issues, such as farm, land-use, severance and road issues, intensive livestock operations, and school and healthcare concerns. In addition, 61% of the respondents had participated in local roundtables and panels. And fourth, organic farmers are involved in human development activities. They participate in apprenticeship programs to train aspiring organic farmers and provide spaces for the advancement of rural women within their organizations.

Environmentally, organic farmers contribute to their local communities by practicing a form of agriculture that lowers the chemical burden on the surrounding land and water, and builds up the quality of the soil. The farmers in this study also took their environmental ethic beyond the farm gate when virtually all of them strictly followed guidelines on waste management (100%) and soil management (98%), and belonged to or

supported a group or association that promoted environmental issues (93%). The majority sold their produce locally (88%), rather than add food miles to their products, actively supported local environmental initiatives (79%), and spoke about environmental issues to local community groups (69%) and their political representatives (55%).

These economic, social and environmental contributions are crucial to rural community sustainability. But they are often neither understood as rural development, nor recognized by policymakers at the local, provincial and national levels of government. In a situation of almost complete policy void, their way of farming has been marginalized and their contributions ignored. It is time for public policy to acknowledge their contribution to rural development and to promote the kind of "small-scale on a large scale" contributions that organic farmers clearly make to rural communities.

Dr. Jennifer Sumner is an Assistant Professor, Adult Education and Community Development Program, OISE/University of Toronto. Article courtesy of the Organic Agriculture Centre of Canada (OACC): phone 902-893-7256 or email oacc@nsac.ns.ca. or at www.oacc.info



In-Situ Leach Uranium Mining

A Bad Idea Whichever Way You Look At It.

by Jamie Kneen

An article in the Kelowna Daily Courier in June has alerted residents to a proposal to mine uranium in the area. Sparton Resources and Santoy Resources have bought the Blizzard uranium claims near Beaverdell, about 50 km southeast of Kelowna, and plan to extract some 4,500 tonnes of uranium using the "in-situ leach extraction" method.

Although the companies describe this method as "environmentally friendly", mining experts and local environmental organizations disagree. They are demanding that the moratorium on uranium mining in BC be reinstated - permanently. They also point out that although the price of uranium oxide ("yellowcake") has doubled in the past year and a half, there is no shortage.

The following explanation of the issues involved is courtesy of MiningWatch Canada (www.mining-watch.ca).

Uranium is a radioactive heavy metal, used for nuclear weapons and anti-tank munitions and for generating electricity. It is relatively abundant and is found in large concentrations in many parts of the world. Uranium and its natural decay products are both radioactive and toxic; the long half-life of uranium means that it decays slowly, and is normally considered more of a toxic hazard (especially to the kidneys) than a cancer risk. On the other hand, it gives alpha radiation when it decays, making it a more effective carcinogen if it is ingested.

The growing evidence of cancer and birth defects from depleted uranium munitions used in Iraq and the former Yugoslavia indicates that the health effects are not well understood. (Depleted uranium is uranium-238, the less-

radioactive isotope extracted from natural uranium when it is enriched for use in nuclear weapons and reactor fuel.)

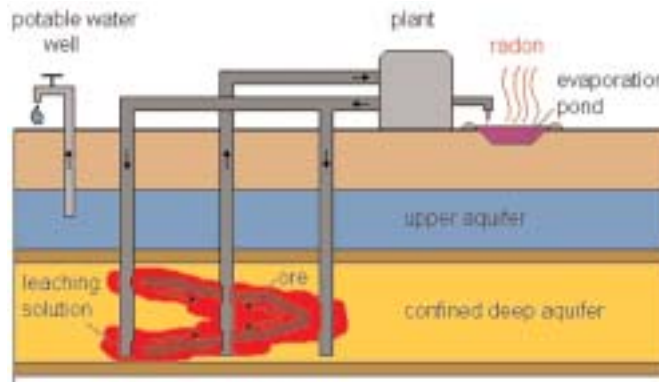
Uranium mining contaminates groundwater and surface water, and hard-rock uranium mining (whether underground or open-pit) leaves millions of tons of radioactive waste rock. Its use in weapons is simply immoral; its use for electricity - originally a by-product of the weapons industry, and still closely related - is both capital-intensive and environmentally indefensible.

There is no known safe way of storing nuclear waste, which will remain toxic and radioactive for hundreds of thousands of years.

In-situ leach (or "solution") mining consists of pumping chemicals (usually either dilute sulphuric acid or caustic soda) into the ore deposit to dissolve the uranium, and then pumping the resulting solution out so the uranium can be purified. In theory, all of the solution will be sucked out, leaving groundwater next to, above, and below the ore body uncontaminated. In reality, truly impermeable layers of rock are very rare, and it is much more likely that the solution, loaded with uranium and

other contaminants and minerals dissolved by the chemicals (often including arsenic, nickel, cadmium and other heavy metals) will end up spreading. The contamination may or may not be isolated from aquifers that are used for drinking water or irrigation. Rocks are generally speaking full of cracks and full of water - that's what aquifers are - and the only way to find out what's going on down there is to drill into the different rock layers and measure the pressure and flow, and then make educated guesses about what would happen if you inject solvents.

Hard rock mines (tunnels or open pits) are always being pumped out to keep them from filling with water. And of course the drill holes themselves can open new channels between rock formations. In other words, avoiding contamination depends on a combination of perfect geology (rare) and infallible engineering (a contradiction in terms).



nation of perfect geology (rare) and infallible engineering (a contradiction in terms).

In addition, the surface development is also not insignificant, involving mill facilities, settling ponds, and extensive networks of wells and pipelines, also subject to failures, leaks, and spills.

www.wise-uranium.org

The leaching liquid used for in-situ leaching contains the leaching agent ammonium carbonate for example, or - particularly in Europe - sulfuric acid. This method can only be applied if the uranium deposit is located in porous rock, confined in impermeable rock layers.

The advantages of this technology are:

- the reduced hazards for the employees from accidents, dust, and radiation,
- the low cost;
- no need for large uranium mill tailings deposits.

The disadvantages of the in-situ leaching technology are:

- the risk of spreading of leaching liquid outside of the uranium deposit, involving subsequent groundwater contamination,
- the unpredictable impact of the leaching liquid on the rock of the deposit,
- the impossibility of restoring natural groundwater conditions after completion of the leaching operations.

Moreover, in-situ leaching releases considerable amounts of radon, and produces certain amounts of waste slurries and waste water during recovery of the uranium from the liquid.

Organic Seed Saving & Plant Breeding

by Chris Wells

As farmers and consumers we often hear a lot of talk about seed saving, but we rarely hear anything about the plants from which those seeds were saved. In a recent workshop hosted by COG-VI (Vancouver Island), local farmers and gardeners had a great opportunity to increase the knowledge of their seed growing skills by better learning about the plants that they select seeds from. The workshop instructor, Dr. John Navazio of the Organic Seed Alliance in Washington, brought a wealth of knowledge to local growers covering a broad range of topics including: minimum plant population sizes, plant selection criteria, genetics, and running effective seed trails. All of these topics and more made for an information- and question-filled three days, that left farmers excited and overwhelmed about their future seed saving adventures! It also taught farmers the differences and similarities between plant breeding and seed saving.

Perhaps one of the most important topics of the workshop was the issue of plant population sizes. In order to maintain sound and diverse genetics in a plant, it is important to save seed from as many plants as possible. Because we were focusing on small-scale farms, John was able to give us suggested minimum population requirements for our plants. With cross-pollinating plants like the brassicas, spinach, beets, and carrots, John recommends minimum populations of about 100-200 plants! Though he also went on to explain ways of taking that population down to only handful of plants in order to breed out deleterious traits, larger population sizes almost always result in greater genetic diversity. Small population sizes will result in in-breeding (self-pollination) which affects plants much like it affects humans - resulting in many undesirable traits. With squash plants, population sizes can be as low as 20 to 30 plants, but once again, the more plants you have the better.

With self-pollinating crops like lettuce, tomatoes, beans, and peppers population sizes can be much smaller, because these plants are basically "designed" for in-breeding. As few as four plants can be used to save seed from self-

pollinating crops. However, the advantage of larger crop sizes is that there is more opportunity to select for desired traits and for manifesting genetic mutations that may benefit the plant as a whole such as early ripening, colour differences, or a desired leaf shape.



John Navazio at Vancouver Island Seed Workshop.

Whether you are saving seed from self- or cross-pollinating crops, it is important to select the plants you want to save seed from with intention. With cross-pollinating crops, you are relying on the cross-pollination of your desired choices, so you must eliminate the plants that you do not like by pulling them out before they flower. Then when saving seed, all the seed is mixed together to ensure a good mix of genetics will exist for the next crop. Thus, you might go through your crop and pull out all the plants that flowered early, had distorted leaf shapes, were not very tall, or that were susceptible to frost damage in the winter. By eliminating these undesirable genetic traits, you are strengthening the overall genetics of the plant. The next generation you can continue to rogue out undesirable plants to continually improve your crop and begin selecting for (as opposed to selecting against deleterious traits mentioned above) the traits that you do like.

With self-pollinating crops, your selection is more about the plants you like as opposed to the ones you do not. You can still pull out the ones that you do not like, but it is more impor-

tant to know which ones you do like since cross-pollination is relatively minimal. When you are saving seed from self-pollinating crops, you can save seed from individual plants in order to observe and improve the traits you like. For example, if you have a crop of 100 Black Prince tomatoes and you see one plant that has oval shaped fruit, one that has beautifully round fruit, and another that has great blight resistance, you can save the seed from the individual plants and keep them segregated from the rest of your seed. You can then sow those selected plants the following year (clearly labelling them, of course) and continue to select for the desirable traits you saw in the first season.

Now that you have selected the plants you like from your crops, it is time to run a trial – this is where the plant breeding takes place (and the need to have more space!). In this case you will have selected, and kept separate, the seeds from each individual plant in both self- and cross-pollinating crops (let's use kale in this example) and you will have numbered them. Take the seeds from each plant and split them into two bags. This allows you to run two repetitions of each plant simultaneously. This is important to help reduce the effect



Redbor Kale seed crop

of the environment on making your preferred selections. Plants that are lucky enough to be sitting on an ancient dinosaur turd, as John would say, may give the impression of superior genetics, when it is simply just rooted in optimum growing conditions. In fact, growing plants in adverse conditions is the best way of selecting for resilience and “workhorse” traits.

Plant out your first repetition by sowing one row from each of your first bags of seeds. For our large kale plant, we will sow 20 plants per row (we may do 50 ^ 100 radishes though as they are smaller). We will say we kept seed from our 100 best plants, so we would need 100 short rows of 20 plants. We can plant them a little closer than we would as a vegetable crop because we will inevitably be removing many of

them. Then plant your second repetition parallel, and right next to, your first one, but plant the bags in a different order, so instead of 1, 2, 3, 4, etc, you would plant 18, 12, 4, 66, etc. Thus you have a random mix of two repetitions. Be sure to label all your rows!

Once the plants are mature (the stage where you would eat them), and perhaps earlier for obvious off-types, you would start doing your selection. Evaluate all the plants for important traits and select the best 20-30 rows and eliminate all the other rows. Remember that each row represents an individual plant you saved seed from last season. If any row has any more than 30% deleterious traits, then the whole row should be removed.

Once you have selected your best rows, further selects your best plants in each of your remaining rows, remembering to keep your population as large as possible. Once you have selected your favourites and eliminated those you do not like, harvest their seeds (eventually!) and run the trial again (and perhaps twice more!). You can then be assured you have a high quality and pure variety.

This process of selection is obviously not always necessary and when necessary need not always be with such large populations, but is a great way to improve a crop that has been poorly selected in the past. It is also a great way to select plants for traits that work well for your climate and conditions, as opposed to being subjected to the selection criteria of the large seed companies. This is especially true if you find unique varieties due to naturally occurring genetic mutations.

While you obviously cannot learn all you need to know about plant breeding and genetics from a magazine article, hopefully this gives you an idea of what some of the challenges farmers face when preserving and improving their seed stocks. Anything farmers can do to improve the quality of their seeds will contribute greatly to the sustainability of our organic seed system.



Harvesting Techniques

by Dan Ferguson

From a presentation at AGM 2004. Dan and Regan are on Vancouver Island at Dragon Fly Farm.

Our focus is on quality product, but in order to achieve that goal we have to have streamlined and efficient operations, and we have to take care of our most important production tool: our own bodies.

We have been on this farm for two years. We operate 13,000 square feet of greenhouse with the help of the occasional wooper and harvest year-round. Each house is built on its own individual raised bed, allowing for excellent drainage of water, cold air, and shedding of snow. The houses are on skids for easy movement and annual crop rotation. We orient our greenhouses east-west allowing full winter sun exposure, maximizing solarization.

Each house is 32 feet wide and contains six beds that are a minimum 8" high and 32" wide. We found any wider than this is too hard on the body, too far to reach in while harvesting. We only harvest, weed or thin half the bed at a time. The beds have a minimum 18" between them, any less than this is uncomfortable because it is hard to kneel and work for long hours. Every little bit makes a difference.

We use a small 4-stroke tiller which is cheap, relatively maintenance free, and easy on the body and the environment.

Row covers are cut small enough to wash and wide enough to cover each bed and allow room for easy access throughout the greenhouse. Full sheets limit access in the greenhouse and would seem impossible to wash.

We seed spinach in rows because it is much easier to thin, weed, and harvest, it's not confusing and it's easy on hand-eye coordination. We plant salads by individual cultivar,



A wringer washer serves to wash row cover



Proper bed width is important for ease of picking

in small broadcast patches, only big enough for a one day harvest. We never thin it or recut, but tear it out and re-seed it right away. In the fall and winter, we find that thinning, weeding and harvesting in the same pass greatly reduces our time and improves our efficiency. The less you have to go back into the same area the better.

We hand pick the spinach in the fall, winter and early spring. We find that increases our regrowth from 12 weeks to 2/4 in the dead of winter, and up to 2-3 days in the peak season. Picking many leaves at once with fingers and filling your hands before dumping into the tote increases your efficiency. Very painful to watch some of our workers pick one leaf at a time, study it, and put into tote. Not time or cost effective. Scissor harvesting in spring, summer and early fall is very fast, but mind your fingers and the rain tape. If you're careful not to damage the emerging leaves you can get a second cut. But weight usually drops by 30% and takes about two weeks for regrowth. With hand picking the regrowth is faster and plants are healthier. Scissors will damage the plant cells by crushing whereas hand picking snaps the plant stem off at a cellular division causing less stress to the plant. Hand picking is, however, just not feasible in the spring and summer as growth is too rapid.

We find the spinach is happiest at 4x4 spacing for winter growth and multiple

harvests. It can be tighter when you are only going for one cut. In the late spring, a hedge trimmer with a catch box is very fast and efficient for one harvest only. The remaining spinach has to be turned in as it is a tattered mess.

Body position is very important. Many positions are necessary for decreasing fatigue. I find keeping my back as straight as possible and leaning forward as little as I can helps. When I get tired, I use my knee to lean on as a chest support when possible and change my body position regularly. Personal comfort is key. This is where bed height becomes important. Maintaining flexibility and stretching regularly is something that should be promoted and not overlooked by any gardener.

A "Sea Can" - a cheap structure, fully insulated with stainless steel interior, is perfect for our processing facility, i.e. washing, packing and cooling. We use a triple sink for washing and a 10 kg salad spinner (a great eBay score!).

Packing: we use wicketed bags, roomy enough to accommodate desired weight and handle your hand size for stuffing, leaving enough room for easy sealing. We use an impulse sealer; at our last farm we had a pedestal sealer with a foot control which we also liked. The benches at the workstation should be at the right height for your body, if it's too high your upper body gets tired and sore. Rubber mats for standing on make a difference to your back and feet. Lighting is very important through all this for quality control and cleanliness. All our stainless steel was found relatively cheaply at second-hand restaurant supply companies. A good digital scale is essential.



Ebay score: 10 kg salad spinner

Box size is related to your customer's needs; it's important to understand their expectations and limitations. Quite often your warehouse has to deliver to small stores that require small case counts. It isn't that expensive to get your boxes printed and it's a real aid in marketing. Again, layout of the workspace so that boxes are easily loaded, and setting up your processing so that more than one person can work side by side, helps to keep the process streamlined. ✓

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Cultivating Community

Letters to the Editor

Letters to the editor are welcome. Letters must be under 500 words. We reserve the right to edit for length.

Greetings Purveyors, Consumers and Fellow Farmers,

The current increase in oil prices affects every aspect of our lives. We all feel the pinch directly when we fill our gas tanks.

Many people sigh and think, 'oh well' often adding 'this is temporary'.

Those who travel by air or bus accept fuel surcharges. When the kids demand this or that so they can be 'cool' or 'sweet' many parents jump and provide.

Food is basic. Drastic oil price increases threaten food security. This winter will surely see an increase in the price of imported produce, and in the long run this may be beneficial to the environment.

Wholesalers, retailers, consumers, I urge you to buy B.C., buy Canada, eat in season, begin to return to food basics, support B.C.'s farmers, thereby building B.C.'s food security.

Traditionally, farmers subsidize your food. Currently, the cost of almost every aspect of production is increasing, while the return to

farmers is decreasing. This can only go on so long. Society cannot expect farmers to continue this practise. As oil shortages and oil prices increase our food choices will decrease. Lets hope and pray there are enough B.C. farmers left to supply our food needs, as the food wants become less and less affordable.

Letters to the Editor

Farmers, we NEED to receive a 5 cents a unit increase for our products. Farmers CANNOT absorb the extra costs. Purchasers, support B.C. farmers. Our kids have off farm needs too, and a few 'wants'. The needs must be met and a few of the wants should be met by on farm income.

Consumers, I urge you to make a sound political statement every time you purchase produce. Demand B.C. grown, support organically grown, and try not to groan about the price. Buying B.C. grown, and/or organically grown, is an investment in your families health, the health of the environment, and the future well being of us all.

With Respect,

Lee McFadyen,
Mariposa Organic Farm, Est. 1962
...And a consumer of other farmers' products. ✓

Get Your Ducks in a Row!

by Elaine Spearing

Is that EFP workbook sitting on the shelf? Have you been meaning to go through it?

As we head towards winter, now is a good time to make a start! EFP advisors are available to help. Read on for information about new funding, publications and workbook improvements.

If you don't yet have your copies of the workbook and reference guide, several workshops are planned this fall and winter.

Workshops

At a workshop you will receive the publications and an introduction to the whole program. The

workshops provide useful information, even if you are not thinking of applying for funding. Workshops are free but you need to register. Confirmed workshop dates are:

Kamloops: October 15th
contact Elaine Spearing, 250-747-3237,
elaines@quesnelbc.com

Salmon Arm: October 22nd
contact Rosie Smit, 250-545-6576,
drtgirl@telus.net

Cawston: November 26th
contact Rochelle Eisen, 250-306-7980,
rare@telus.net

Langley November 29th
contact Elaine Spearing, 250-747-3237,
elaines@quesnelbc.com

Publications

The following publications are now available:

- Irrigation System Assessment Guide
- Grassland Management Guide
- Drainage Management Guide

These are intended to provide more in-depth information where needed, after initially using the EFP workbook and Guide. You can request one from your planning advisor. They can also be viewed and downloaded as pdf files from the Ministry of Agriculture and Lands website. (Go to Resource Management Branch, then Environmental Farm Planning, or use the address below) <http://www.agf.gov.bc.ca/resmgmt/EnviroFarmPlanning/index.htm>

Workbook

Improvements have been made to the early editions of the Workbook, so if you are unsure about a question, contact an advisor. We will

do our best to help, or it may be that the question has been amended.

There is an important new irrigation question: Is the most efficient irrigation equipment used for the crop and soil conditions present? (consider upgrading irrigation equipment if, for the crop type, a 15% or greater increase in efficiency is possible).

This question is linked to the existing share-funding available to assist change to a more water efficient irrigation system. Acceptable irrigation systems include low pressure/low clearance sprinklers and trickle or drip irrigation systems (above or below ground). Eligible costs include low pressure sprinkler nozzles, pipe/hose extensions/carts to provide low clearance, booms for low application, delivery hose/pipe, filters and emitters for trickle or drip systems, and associated installation costs. Funding will not be provided for establishing a new irrigation system that involves increased irrigation acres.

Share funding for Beneficial Management Practices

COABC Delivery Group farm projects that have received approval for share funding to date include:

- Shelterbelt establishment,
- Improved fuel storage,
- Irrigation equipment improvement for increased water use efficiency,
- Purchase of flail mower to chop prunings as alternative to burning.

Additional Funding available for many categories

Extra funding of 10-20% is now available for many categories of beneficial management practices. While this funding is available it results in the cost-share of some projects (eg. wildlife shelterbelt establishment, irrigation equipment improvement to increase water use efficiency), improving the funding ratio to 60% EFP, 40% producer - and part of the producer's share can be in the form of in-kind labour.

This funding is from Ducks Unlimited, but applying simply consists of checking a box on the application form to request the additional

Ducks continued on page 30...



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Ducks ...continued from page 29

funds. It is the producer's choice to request the additional DU funds - you can choose to just apply for the regular EFP funding if you wish. Special ducks do not have to be present on the farm, or indeed any at all - the eligible categories are selected as having relevant broad benefits.

Supplemental Beneficial Management Practice Categories.

Additional funding categories have become available under the Environmental Farm Plan Program. Please see the table at right for the additional categories.



BMP Category	Type of practice	Cost share	caps
Air Emissions	Emission control devices for greenhouse boilers to reduce air emissions (e.g electrostatic precipitators, bag houses, multi cyclones, scrubbers)	30%	\$15 K
Wildlife Damage Prevention-complementary	Fencing to protect stored feed, concentrated livestock, high value crops, drip irrigation systems, and other ag activities. NOTE This funding is to complement projects that exceed the existing "Preventing wildlife damage " category, which is funded from a different pot of money.	30%	\$15 K
Water Management Planning	Consultative services for water management planning to deal with issues arising from excess water including: preserving biodiversity, assessing nutrient movement to water courses, pathogens, preventing soil erosion, assessing soil structure and testing for cross drains.	50%	\$2K

Spotlight your Farm

Countless marketing studies have shown that your best marketing tool is the personal touch. Indeed, a major purpose of organic certification is to provide assurance to the consumer that the product can be trusted when there is no face-to-face contact between buyer and seller.

These days, when so many people are using the Internet to find products as well as information, farmers can also use the Internet to help develop and enhance that feeling of personal contact with the people who eat their food. It's easy, it's almost free, and it's proven to be effective.

All you have to do is sign up for a "Meet Your Farmer" spotlight on the new, improved COABC website (it really is new and improved -- check it out at www.certifiedorganic.bc.ca). This has become one of the most popular features of the website, and the more farmers and other COABC certified organic enterprises are spotlighted, the more traffic there will be, with benefits for everyone.

To have your farm/business featured on "Meet Your Farmer", all you have to do is to send to the COABC office a 75-100 word paragraph about your farm or business. You can include family details, philosophy -- whatever you like that will show people how wonderful and unique your operation is. Don't forget to send a photograph, which will be posted along with your text. You can send this by email to office@certifiedorganic.bc.ca or mail to COABC, 3402 - 32nd Ave., Vernon BC V1T 2N1.

Your spotlight will be FREE until January 1, 2006, when the price becomes a mere \$15 a year.

The "Meet Your Farmer" spotlight cycles regularly on the website; you can also click on Meet Your Farmers to see all the spotlights currently in rotation. Those licensees who had 'member webpages' on the old COABC site will find that their page has been recently converted to a spotlight.

You have a story to tell as well as a product to sell. Use the website to get your story out there!

If you have any questions, please contact Kristy at the COABC office.



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- Best non-alcoholic beverage
- Best alcoholic beverage
- Best bakery product
- Best dairy producer
- Best dairy product
- Best livestock producer
- Best processed meat product
- Best horticultural producer
- Best processed (non-livestock) product
- Best direct farm marketing business
- Best farm-based home delivery business
- Best home delivery system (non-farm)
- Best integrated-farm system
- Best retailer

BC Organic Harvest Awards are produced by the Certified Organic Associations of BC. Application forms are available from the COABC office or online at www.certifiedorganic.bc.ca Tickets are \$75 and can be purchased by calling (250) 260-4429. For more info call (604) 737-7515.