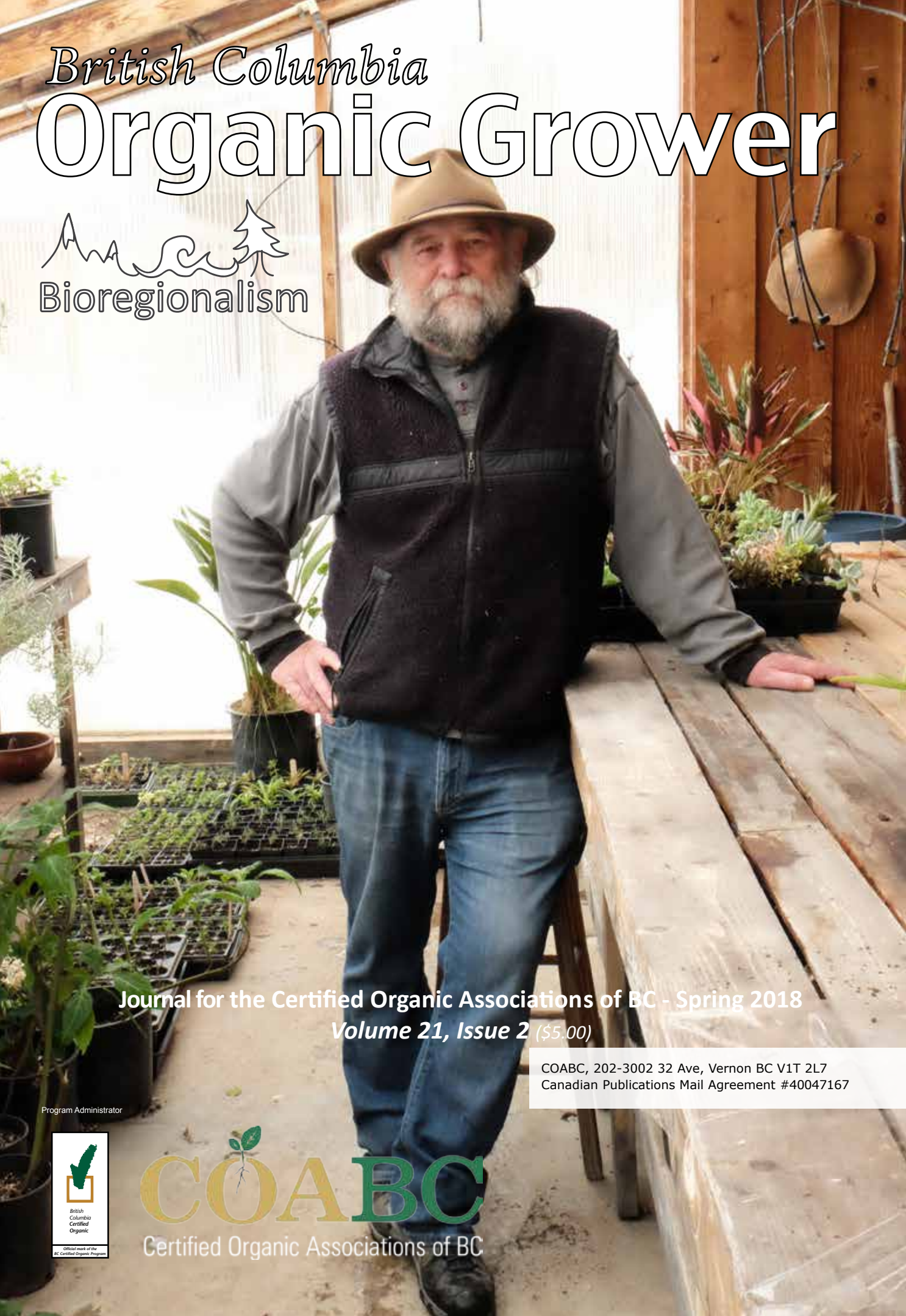
British Columbia Organic Grower

Bioregionalism



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COABC
Certified Organic Associations of BC

In This Issue

Sunshine Farmers

Jon Alcock has called the Okanagan Valley home for more that 25 years. He is a mentor and an inspiration to many growers and has a reputation for great tomatoes! *Read more about Sunshine Farm on Page 8.*

Features

Bioregionalism: Future of Our Food System

Check out *The Future of Our Food System: Report on the Southwest BC Bioregion Food System Design Project.* *Read more on page 16.*

BC Organic Grower

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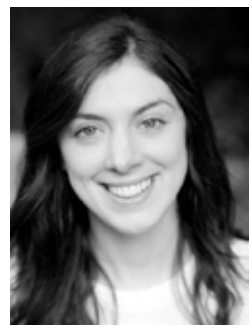
certifiedorganic.bc.ca

On the Cover: Jon Alcock of Sunshine Farm. Credit: Michael Marrapese.

Editor's Note

By Darcy Smith

"For most of the history of this country our motto, implied or spoken, has been Think Big. I have come to believe that a better motto, and an essential one now, is Think Little," wrote Wendell Berry in his essay, Think Little. Organic farmers are already quite accomplished at this, in touch as they are with their land and the ecosystems in which the live and farm. The next few issues of the BC Organic Grower will pick up on the theme explored at this year's conference, bioregionalism. If you seek a single definition of bioregionalism, you'll find a multitude, so our approach will be to use a wide lens even as we zoom in and "think little". In the Spring 2018 issue, we'll dip our toes into bioregionalism, and set the stage to continue looking at the ecological, cultural, and economic implications of bioregionalism and our food system from a variety of perspectives.



On page 16, we have excerpted from The Future of Our Food System, focusing on the Southwest BC Bioregion, from the Institute for Sustainable Agriculture at Kwantlen Polytechnic University (KPU). We hope this provides some context for the ongoing exploration of bioregionalism both in these pages and in our own communities.

For this issue's Organic Stories feature, Michael Marrapese takes us to visit Alcock at Sunshine Farm in Kelowna on page 8. I have such vivid memories of my first visit to Sunshine Farm, listening to Jon's philosophy on seed saving on a hyper local basis—reading this feature took me right back to that magical piece of land. I hope it conjures the same sense of place for you. Sunshine Farm is a resolute example of what decades of commitment to ecological and cultural resilience can achieve.

Speaking of resilience, that word comes up once or twice in these pages! While editing this issue, I had a moment of debate upon seeing three or four articles with similar titles—but as you'll see, resilience won out, as it does in life. In our Ask An Expert column, Emma Holmes, Organics Specialist at the Ministry of Agriculture, gets into the nitty-gritty of resilient soil ecosystems (page 11). On page 20, Meagan Curtis shares the BC Eco Seed Co-operative's approach to growing resilient seed, and in Footnotes from the Field (page 22) Marjorie Harris reflects on the Canada Organic Standard regarding seeds, and the importance of organics and bioregionalism in the context of climate change and an industrialized food system.

On page 12, Moss Dance recaps COABC's 2018 Conference—for which the theme, of course, was Bioregionalism: Resilience in a Changing Climate. I personally find the annual conference an inspiration that feeds my work for the year, and I am always in awe of the resilience that exists in the organic community.

In contrast to path forward to resilience highlighted in many of this issue's articles, on page 27 Lucy Sharratt from CBAN shares an update on Canada's impending "Low Level Presence" of unapproved GMOs policy and the implications that has on a global scale.
Finally, on page 26 we look at the question that's on all our minds: are sheep stupid? Sara Sutherland goes deep into the flock mentality and comes back with an answer that runs counter to a number of clichés!

We're always looking for story ideas and writers to help share all the wonderful things happening in the organic community—do you have something to say about bioregionalism, or organic farming? Reach out with your thoughts, letters, and story ideas to editor@certifiedorganic.bc.ca—and be sure to visit us online at:

bcorganicgrower.ca

ALR Revitalization

An advisory committee is currently leading a review of the Agricultural Land Reserve (ALR). The public engagement process that is currently underway will be essential to the recommendations the advisory provides. Make sure your voice is heard on important ALR issues — you can provide written feedback in several ways.

Please see the ALR Revitalization article on Page 6 to find out how to submit your comments!

COABC Strategic Plan 2018-2023

In early November, COABC hosted a productive meeting of the BC organic sector to discuss direction for the next five years. Many items, including communications, research, and sector capacity were highlighted as areas of importance. Contributions from across the sector helped create an ambitious, focused direction for the next five years.

The 2018 - 2023 plan was unveiled at the 2018 COABC Conference in February, and it is now available on the COABC website:

certifiedorganic.bc.ca/docs/COABC_StrategicPlan_2018-2023.pdf

Budget 2018

Grow BC, Feed BC, Buy BC initiatives are the focus of Budget 2018 for the BC Agriculture sector. The new budget sees funding for the BC Agrifood Sector increasing by $29 million over three years.

Aimed at encouraging consumption of BC products and building resiliency in the sector, the increased agriculture budget will go towards initiatives such as assisting beginning farmers, supporting the tree fruit and nut industry, revitalizing the Agriculture Land reserve (ALR), and enhancing a Buy BC strategy.

For more on Budget 2018:

certifiedorganic.bc.ca/infonews/newsmedia/PressRelease_Budget_2018.pdf

BC Foodlands Cooperative

The Friday session at this year's conference featured a talk from Heather Pritchard about the BC Foodlands Cooperative, a project many years in the making. The BC Foodlands Cooperative is a member-powered provincial co-operative that secures and holds land in trust while facilitating capacity building of community groups to make land accessible and manage it for food provisioning. The Foodlands Cooperative upholds and demonstrates the public and community interest for sustainable land use and the protection and utilization of food providing lands across BC. Stay tuned for more info on the BC Foodlands Cooperative in our Summer 2018 issue. For more info:

foodlands.org

Young Agrarians U-MAP

Looking for a farm job? Looking for farmland, or want to lease out your land? Searching for a #CSA? Looking for business planning tools, workshops, or seed suppliers? Head on over to our Young Agrarians U-Map to find what you need to get started in your farming journey, or to connect with farming community in your area.

The resource map acts as an online hub to connect and engage Young Agrarians by highlighting a diverse array of projects, opportunities, and tools across Canada. Don't forget to add your farm, resource, or opportunity to the map so people can find YOU!

maps.youngagrarians.org

Got Land? Want Land?

Young Agrarians Land Matching Program

If you're a farmer seeking land to lease, or a landowner with land available for a young farmer, Young Agrarians can help! BC-wide, farmers and farmland

owners can use the U-MAP Land Listings Registry to list themselves, and peruse other listings. Both farmers seeking land and farmland owners can also submit a blog post to the Young Agrarians blog, sharing their need or opportunity with the YA network.

To find out more about YA's Lower Mainland Land Matching Program visit:

youngagrarians.org/land

Or email:

land@youngagrarians.org

Organic Science Canada

The Organic Federation of Canada and the Organic Agriculture Center of Canada have recently released Organic Science Canada, a magazine that describes in everyday language the 37 research activities performed under the Organic Science Cluster II. The new magazine offers an amazing opportunity to learn about the latest research in pest management in grain storage, effective sanitation for organic sprouts, and the best use of green manures in organic grain production, as well as other interesting issues in organic production systems.

Read the first ever Organic Science magazine here:

cdn.dal.ca/content/dam/dalhousie/pdf/faculty/agriculture/oacc/en/osc2/EN_OrganicScienceCanadaMagazine_Issue1_2018_COMPRESSED.pdf

OFC Strategic Planning Session

Jim Robbins, President of OFC, led a strategic planning session at the 1.5-day in-person meeting held by OFC in Abbotsford on February 26-27, 2018. BC's representative on the OFC, Rebecca Kneen, was present with her fellow directors as they dove into the critical question of 'What Should the Organic Federation of Canada do in the next five years?'

The answers were clear: OFC will continue fulfilling its mandate—maintaining and reviewing the Canadian Organic Standards and managing the Organic Science Clusters, while looking for stable funding for its member organizations. Maintaining/advancing synergy with other national organizations—COG, COTA, OACC—was also underlined as a key factor for developing the Canadian organic industry.

Small-Scale Meat Producers Association

Small-scale meat producers need a seat at this table, so they're forming a new organization called the Small-Scale Meat Producers Association to help bring their collective voices to the industry and government. If you're producing meat commercially on small/medium scale in BC and would like to be involved, involved, please visit their website:

smallscalemeat.ca

or email

smallscalemeat@gmail.com

The BC government is currently consulting with small abattoirs and other stakeholders for feedback and suggestions on how to improve rural abattoir licensing in B.C.

From the BC Ministry of Agriculture's press release:

Current and former holders of Class D- and E-licensed abattoirs will be asked to describe their experiences with the administration, licensing, operations and food safety of their abattoir, and to discuss other ideas that could enhance local slaughter capacity throughout the province. The Ministry of Agriculture will also gather input on the topics from key stakeholders including the BC Association of Abattoirs and the BC Cattlemen's Association, as well as regional health authorities.

The consultation will be limited to Class D and E licences only, and will not consider provincial A and B licensed, or federally licensed slaughterhouses.

Class D Licence holders are allowed to slaughter up to 11,339.81 kilograms (25,000 pounds) of their own or other people's animals per year, for direct sales to consumers or to food businesses such as restaurants and meat shops in the region the meat was produced. Class D Licence holders must also operate in one of the 10 regional districts that have been designated as rural remote areas.

Class E Licence holders may slaughter up to 4,535.92 kilograms (10,000 pounds) of their own animals (only) for direct sale to consumers (only) in the area the meat was produced. There are currently 19 Class D Licence Holders and 27 Class E licence holders in B.C.

The consultation is part of a review of the province's rural slaughter capacity the ministry is undertaking to support B.C. ranchers and livestock producers in rural communities.

news.gov.bc.ca/releases/2018AGRI0015-000444

REVITALIZING

The Agricultural Land Reserve & the ALC

[*Editor's Note: What follows is the Certified Organic Association of BC's submission to the Minister's Advisory Committee on Revitalizing the ALR (Agricultural Land Reserve) and ALC (Agricultural Land Commission). Members of the public—that's you!—are encouraged to participate in the public commentary process online, so please share your own stories, thoughts, and solutions on how to improve the ALR. Information on how to submit feedback is included below.*]

The Certified Organic Associations of BC appreciates the opportunity provided by the BC Ministry of Agriculture to submit input regarding revitalizing the Agricultural Land Reserve.

Introduction

As the voice of the BC organic sector, the Certified Organic Associations of British Columbia (COABC) promotes organic awareness and principles. Through our nine certification bodies, COABC holds a membership of approximately 750 certified organic and transitional operations but represents the much wider interests of the entire sector. As a non-profit organization, COABC is mandated to promote the principles of the organic sector, which focus on care for the soil. Naturally, COABC views the ALR as an essential element for building a thriving agricultural sector.

COABC & the ALR

In 2014, COABC surveyed its members about pending changes to the ALR. The top concerns for our members were: loss of farmland (94%), non-farm uses in the ALR (84%), and soil and water contamination (70%).

The new 2018-2023 Organic Sector strategic plan includes the mandate to advocate for the protection of food lands and COABC views farmland as an essential element. Maintaining and protecting our food land is vital for the BC Organic Sector and future farmers.

Both ALR mandates, to Preserve Farmland and Encourage Farming, are essential components of the ALR. There are many ways to achieve these goals and the following suggestions come from working with organic farmers and new entrants to farming. COABC believes both parts of the ALR mandate are critical to the future of farming in BC.

Farmland Preservation

- Deter speculation and foreign ownership on our valuable food land.

One of the largest barriers to the next generation of farmers in BC is the high cost of farmland. Speculation on farmland makes farms unaffordable to young and new farmers. It also means that those who do purchase at high prices will likely have to subsidize the farm with off-farm revenue.

- Base the scale of non-farm uses on percentage and quality of land base used for those non-farm activities.
- Ensure that non-organic farms and neighbouring non-farm uses do not risk contamination of land and water.
- COABC would like to see small parcels of agricultural land embraced and not marginalized.
- The ALC should not delegate any authority to the oil and gas commission.

Encourage farming on ALR

As part of its mandate, the ALC has a leading role to play in encouraging and enabling new and young farmers. Though this part of the mandate has not been a main focus in the past, the demand for this type of support is increasing.

HAVE YOUR SAY!

You can provide written feedback and solutions to ALR issues near and dear to your heart in several ways. Comments must be in by April 30, 2018, but the sooner the better!

1. Through an online survey for public feedback focus on collecting British Columbians' opinions and views on 10 common themes:

engage.gov.bc.ca/agriculturallandreserve

- A defensible and defended ALR
- ALR resilience
- Stable governance
- Efficacy of Zones 1 and 2
- Interpretation and implementation of the act and regulation
- Food security and B.C.'s agricultural contribution
- Residential uses in the ALR
- Farm processing and sales in the ALR
- Unauthorized uses
- Non-farm uses and resource extraction in the ALR

2. Submit comments by email to the Advisory Committee – you don't need to stick to the list of issues outlined above, so share your personal stories and solutions:

ALR_ALCRevitalization@gov.bc.ca

3. Send your submission by mail to:
Minister's Advisory Committee
Revitalization of ALR and ALC
C/o Ministry of Agriculture
PO Box 9120, Stn. Prov. Govt.
Victoria, BC, V8W 9B4

- The preservation of farmland must be closely linked to encouraging farming on ALR land. In fact, changing the wording from 'encourage' to 'ensure' would mandate the ALC to take bold action to bring our preserved farmland into food production.

- Access to land via leases. Partial farm leases for agricultural purposes should be supported as a viable way to increase new entrants into agriculture because land prices are a barrier. It should be very clear that these leases do not divide the property permanently.

- Implement a housing strategy that encourages agriculture, such as a home plate policy, limited by parcel size. This would reduce the threat of mega-mansions (and their trappings) sprawling over farmland. Extremely large homes on farmland effectively put the land out of reach of the average farmer as the resale value increases drastically. Alternatively, the home plate system could provide a solution to farm worker housing and encourage farming by the next generation.

- Review taxation policies to incentivize active farming on ALR. Farm threshold status should be increased. In the 30 point housing plan in the 2018 provincial budget, a commitment to closing tax loopholes on ALR land was made. Ensuring that new speculation taxes work for the preservation of ALR land and do not increase development pressure is essential.

Conclusion

COABC supports a strong, independent and well-funded ALC to manage the ALR throughout the province. COABC commends the willingness to explore various options to invigorate the ALR system. The ALR is a fundamental tool in the protection of our agricultural lands and the creation of healthy local food systems. The valuable farmland in BC should primarily be used for food production. Agriculture, the preservation of BC's farmland, and food security should be the prime considerations for the ALC when considering activities on ALR land.

To revitalize the ALR for British Columbia, thorough consultations beyond this tight timeline should be conducted, especially with farmers and future farmers. Many of these ideas and suggestions would need substantial input and time to implement. Working with the agriculture community will help maintain an ALR that is resilient going forward. COABC would support the creation of a more long term 'committee' to determine the appropriate path to implementing the revitalization of the ALR.

Recently, the COABC has joined the Foodland Trust Co-operative. There is great opportunity for the ALR to work in collaboratively with other initiatives, such as the trust, to support the preservation of food lands in BC. Together we can create a robust ALR.

The statement the Auditor General made in his 2010 audit of the ALC:

"Agriculture land is an indispensable, natural resource. Once taken over for urban development farmland is no longer available for food production. Protected farmland fosters local economic stability and provides environmental services and public benefits. One of the main reasons for any jurisdiction to preserve farmland, however, is to secure food production into the future, especially in light of the impending effects of climate change."

SUNSHINE FARM

Seeking Balance, Seizing Passion

Photo credit this page and facing page: Thomas Buchan

By Michael Marrapese

"We're in the East Cascades at the Northern tip of the Sonoran Desert," Jon Alcock explains. "We're on the former shores of Lake Penticton, which was a glacial lake 12,000 years ago. It deposited these great mineral soils that are perfect for wine grapes and orchards. We're in a rain shadow so we have a pretty dry climate. The cool fall nights help to ripen the apples and give the pinot noir its character."

Alcock has called the Okanagan Valley home for more that 25 years. He is a mentor and an inspiration to many growers and has a reputation for great tomatoes and carrots. He and his wife Sher have established a successful farm and seed business at Sunshine Farm in Kelowna, selling vegetables and locally adapted seed to customers throughout the Okanagan Valley and into the Kootenays.

Years of work and keen observation in his vegetable growing and seed production have given Alcock an appreciation and understanding of his bioregion and how to work within it. He notes that towards the end of the last ice age there was a great glacial dam that collapsed. The floodwaters scoured out the regions on the East Cascades and either deposited or created a unique mineralizing. "This really shows up in the older grape vines in our region," he observes. "It's also great for root crops and vegetables like tomatoes that really express the terroir. The quality and texture of the soil, the amount and frequency of water all affect the taste and texture. With our tomatoes, we want to get their roots down into that deep sub-soil. By mid August we stop watering, which forces the roots to go deeper."

Alcock's world view is distinctly bioregional. Bioregionalism seeks to define an area more by its ecology than by its political boundaries but also recognizes the flora and fauna that inhabit the area and the cultural and political aspects of human activity. Bioregionalism stresses practices that enhance the unique ecology of a region and encourage sustainability within its capacity. It's a world view that encourages the consumption of local food and the use of local materials.

Over the years, Alcock has observed that cultural pressures are as important as climatic ones. Cooking skills, cultural preferences, and personal taste affect what is profitable for farmers as much as rain and soil. As most farmers know, it's ultimately the customer that decides

what’s useful to grow. He comments that, “We have a lot of Northern Europeans in the valley who bring their food culture with them. They don’t hesitate when they see these odd shaped roots like our Hamburg Parsley.” He pays particular attention to the regional food cultures and continually consults with chefs, seeking new ideas. Everything is on the table, literally.

Feedback from the chefs is extremely valuable in helping him define which varieties he wants to trial. Jon will introduce a variety and trial it for several years. He’s always interested in varieties that have a heritage aspect. “Sometimes it can be a little whacky,” he says. “We don’t give up on varieties that don’t do well in the first year. We’ll give them a couple of years to see how they are influenced by weather and water. We work a variety for three or four years of planting and selecting. We select primarily for flavor, but also for the colour, shape, and size.”

Known for an impressive array of peppers, tomatoes, and carrots, Alcock also has a greenhouse full of unique and unusual crops that help to keep things interesting. Though he loves the challenge and the experience he argues that you still need customers to buy your product. It is undoubtedly easier to introduce new crops to your farm than to new customers but he notes that customers have become more interested in locally produced food. “We’ve been able to push up against the edges of what the region can produce. Some of our crops, like the Hamburg Parsley or some varieties of parsnips—twenty years ago those were a hard sell. Now they seem to be trendy,” he says.

In the early days at the farmers markets there was a real push by farmers in the region to differentiate their product from that which was available at the local supermarkets. This led to a flourishing of a diversity of crops in the farmers’ fields. Alcock points out that “they wanted to

Photos: Jon Alcock in front of his home. Credit: Michael Marrapese

show off the niche stuff. They wanted to bring people in and say 'Check this out, we've got an exciting local food thing happening here'. That was pretty well received and helped to build the markets. Whenever I speak publically I say that life is too short to only eat orange carrots and red tomatoes. You've got to try this other stuff, there are other flavours, and don't submit to corporate, industrial food. There's an amazing array of vegetables that have different and interesting flavours. You can do fun things with them."

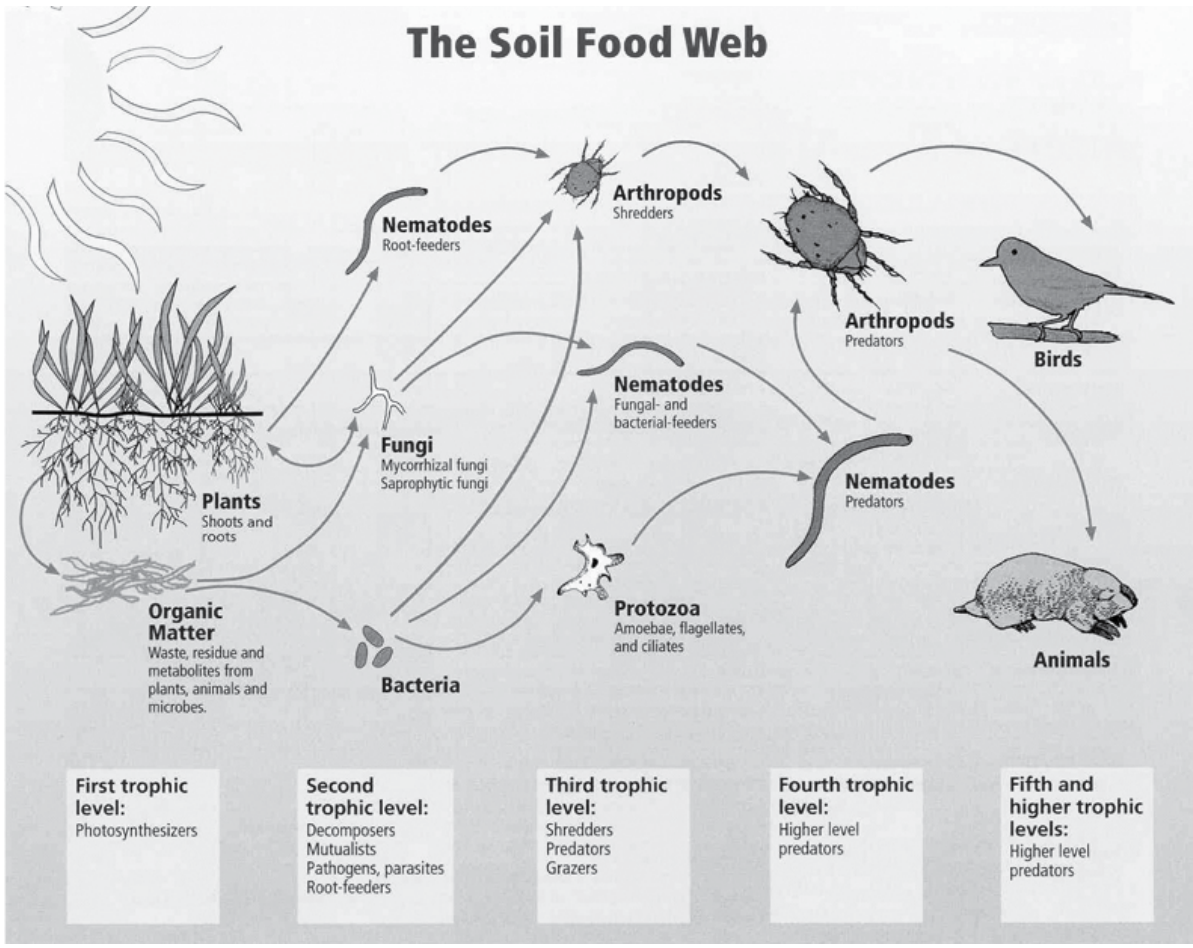
At Sunshine Farm, Alcock's goal is specifically to develop plants that are regionally adapted and will grow better in his bioregion. Key to this process is to first find varieties that grow well and that have the desired characteristics. Once he's field-tested a crop he begins the sometimes lengthy process of taking them to seed and then trialing and evaluating the seed to see how it behaves. It's inherently a long term process, sometimes over several generations of plants, but he finds it endlessly interesting and has a lot of fun with it. "In the 90s I thought I would go back to school and do graduate work. Before I had even started my program they were calling me in to do lectures. I realized how much depth there was in seed production and how much there was to learn. So I said to myself, 'Okay, that's the graduate work that I'm doing for the rest of my life.'"

Alcock's thoughts on variety selection are that we shouldn't be exclusive. Just because we don't see something growing in our region doesn't mean we shouldn't try it. This seems especially true in this era of global warming and climate change. "My advice is to make sure it's fun," he says. "Hard work and fun can go together. If you're having fun you can enjoy your hard work more. Seize the passion."

Photo: Lettuce seed. Credit: Thomas Buchan

Michael Marrapese is the IT and Communications Manager at FarmFolk CityFolk. He lives and works at Fraser Common Farm Cooperative, one of BC's longest running cooperative farms, and is an avid photographer, singer and cook.

FOSTERING RESILIENT SOIL ECOSYSTEMS



By Emma Holmes, Organics Specialist, BC Ministry of Agriculture

Studies examining soil microbes are showing huge potential to improve growing practices. A number of soil microorganisms have abilities to increase soil fertility, aid in nutrient and water uptake by the root system, and protect crops against pests and disease.

Soil Bio-fertilizers

If you grow legumes, you are likely already familiar with Rhizobia, the family of soil bacteria that form symbiotic relationships with legumes to convert atmospheric nitrogen to a form of nitrogen that is plant available. Producers have been inoculating their legume seeds with rhizobium since the '50s and it is estimated that 70 million tonnes of N are fixed annually by Rhizobia (Zahran, 1999). There are significant potential gains to be had from reducing dependence on nitrogenous fertilizers by increasing biological nitrogen fixation including reduced input costs, pollution prevention, and improved yield and crop quantity (Kelly et al., 2016).

But it is not just legume crops that see big returns in partnering with soil organisms. Farmers around the world are using bio-fertilizers to cut back on expensive fertilizers, build their soil quality, and better protect their waterways and aquifers.

There are six main types of biofertilizers:

1. Symbiotic Nitrogen Fixers (e.g. Rhizobium) form nodules on the roots of legumes and can fix 50-200 kgs N/ha in one crop season.
2. Asymbiotic Free Nitrogen Fixers (e.g. Azobacter) live in the soil and fix significant levels of nitrogen without the direct interaction of other organisms.
3. Associative Symbiotic Nitrogen Fixers (e.g. Azospirillum) form close relationships with grasses and can fix 20-40 kgs N/ha.
4. Phosphate solubilizing bacteria (e.g. Fusarium) convert non available inorganic phosphorus into a plant

Continued on page 30....

BIOREGIONALISM: *Resilience in a Changing Climate* Conference Recap

Heather Pritchard and COABC President Carmen Wakeling present Rebecca Kneen with the Brad Reid Award.

By Moss Dance

One thing that struck me about this year's annual COABC conference was the high level of engagement and the cohesiveness of the organic community. This year's theme was "Bioregionalism: Resilience in a Changing Climate," and the organic farmers and friends who showed up to learn, share, and connect with community brought so much attentiveness and presence to the conversation. We also had an incredible array of speakers and workshop presenters who co-created an inspiring weekend for the organic community in B.C.

Dawn Morrison's Saturday morning keynote speech.

Food Is Sustenance First

Dawn Morrison, celebrated Indigenous food sovereignty activist from Secwepemc territory, kindled the fire for our weekend conference during her Friday keynote speech. Dawn is Director of the Working Group on Indigenous Food Sovereignty and during her address, she generously shared Original Instructions from her Elders and teachers about the importance of food and access to land and foodsheds with a crowd of keen organic farmers. I found Dawn's speech moving on many levels—what really struck me was her kind and candid approach to the issues we all face after a long legacy of colonization and genocide of Indigenous peoples.

As a settler myself, I often feel overwhelmed by the enormity of the issues I have faced as a "landowner" and a farmer on stolen land. How do I reconcile myself with the fact that, as a farmer, I need secure access to land to produce food, and that, as a settler, I benefit from the

Organic Family: Singing Cathleen Kneen's meal blessing song at the Saturday evening banquet.

theft of Indigenous lands? How do I succeed as a farmer and decolonize my relationship to this land; acknowledge past wrongs and take action to heal them?

There are no easy answers to these questions—and throughout the weekend, Dawn, and Rebecca Kneen, who co-facilitated a Saturday session with Dawn, encouraged us to stay in our discomfort. We can have amazing dialogues and find incredible common ground from a place of questioning and seeking new answers.

A practical suggestion from Dawn had me reconsidering my approach to farming—she urged the farmers in the room to stop using the word "product" to describe food. Food is sustenance first, and all living things are related. Honouring the necessity of food for life, the energetic qualities of food (grown organically, with care and the best inputs) is something food growers in this community can understand in day-to-day life. That's why we are a part of this movement.

50 Million Farmers Needed

The following morning, Kent Mullinix lit within us a call to action with his keynote address: "Food Systems in a changing environmental, economic, and societal climate: our path to a sustainable food system future."

Kent gave a passionate plug for young and upcoming farmers—yes, those infamous Millennials! It was inspiring to hear his take on the drive and ingenuity of this generation based on his direct experience working with young farmers enrolled in Kwantlen Polytechnic University's Sustainable Agriculture Program. In fact, we had a number of KPU students in attendance over the weekend.

The Trade Show was bursting with seeds, info, and tools!

Kent focused on the role of organic agriculture in the years to come, outlining key strategies to continuing the movement and building a larger sustainable agroecological movement. He urged us to continue our work to remain credible and build trust in society for organics, and to focus on the family farm—however we might define our family units! Kent also outlined some very strong arguments for the decommodification of agricultural land in BC. These points are summed up nicely in a recent CBC article, which you can find here:

cbc.ca/news/canada/british-columbia/white-paper-urges-protection-of-farm-land-1.4566345

And the Winner Is...

Rebecca Kneen is this year's Brad Reid Award recipient**!** Rebecca was honoured for her outstanding contributions to the organic community, her social and environmentally-minded approach to business, and for coming up with really excellent names for craft beers like Backhand of God and Insurrection IPA.

Rebecca is co-owner of Crannóg Ales and Left Fields, a farm and microbrewery in Sorrento on Shuswap Lake. She has served as a director of PACS, NOOA and the COABC, put in several years on the COABC Standards Review Committee, and currently serves on the Certification Committee for NOOA as well as being the BC representative to the Organic Federation of Canada. Rebecca also worked with her late mother, Cathleen Kneen on the editorial/design team for the BC Organic Grower! Rebecca grew up on a commercial (non-organic) sheep farm in Nova Scotia, then wandered about Canada working on various farms and for arts and social justice groups for several years after completing her BA. She has worked with FarmFolk/CityFolk in Vancouver organizing the Feast of Fields.

***PHOTOS** from top: Rod Reid, Charlie Lasser, and Susan Davidson share Stories from the Vanguard of Organics; Singing for supper at the Saturday Night Organic Banquet; Chris Bodnar, our rousing MC for the weekend; Rebecca Kneen, Daria Zovi, and Heather Stretch on the Record Keeping panel session. Credit: Michael Marrapese.*

Left Fields is 10 acres of mixed production, in hops, house garden/orchard, Icelandic sheep, and pigs—and is also the primary land base for Stellar Seeds. Rebecca's family background is in food policy and community organizing (Brewster and Cathleen Kneen, the Ram's Horn), and her interests are primarily in sustainable food production and social justice, as well as fibre arts (spinning, knitting, felting), culinary/brewing arts, and feminist science fiction. Rebecca has also been providing leadership in the organic community around creating understanding around Indigenous Food Sovereignty and Indigenous rights.

Crannóg Ales was the first exclusively organic brewery in BC, and has been certified since opening in 2000. It is also a zero-waste system, with everything (except one bag of garbage a week) being recycled or re-used on the farm, from wastewater to spent grains.

We'd like to offer congratulations to Rebecca for receiving this award, and our heartfelt thanks for all she has done to support the organic community over the years!

Tell Your Story to the ALR

The ALR Roundtable focused in on food growers' stories about farmland challenges, and discussion of practical solutions that the ALC could adopt to deal with rising farmland prices and decreased access to farmland for farmers.

A few great ideas I heard at the ALR Roundtable:

- Ensure market rental rates when land is leased for farm use.
- Concentrate on saving land from development.
- The Home Plate: limit footprint of housing to a certain number of square feet or a percentage of total land area.
- The ALC needs to acquire farm land and hold in trust—lease back to farmers on 20 year leases at reasonable rates (it's not a new idea! This has happened in the past.)
- Raise property taxes when farmland is not being used for agriculture.
- Require potential buyers of agricultural land to present a farm business plan.

These measures could really add up to increasing access to farmer access to agricultural land, and increase the number of farmers and profitability of farm operations in BC. Agree? Disagree? It's time to have your say on the ALR, and if you haven't already, please be sure to submit comments or fill out the survey prepared by the Minister's Advisory Committee on the ALR by April 30:

engage.gov.bc.ca/agriculturallandreserve

Organic Online System (OOS)

Darcy Smith and Jen Gamble gave us an exciting sneak preview into the Organic Online System. The OOS session was great for identifying a few glitches and helping the team to identify some additional user needs and functional improvements. Hooray for crowdsourcing farmer ideas!

The OOS is really going to help streamline organic applications of new applicants. While long time farm operators may find the transition a bit challenging at first, the takeaway I got from this session is that the online system is long overdue and will improve the resilience and accessibility of organic certification in B.C.

Community Coming Together

I am always blown away by the incredible community we are all a part of. This year's conference was no exception—new babies and snowstorms in the Lower Mainland meant that a number of presenters were unable to make it to the conference, and people stepped up at a moment's notice to fill those workshop sessions with rich content and thoughtful discussions. What a testament to the knowledge and giving spirit in the room.

This year's silent auction, organized by Natalie Forstbauer, was a record breaking success. Together, we raised almost $5,000 that goes directly back into COABC and growing BC organics. COABC exists because of the ongoing participation and support of the organic community, and this year's silent auction was an amazing show of support from that community. We hope you enjoy your silent auction goodies—also sourced mostly from within our ranks.

Thank You Jesse!

Finally, I think I can safely speak on behalf of all of us in thanking Jesse Johnston-Hill for her enormous effort organizing this year's COABC gathering. It was a really wonderful weekend full of amazing takeaways to inspire us all for the coming season. Thank you for all of your hard work, Jesse!

Photo Credits

Thank you Michael Marrapese for capturing the weekend in photos and sharing them with us for this recap!

THE FUTURE OF OUR FOOD SYSTEM

Farmland in Southwest BC. Credit: Kwantlen Polytechnic University

Excerpts from The Future of Our Food System: Report on the Southwest BC Bioregion Food System Design Project by the Institute for Sustainable Agriculture at Kwantlen Polytechnic University (KPU). *Reprinted with thanks to Kent Mullinix and the Institute for Sustainable Agriculture at KPU*

Foreword to: The Future of Our Food System

By William Rees, Ph.D.

William Rees, Ph.D., is Professor Emeritus, Environment and Resource Planning, School of Community and Regional Planning, University of British Columbia, and co-author of Our Ecological Footprint

Society is only three square meals away from revolution. —*Leon Trotsky*[i]

H. sapiens is an enigmatic species. Humans have evolved high intelligence, making us uniquely capable of reason and logical analysis; no other species can plan ahead, using available evidence to shape its own future.

But there is a problem. Humans are also endowed with behavioural predispositions that were once adaptive but have become impediments to survival today. In particular, humans are inherently short-sighted. Most people favour the here and now over future possibilities and distant places, a trait that economists have formalized as "social discounting." This built-in myopia dilutes our ability to plan for the future.

To complicate matters, humans are myth-makers. While other species take the world as it comes, people socially construct shared perceptions of reality. Much of what we take to be "truth"—our various cultural narratives, religious doctrines, political ideologies, and academic paradigms—are largely products of the human mind. These stories are massaged and polished by social discourse and negotiation and ultimately elevated to the status of received wisdom by common agreement.

Most importantly, people "act out" from socially constructed beliefs as if they were ultimate truths. This is not a problem when a cherished myth resonates well with external reality, but what if our construct is little more than a shared illusion? Allegiance to ill-conceived myths and paradigms—the denial of contrary evidence—has presaged the collapse of countless social organizations, governments, and even whole societies since the dawn of civilization.

What has all this got to do with food? Food is the ultimate resource, yet myopia and denial are defining characteristics of society's prevailing approach to food security. Food (and, often, agricultural land) is treated just

Photo credits: Kwantlen Polytechnic University

like any other commodity, subject to the vagaries of market economics. And markets are intrinsically short-sighted—prices reflect current supply and demand with no capacity to factor in likely future conditions. Moreover, contemporary neoliberal economics is "hands-off" economics, socially constructed to minimize government intervention (so much for long-term planning) and to optimize a single value: efficiency (who can be against efficiency?). Efficiency, in turn, demands local specialization in a few commodities supplemented by trade for everything else. This creates monocultures and potentially unsustainable producer and consumer dependencies. Meanwhile, increasing competition in global markets drives producers to externalize ecological costs such as soil and water pollution and bid down local wages. In short, the economic paradigm that is shaping what (and even whether) we will produce and consume in coming decades ignores such values as community cohesion, equity, regional self-reliance, economic diversity, and ecological stability while simultaneously inhibiting public planning for global change.

Little sign of high intelligence here, and too bad, given that significant change is a certainty. This is the Anthropocene. Global warming and increasingly unpredictable climate is already upon us, biodiversity is plunging, soils

are eroding and water tables falling, an energy crisis has been headed off only by a slowing global economy but will return (particularly significant because "modern agriculture is the use of land to convert petroleum into food" [ii]), sea level rise and desertification are likely to destroy vast areas of agricultural land and displace millions of desperate people, and such trends can only increase geopolitical tensions and the likelihood of resource wars.

Meanwhile, most of the official world remains in a socially constructed bliss-bubble. Blinded by the prevailing myth of perpetual growth and continuous technological progress, we are not quite able to admit that these trends may herald a global food crisis. Consider the following burst of (effectively self-cancelling) optimism from the UN Food and Agriculture Organization:

"Barring major upheavals coming from climate change and the energy sector or other events that are difficult to foresee—such as wars or major natural catastrophes leaving long enduring impacts—world agriculture should face no major constraints to producing all the food needed for the population of the future, provided that the research/ investment/policy requirements and the objective of sustainable intensification continue to be priorities." [iii]

What this really says is if none of the highly likely events that could prevent it from happening actually happens, and everything needed to make it happen does happen, then world agriculture will have no problem producing all the food needed for future populations. This is an impossibility theorem; there will be "major constraints" in meeting global food demand.

This is why everyone concerned about food and food security in Southwest BC—anywhere, actually—should be interested in the present study: The Future of Our Food System assumes from the outset that the system must adapt to changing biophysical and geopolitical realities. It is increasingly unwise for any region to become excessively dependent on potentially unreliable external sources of supply or to commit an excessive part of its own productivity to external markets. With cool intelligence and a steady eye on the future, this project explores alternative scenarios for expanding food production and processing in the bioregion and asks whether regional self-reliance can be increased while minimizing ecological costs. These are questions every bioregion should be asking.

In the case of Southwest BC, the answers raise an ominous yellow flag. In baseline year 2011, the bioregion's 2.7 million people had only .06 hectares of arable land per person, including grazing land; by 2050, when the population is expected to be 4.3 million, the ratio falls to only .04 hectares per person. This actually compares unfavourably to the already (arguably inadequate) global figure of .20 hectares arable land per person, exclusive of grazing land. Tellingly, it currently takes about .50 hectares per person of arable land to produce the average North American diet.

We should therefore not be surprised (but should be alarmed) that under the most optimistic scenario, with most of its arable land in production, Southwest BC could become only 57% food self-reliant by 2050 (assuming a standard recommended Canadian diet). This is twice the performance available from business as usual but leaves the region's people heavily dependent on imports from elsewhere—imports that may well not be available.

It is clearly time to rethink the region's entire development trajectory—indeed, the world's development trajectory. The predicament revealed in The Future of Our Food System is typical of modern urbanizing regions. Food (in)security may well become the defining anxiety of the early Anthropocene. The only question is whether the world community can abandon its dangerous illusions, accept the evidence of a gathering storm, and apply humanity's much-vaunted high intelligence to planning a way through.

There should be enough incentive: if the world fails to maintain the three-meal buffer, chaos and anarchy will not be far behind.

Excerpted from The Future of Our Food System:

What Is a Food System?

When we talk about food—its origin and availability, quality and safety, and how it affects our lives and communities—we tend to immediately focus on agriculture and defer to the farming sector for information, answers and direction. But farming is only one component. Food system characteristics and outcomes are dependent on many other multi-faceted, extensive, and interdependent elements that are as equally important as farming.

Indeed, it is increasingly acknowledged that the direction and outcomes of our food system should not reflect agriculture and food business interests alone. The American Planning Association, in its 2007 Policy Guide on Community and Regional Food Planning, had this to say: "Food is a sustaining and enduring necessity. Yet among the basic essentials for life—air, water, shelter, and food—only food has been absent over the years as a focus of serious professional planning interest. This is a puzzling omission..."[10]

Many are becoming aware of the concept of food systems. Examination and discourse around food's relationship to community, economy, and environment has shifted from agriculture to the food system as a whole. Lisa Chase and Vern Grubinger describe a food system as "an inter- connected web of activities, resources and people that extends across all domains involved in providing human nourishment and sustaining health, including production, processing, packaging, distribution, marketing, consumption and disposal of food." The authors go on to say that our food systems are reflective of and responsive to the social, cultural, economic, health, and eco-

logical conditions in which they exist. These interacting conditions occur or are imposed at multiple scales, from national and provincial to city and household. These conditions, regardless of scale, must be compelled to work in concert to achieve the characteristics and outcomes of the food system we want for our communities and a sustainable future.

What Is a Bioregion?

Bioregions are generally defined as areas that share similar topography, plant and animal life, and human culture; they are not just geographical or political areas delineated by lines on a map but are conceptual as well. Bioregionalism adheres to the notion that human settlement and land use patterns must be viewed as integral, functional components of ecosystems rather than as separate, unrelated entities.[12]

What Is Needed for a Sustainable Future?

Our food system is far from sustainable. It is dependent on diminishing supplies of oil and fresh water and threatened by global warming. Its adverse environmental impacts, such as groundwater contamination, habitat destruction, soil degradation and loss, and enormous greenhouse gas emissions contributing to global warming are undisputed.[1] In BC, as elsewhere, food price increases, food insecurity, diet-related disease, and the economic marginalization of farmers and loss of revenue from the local economy is also of concern.[2] In Southwest BC, we spend an estimated $8.6 billion on food annually,[3] but much of this does not stay in the local economy because it is spent on imported food or in non-local food system businesses.

Climate change, food and energy price instability, and dietary preferences are limiting the capacity of our food system to provide sufficient food. Our food system future seems tenuous, and perhaps the only thing we know for certain is that our population will continue to grow, requiring more food to sustain it. We need to purposefully address the challenge of providing food for all, in sustainable ways, well into the future.

A sustainable future requires a sustainable food system.

Some argue that localizing food systems will better ensure a sustainable, resilient food supply into the future. Local food systems are characterized by greater food self-reliance, which is defined as the ability to satisfy local food needs with food grown locally. Local food systems are purported to have greater social benefit,[4] reduce negative environmental impacts associated with bringing food from farm to plate,[5] improve community health, nutrition, and food safety,[6] and strengthen economies.[7]

In BC, food security experts have identified food self-reliance as a key climate change adaptation strategy[8] and argue that increasing local fruit and vegetable production capacity makes sense in a future where imports may not be as available or as cheap.[9]
Organizations across the province have mobilized around the themes of food, land, culture, and ecological sustainability. Increasingly, local governments and the private sector are supporting local food systems as vehicles for community and economic development. In Southwest BC, many local governments have introduced policies supportive of food system localization and residents are increasingly interested in the concept.

Despite a growing interest in food system localization, there remains little information about how or to what degree it can realistically address our food system sustainability concerns. We are at a critical moment in history where issues of climate change, food security, energy, and local economics are rapidly converging. The choices we make about our food system could potentially mitigate some of these issues or make them worse.

More information on the Southwest BC Bioregion Food System Design Project, including the Project Summary:

kpu.ca/isfs/swbcproject

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How to Think About Bioregionalism When Growing Resilient Seed

Photo: Kalibos Cabbage plants. Credit: Mark Cormier

by Meagan Curtis

For some, bioregionalism may seem like a practical concept useful for creating ecological dividing lines between regions, but the concept's meaning extends into social, cultural, and economic realms. One of the foremost ecotheologians of the 20th century saw bioregionalism as critical for the next era of human life on earth, feeling it should encapsulate "a self-propagating, self-nourishing, self-educating, self-healing and self-fulfilling community."[1] With "bio" standing as its prefix, the concept refers to anything within a region relating to life. This means that it is not just the ecology of our region we need to consider, but also factors such as ethics and economics that are dominating that region.

For the BC Ecological Seed Co-operative (BCESC), our focus is on vegetable, herb, grain, flower, and cover crop seed that is ecologically grown, open-pollinated, regionally adapted, held in the public domain, and GE-free. We want to increase the quantity and improve the quality of ecological and organic seed grown in BC and believe that seed sovereignty is an essential part of sustainable bioregional food systems. This means that when we think about growing resilient seed—seed that performs well in an uncertain climate—the co-op considers a variety of factors from ethics to ecology.

Photo: The BC Eco Seed Co-op Crew. Credit: Mel Sylvestre.

The Bioregional Ecology of Seed

Most of the seeds we use in our BC bioregions, for our gardens or on our farms, are not descendants of native

species from our bioregions. With the notable exceptions of berries, pumpkins/gourds, sunflowers, various herbs, and wild rice, most of the crops we grow across the country stem from a very recent part of Canada's history.[2]

Immediately it appears there may be a disconnect between the ecological emphasis in bioregionalism and the vegetable seeds we grow and produce. This is further complicated by the fact that as seed producers, we know (and maybe even enjoy) the fact that seed is shared across regions, countries, and continents. Seed always has and will continue to travel across borders — if not purposefully, then in the hair of animals, on the boots of travellers, or by the prevailing westerlies.

Right now, most seed bought by gardeners and farmers is not seed originally grown in their bioregion, not even within their own country. By growing seed within bioregions across the province on farms with published locations, the BCESC is working on localizing seed so that buyers know where the seed is coming from and are assured that it performed well in that particular region. In this sense, BCESC seed is regionally-adapted as well as regionally tested as our members trial seed from other member's farms across the province.

Sitting at approximately 944,735 km^2, our province happens to have quite a few different bioregions. Therefore, it should not be assumed that because a lettuce variety does very well on the coast at UBC Farm, it will not perform well in Southern Ontario or that it will perform fantastically in the Okanagan. A certain bioregion in BC may be more similar to a bioregion in another country than to some within our own province. Because of this, the co-op grows its seed with wide spectrum selection in mind in order to create horizontal resistance,[3] making it suited for multiple bioregions across the country. Our

continued on page 29...

Photo: The BC Eco Seed Co-op Seed Rack. Credit: Keeley Nixon.

Seeds of Resilience for Thriving Bioregionalism

Leek & onion starts at a plant sale. Credit: Moss Dance

By Marjorie Harris BSc, IOIA V.O. P.Ag

Bioregionalism is a philosophical concept that promotes the harmonization of human culture and activities with those of the environmental bioregion they reside in. There is also an emphasis on local food production for local markets, including indigenous plants and animals.

The organic community has developed into a proactive global sub-culture phenomenon whose regulatory standards happen to work hand in glove in implementing some fundamental bioregionalism concepts. Case in point, the use of organic seed when and where possible.

CAN/CGSB-32.310-2015 Clause 5.3 Seeds and planting stock: Organic seed, bulbs, tubers, cuttings, annual seedlings, transplants, and other propagules shall be used…

The tenants of bioregionlism recognise the uniqueness of each ecosystem's bioregion as defined by its natural boundaries. Often these natural boundaries are not related to national boundaries: for instance, the bio-geoclimatic subzone of the Okanagan Valley stretches through southern British Columbia into Washington state. The organic sub-culture spans the globe and in this sense the bioregion or ecoregion that is defined is the entirety of the earth system herself.

In some ways Bioregionlism harkens back to a time before modern industrialization, when food production was still predominantly local and relied on hardy regional crop varieties that were grown using traditional farming methods and largely consumed by local peoples. In that pre-industrial model, each community had its own work force that could produce enough local foods to support its local population base.

In a world comprised of unpredictable natural disasters and volatile global markets subject to politico-economic shifts, we find that the organic regulatory requirement for the use of organic seed brings the concept of "resilience" into the bioregionalism equation. On a global basis, the organic community directly supports the establishment of local seed reserves, local seed exchanges, the maintenance of open pollinated heritage varieties, the conservation of regionally hardy varieties, local seed producers, and a seed saver aware community.

This is in contrast to the reduction of seed diversity and the increasing vulnerability of seed supplies managed by the multinational conglomerates.

In the past 60 years we have witnessed a rapid consolidation of smaller regional seed companies into a handful of multinational seed producers. The vast majority of seeds

are grown out in select regions of the globe and shipped back to farmers. Risks are inherent when you put all your eggs in one basket, so to speak. A traumatic disruption, such as a volcanic eruption or an untimely winter freeze could wipe out the majority of seed for one crop in a production year.

Forty percent of all hybrid onion seed grown for commercial production in North America comes from a few hundred acres in the Yuma, Arizona. Jefferson County, Oregon supplies 45% of the global market for hybrid carrot seed and supplies 55% of the US domestic market. A main carrot seed producer has reported losing his entire crop due to a winter freeze, significantly reducing seed supplies for a commercial carrot crops.

Another vulnerability that comes with consolidated seed production is hybridization which inherently limits variety and loses some plant characteristics available to open pollinated varieties. Hybrid seeds are a dead end for seed savers as progeny diverge from parent genetics after the first generation. As well, hybrids have not been selected for local characteristics and regional hardiness, as open pollinated seeds are through rogueing. In Canada, seed production for onions and carrots is a two year process as the plants are biannual seed producers. Contrast that with the longer growing seasons of the more southern USA, where onions and carrots can be an annual crop. Under annual crop growing conditions rigorous rogueing for carrot variety cannot be conducted as only the leaf tops can be checked for shape. Here in Canada, carrots are dug up and the roots rogued out for desired characteristics and replanted the following spring as 'stecklings,' with seed harvested in the fall of the second year.

The organic standards provide a globally unified conversation around seed production ideals and philosophy that actively seeks to build bioregional communities with seed and food resilience at their core. The use of organic seed embodies much more than just a commercial value or niche market item as it is the 'seed core of resilience' for thriving bioregional communities. Without the seeds of diversity and regionalism we lose the strength of resilience in an uncertain world.

Happy seed saving!

Marjorie Harris is an organophyte, agrologist, consultant, and verification officer in BC. She offers organic nutrient consulting and verification services supporting natural systems.

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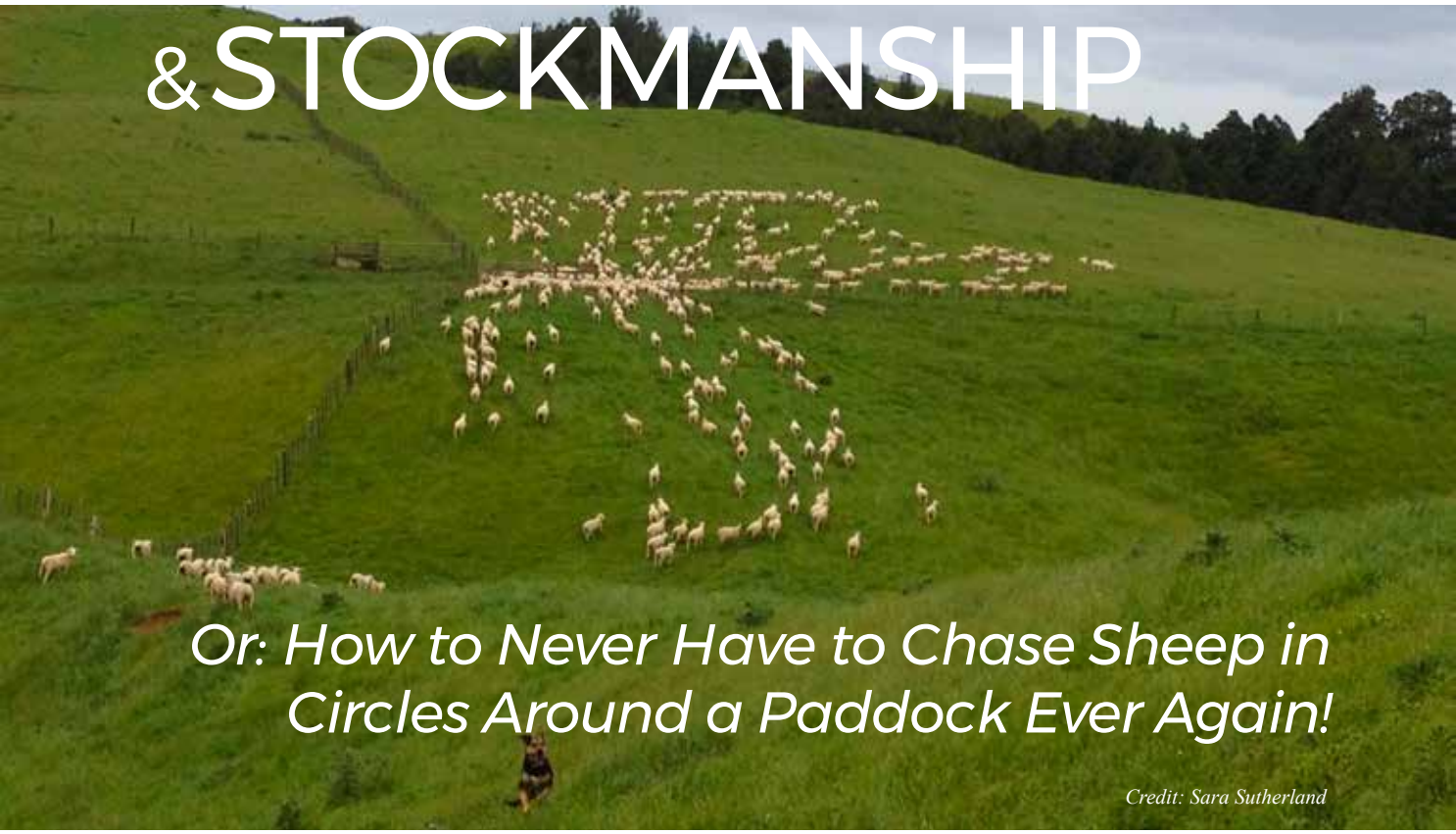
Danvers carrots fresh out of the ground. Credit: Moss Dance

ANIMAL BEHAVIOUR & STOCKMANSHIP



Or: How to Never Have to Chase Sheep in Circles Around a Paddock Ever Again!

Credit: Sara Sutherland

By Sara Sutherland

Many people believe that sheep are stupid. Even people who have never worked with sheep tend to think that sheep are stupid. Broadly speaking, there are two categories of things that sheep do that make people think they are stupid. Firstly, sheep mob together, follow each other, follow the bellwether up the steps to the slaughterhouse, and generally show a lack of independent thought. Secondly, sheep scatter, run the wrong way, get out of fences, and when you get almost all the sheep into the pen and close the gate one will inevitably spin around and run out just before you get the gate closed. (If you think about it, this isn't fair—dumb if you do and dumb if you don't!)

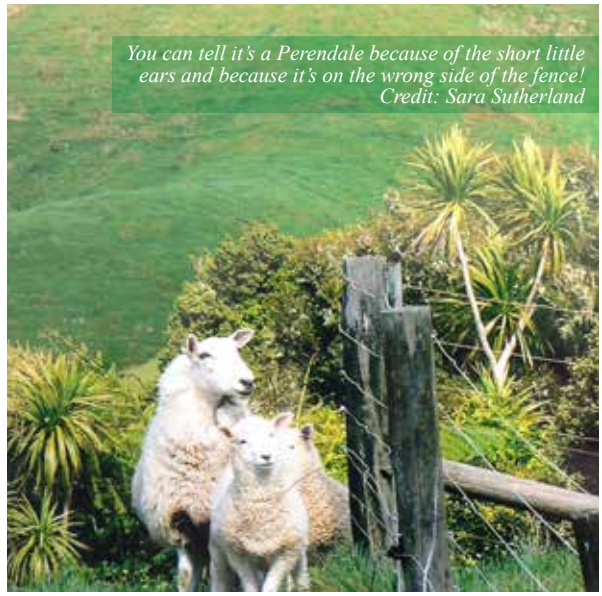
When you work closely with sheep, you begin to realize that they also show signs of intelligence. Sheep will watch when you fix a hole in the fence, then go and check if it's really fixed. Sheep will teach each other to get into a feeder that is supposed to only let lambs eat. A researcher in the UK, Keith Kendrick, studied facial recognition in sheep. Sheep would push the button beside the photograph of a sheep they knew, a flockmate, instead of a sheep they didn't know. They could recognize over 30 individuals, and remember for at least three years after the last time they had seen the animal in the photograph! So if sheep are so intelligent, if they have this capacity for recognition and learning and memory, why do they do stupid things?

Sheep don't have a lot of natural defences. They don't have sharp teeth, they don't have long fangs, they don't shoot lasers from their eyes (fortunately). Because they are prey animals, they are highly motivated to avoid being eaten. The most dominant sheep in a flock is not the leader, the most dominant sheep is in the middle where it is safest. When there is a group of animals of similar size running past each other, it is very difficult for the predator to focus on one individual. If you have ever tried to catch an individual sheep out of a flock, you know that you really need to stay focused on one individual in order to be successful. Statistically, a sheep in a flock of 12 is less likely to be eaten than a sheep in a flock of three. So sticking together, circling, and following each other are

not caused by stupidity. In fact, they show a sophisticated understanding of statistics!

What about when sheep scatter and run the wrong way? Every animal has a "personal space bubble" or "flight zone". When you step into their flight zone, they move away. The size of the flight zone varies. The biggest factor affecting the size of the flight zone is habituation—how used to you the animals are. To reduce the size of the flight zone, habituate your sheep to your presence. They are intelligent enough that if you walk through their paddock regularly they will recognize you and become gradually less wary of you. If you step into their flight zone behind their shoulder, they will move forwards, in front of their shoulder they will stop or turn around. Always be aware of where you are in relation to the animal. Why does one sheep spin around and run away from the flock when you go to shut the gate? She is motivated to be close to the other sheep until you step into her flight zone, then she is highly motivated to gap it. So take your time, let them all move into the pen, then watch the outside sheep and move into her flight zone behind her shoulder as you slowly shut the gate.

There are between breed and within breed variations in the size of the flight zone. There are no naturally "bad" breeds though—animals of any breed will habituate with regular calm handling. Animals that are stressed or in pain will have a larger flight zone. You should keep this in mind and not expect them to react the same way they normally do when something is wrong. Sheep in a smaller group will be more reactive than sheep in a larger group. They type of stimulus will also affect the size of



You can tell it's a Perendale because of the short little ears and because it's on the wrong side of the fence!
Credit: Sara Sutherland

the flight zone. The most effective stimulus for getting sheep to move is something that is novel—something that they haven't been exposed to before. It doesn't need to be especially loud or annoying, even a plastic bag on the end of a stick works well until they get used to it.

If animals get really stressed, it takes them a period of time to go back to behaving normally. Think about the last time you had a near miss in traffic, and how long it took for your heart rate to go back to normal! So if things really turn to custard, walk away and let them relax and come back 20-30 minutes later (providing it is safe to do so).

Unlike dogs, sheep predominantly use vision to experience their environment. Sheep do see differently than we do. They see things moving on the horizon better than we do, but large things close-up not as well. They see greens and yellows better than we do, but reds and blues not as well (so don't use them to help you chose your wallpaper). They see vertical bars on a gate better than horizontal ones—if your sheep keep banging into the gate maybe they don't see it well.

When you are designing handling facilities for sheep and cattle, whether it is a set of pens and races or just a couple of gates in the corner of the paddock, use these principles to make it easy for the animals to do what you want them to do. Set it up so that they can circle and stay close together. Make sure they can see where they are going; for example, make sure that you are not running a race into a blank wall. When you are moving animals, use their flight zone and balance point. Don't chase them around in circles—you will only make them stressed. Habituate them to a handling facility by running them into it a couple of times before you do anything stressful or painful to them in there. Look through a race from the sheep or cow's eye level to try and spot anything likely to make them baulk as they run through. Sudden changes from light to dark, shadows, reflections, and hanging flappy things are common issues that we might not notice that make sheep or cattle not want to run.

Why is this important? Firstly, if you are set up to use the animal's natural behaviours instead of working against them you will get the job done more quickly. Secondly, you will get the job done more safely. People can get injured by sheep and cattle, and if you are stressed because you aren't well set up to handle animals you are more likely to do something dangerous like roll the motorbike or tell your partner you don't like their cooking. Thirdly, stress makes animals more likely to get diseases. So if you are set up to work with the animal's natural behaviour instead of against it, you will find your animals are healthier, you are safer, the work is done more quickly and more easily, and you might find that actually sheep aren't as stupid as you thought!

Sara Sutherland is a large animal vet in the North Island of New Zealand, specializing in sheep. She's from a large family farm in Quebec with meat and dairy sheep, and currently not only provides vet services for farms from 20-2,000 head of sheep but also conducts research and hosts workshops on management for farms in the region. She is also Rebecca Kneen's cousin!

Setting Up a Spiral of GMO Contamination:
Legalizing "Low-Level Presence" of Unapproved GMOs

By Lucy Sharratt

Contamination from genetically modified organisms (GMOs) is a problem for some crop types. For example, most organic grain farmers in the Prairies stopped growing canola after GM contamination of seed became widespread, and Canada's flax industry is still recovering from GM contamination that closed export markets. Rather than taking all measures possible to stop contamination, the federal government has responded by proposing a policy that accepts it as unavoidable. This Low-Level Presence (LLP) policy asserts that the problem is not GM contamination, but rather our unwillingness to accept it.

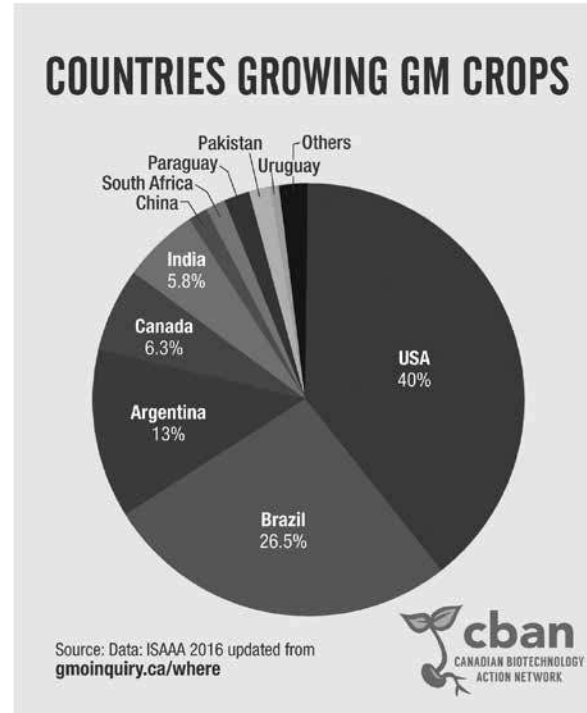
What To Do About "Low-Level Presence" of Unapproved GMOs?

Agriculture Canada says, "Genetically modified (GM) grain that has not yet been approved by the importing country may unintentionally be present, at low levels, in grain shipments exported to that country. This is what is called low level presence (LLP)." For GMO-producing countries like Canada, acceptance of LLP by our trading partners is a priority.

LLP is contamination from GMOs that have not yet been assessed for safety by the national regulator in the importing country. An LLP policy would not apply to contamination from a GM crop that was assessed as unsafe or that was not yet approved in any jurisdiction. The industry calls this latter type of contamination "Adventitious Presence" or AP but the distinction only matters for moving an LLP policy forward. Until LLP policies are established, both AP and LLP are illegal in every country. The goal of a Low-Level Presence policy is to overturn this global norm of "zero-tolerance" for contamination.

Canada is the fourth biggest producer of GM crops in the world (GM corn, canola, soy, and a limited amount of GM alfalfa) and keeps exporting commodities contaminated with a Low Level Presence of GMOs that are not yet approved in our export markets, resulting in quarantined and rejected exports. CropLife Canada argues that acceptance of LLP will "provide stability" because "mixing can happen during cultivation, harvest, transportation, or storage of grain" and due to "modern, efficient bulk grain handling systems not designed for segregation of different grain segregation of different grain sources".

Rather than implement controls and design grain segregation appropriately, the industry is asking national governments around the world to accept GMOs that they have not yet regulated. For example, Canada argues that other countries who had not evaluated the safety of GM flax should have accepted our GM flax contamination because Canadian regulators had approved it.



In 2011-2015, Agriculture Canada was proposing to make Canada the first country in the world to adopt an LLP policy, to lead by example. Canada's progress on LLP is now more explicitly tied to progress internationally, with Canada acting as a leading global advocate. At the moment, Canada's LLP policy proposal takes the form of a two-page policy model "designed to stimulate international discussions".

Canada's LLP Policy Model

While the industry also aims to establish LLP in seed, the current policy model from Agriculture Canada applies to whole grain, food, and feed products, not to seed for propagation, fruits and vegetables, or animals. The model proposes the following acceptable thresholds for LLP:

- A 0.2% contamination threshold to address LLP resulting from dust (for example, GM corn dust in a soybean shipment)
- A compliance threshold of 3% to address situations resulting from a foreign GM crop not yet approved in the importing country (for example, the GM flax that contaminated Canada's flax exports to 36 countries).

Low-Level Presence would only be accepted if:

- the GM crop (GM event) is approved for food use in at least one country, in accordance with Codex Guidelines.

Canada also outlines two additional criteria for the 3% compliance thresholds to apply:

- Application for authorization of the GM crop was provided to the importing country; and
- Applicable LLP risk assessment(s) conducted by the importing country have determined, in advance, that the GM crop is unlikely to pose a risk.

In Canada, this means that LLP would be accepted if one other government has approved the GM crop, if Health Canada has received a request to approve the GM crop, and if our regulators have already concluded some type of "LLP risk assessment". This last criteria is worth noting: the federal government is proposing to also establish some form of, as yet undefined, partial risk assessment for LLP. This would create two tiers of risk assessment for GMOs.

An LLP policy would mean that Canadians would be eating at least two types of legal GMOs: 1) those evaluated as safe for human consumption by Health Canada and 2) a small percent of those not yet approved but partially assessed by Health Canada and also approved by another government. The assumption is that full safety evaluation of a GM food is only needed if Canadians are eating more than 3%.

Assumptions-Based VS Science-Based Policy

A Low-Level Presence policy would put an end to claims of "science-based" regulation for GM food and environmental safety and replace it with an assumptions-based policy.

Why is 3% of LLP consumption safe but not 4% or 5%? The threshold is set by what the grain trade says it is willing to control in exports and accept in imports, not by what Health Canada and Environment Canada determines as safe. And we can only expect the LLP percentage to increase as the policy allows for contamination to more widely take hold. The industry is already asking for 4-5%.

An LLP policy rests on three major assumptions: contamination is inevitable; more GMOs will be developed and approved; and GMOs are safe or, more precisely, that GM foods not approved by Health Canada are safe to eat if another government says so and if Canadians don't eat too much of them.

Low-Level Presence relies on a new precedent-setting pitch to Canadians and people around the world: that we don't always need our national regulators to assess the safety of the GM food we eat.

Conclusion

LLP acceptance would allow GM contamination to gradually expand over time, because industry will have less incentive to control it. It would also be a self-fulfilling prophecy that could lead to the approval of many new GMOs such as GM wheat that otherwise face powerful opposition due to fears of trade disruption over contamination.

Organic and conventional farmers together rejected the fiction of "coexistence" with GM alfalfa. However, the government and industry continue to promote coexistence strategies, at the same time that they develop a policy to accept and legalize its failure.

For more resources and updates, including a link to Canada's policy model, see:

www.cban.ca/llp

Lucy Sharratt is the Coordinator of the Canadian Biotechnology Action Network (CBAN). CBAN brings together 16 groups to research, monitor and raise awareness about issues relating to genetic engineering in food and farming. CBAN members include farmer associations, environmental and social justice organizations, and regional coalitions of grassroots groups. CBAN is a project on the shared platform of Tides Canada, a registered charity.

GreenBytes

Seed Grow Outs

Want to experiment with different varieties of crops and observe how well different varieties produce seed in diverse environments across the country?

Join BC Seeds this year and grow seed from regionally-adapted vegetable and field crop varieties for Seeds of Diversity's Seed Library.

Participants in the program can experiment with seed production and new varieties on their own farm, improve seed-saving skills, help build a regionally-adapted seed supply and increase the amount of local, ecologically-grown seeds to exchange with other growers. Participants receive $100 – $300 for each successfully submitted crop.

If you are interested in participating in the 2018 Seed Grow-Outs, please visit:

www.bcseeds.org/seed-grow-outs

.... Resilient Seed - continued from page 21

growers use large population sizes and shy away from selecting narrowly for one trait so that a wide diversity of traits are preserved and the plant is theoretically more resilient in the end. This means that although BCESC seed is grown and adapted to a bioregion, it also carries enough diversity to potentially thrive in other regions. In the end, the diversity our plants carry emerges from regions and then flows across regions as the seed's resilience is shared within our province and beyond it.

The Ethics and Socio-Economics of Resilient Seed

Aside from ecological considerations, there are multiple tangible social, economic, and ethical benefits to investing in seed grown within your bioregion. The transparency within an organization like the BCESC means that a dialogue is possible with seed producers and growers in a way impossible in other circumstances. BCESC can respond to varieties that growers in their region would like to see preserved, improved, or increased. For the same economic reasons that we tell people to eat local, we should buy local seed. The economic sustainability of inhabitants of a given bioregion is critical to a healthy society. BCESC's purpose is to be able to offer farmers the quantities of seed they are looking for. We also offer packet size seed for those with a smaller area or who want to test a variety.

Difficult issues relating to agricultural and food sovereignty can be overwhelming to consider at the international, national, or even provincial level. What may be more available to us is the opportunity to think about, and work on, the socio-economic and ecological health of our bioregion. Working at this level, we may more effectively create the kind of life and systems we want to see flourish. Resilience within a bioregion may also mean transforming our cultural norms and adapting our social relations in order to foster cooperation and collaboration. Bioregionalism indicates to us that perhaps feeding ourselves and future generations in uncertain climatic times involves not only ecological solutions, but social, economic, and ethical as well.

The full range of BCESC inventory is available online at:
bcecoseedcoop.com.

You can also find a selection of packets in racks in local communities across BC:
Vancouver: Figaro's Garden, 1896 Victoria Dr.
Langley: Cedar Rim Nursery, 7024 Glover Rd.
Nelson: Kootenay Co-op, 777 Baker St.
Prince George: Ave Maria Specialties, 1638 20 Ave.
Smithers: Alpine Plant World 3441 19 Ave

Meagan Curtis is member of the BC Eco Seed Coop in Port Alberni—on Instagram @mtjoanfarm. Inspired by EF Schumacher, her farm has three goals: health, beauty, and permanenc—productivity is attained as a by-product.

1. Berry, T. (1988). The Dream of the Earth. Berkeley: Counterpoint Press. https://gaiaeducation.org/news/cosmopolitan-bioregionalism
2. For the origin of geographic origins of our food crops – where they were initially domesticated and evolved over time, see: http://blog.ciat.cgiar.org/origin-of-crops
3. Resistance based on the result of continuous selection in the face of adversity based on many genes working together resulting in a healthy plant (Morton, F. (2018). Horizontal Resistance: An Organic Approach to Selection. Wild Garden Seed Catalogue. p. 100: https://seedstory.files.wordpress.com/2007/12/franksessays-1.pdf)

.... Continued from page 11

available form.
5. Algae biofertilizers (e.g. Cyanobacteria) can provide plants with growth promoting substances (ex. Vitamin B 12) and fix 20-30 Kgs N/ha.
6. Mycorrhizal fungi refers to the symbiotic association between plant roots and soil fungus that enhances plant soil and nutrient uptake.

Growers in the Fraser Valley have reported that using a bio-fertilizer has allowed them to reduce their N fertilizer application by as much as 30-40% while seeing similar yields and higher product quality. The bio-fertilizer is called TwinN, a freeze dried microbial product that contains a group of asymbiotic free nitrogen fixing bacteria called diazotrophs. Along with N fixation, the diazotophs in TwinN have also been shown to increase root growth and root hair density and decrease root infection. It is thought that the colonization of the plant with beneficial bacteria protects the host plant from harmful bacteria (similar to the use of probiotics to promote human health).

Soil FoodWeb

Dr. Elaine Ingham, a soil microbiologist who previously worked with at Oregon State University and the Rodale Institute, is now the president of Soil FoodWeb. She has dedicated her career to help producers grow crops better by directly observing and promoting life in the soil.
Soil FoodWeb features comprehensive guides and online courses on making compost tea and analyzing soil samples using a microscope. Commercial growers using the Soil FoodWeb management programs report substantial savings in crop production input costs, reduced water usage, and increases in yield and quality.

Korean Natural Farming (KNF)

Koran Natural Farming looks very holistically at the entire farm system, including the people in it, and uses inputs that are generally close at hand and relatively inexpensive. Unlike bio-fertilizers, which involve bringing in microbes from another region or lab, KNF focuses on fostering beneficial Indigenous Micro-Organisms (IMO) within the ecosystem in which the crops are grown.
For more information, check out this link to a video on KNF Indigenous Micro-Organisms: https://vimeo.com/35078856

RootShoot in Vancouver provides 2-day workshops on KNF that includes a detailed explanation of the actual making of inputs including indigenous microorganisms, fermented plant juice, fish amino acid, and lactic acid bacteria.

Measuring Soil Diversity

The Plant Health Laboratory in Abbotsford can conduct a nematode assessment for $16-$32 (depending on turn around time). Nematodes are used as biological indicators of soil health because the number and types present in a soil reflect changes in the microbes they consume, and the soil's physical and chemical environment.

Independent Soil FoodWeb consultants can analyze bacteria, nematodes, protozoa, and fungi using microscopes.
Managing for Soil Diversity

As the complexity of the food web increases, productivity of the soil tends to increase. Strategies for supporting robust soil biology include:

- Supply organic matter, which acts as a home and food source for soil microbes. Composts and manures can also provide an input of beneficial soil microbes.
- Leave crop residue to break down in place. Surface residue encourages decomposers and increases food web complexity.
- Plant winter cover crops to act as a food source for bacteria in a time when food is otherwise scarce.
- Create a diverse landscape that supports diverse niches of life.
- Reduce tillage, which can disrupt sensitive organisms such as fungi. Over the long-term, tillage can deplete soil organic matter and thus reduce soil activity and complexity.
- Minimize the use of fertilizers and pesticides. Even organic products can reduce the populations of fungi, nematodes, protozoa, and bacteria.
- Minimize fallow periods, which can result in starvation for many creatures in the soil food web.
- Minimize compaction and improve drainage to support aerobic microbial populations.
- Cultivate beneficial indigenous micro-organisms
- Apply compost teas and/or bio-fertilizers.

Emma Holmes has a B.SC in Sustainable Agriculture and M.Sc in Soil Science, both from UBC. She farmed on Orcas Island and Salt Spring Island and is now the Organics Industry Specialist at the BC Ministry of Agriculture.

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Other enterprises exemption: 0490FILL.pdf
or request the appropriate exemption form from the office.

Item	Units	Unit Price	Quantity Discount	Quantity	Total
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Twist Ties 10" (15,000 per case)	1000 pc	$13.00	Full Case-$165.00		

The packaging materials above are only available to COABC Certified Organic members and are PST exempt for qualifying enterprises (see above).
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NEW!! COABC T-shirts Designed by Brian MacIsaac Men's size S-XXL & Ladies sizes S-L	$17.85	$17.85	PST taxable		
Organic Tree Fruit Management	$19.95	$25.95	No PST		
Western Canada Organic Directory	$6.00	$6.00	No PST		
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