

**2017 ACORN Conference & Trade Show
Best Western Glengarry - Truro, NS**

Workshop Title:

How to talk intelligently about GMOs

Speakers:

Dr. Ricarda Steinbrecher, EcoNexus
Lucy Sharratt, CBAN

Executive Summary:

Local examples of issues with GMOs are explained, the science of GMOs is uncovered, and the debate of whether or not GMOs are safe is outlined.

Detailed Notes:

Dr. Ricarda Steinbrecher is a biologist, molecular geneticist, and a co-director of EcoNexus.

Lucy Sharratt, works in Ottawa as the Coordinator of the Canadian Biotechnology Action Network, also known as CBAN. CBAN brings together 17 organizations including farmer associations, environmental groups, and international development organizations, all of which have serious concerns about the use of genetic engineering in food and farming.

Two issues in Nova Scotia currently being debated:

1. Alfalfa, and
2. Knowing what your neighbor is growing

What is news hype and what is science?

The story that industry tells is one of coexistence.

If one is on board with this technology, then they are knowledgeable but if one is not, then they are living in the stone age. However, it is scientific to think critical. No matter who, knowledgeable or not, you can land yourself in either of these categories. At conferences, it is common that people don't ask questions because they think they do not know something when in truth everyone is in the same boat and we all have questions. Genetic engineering has many layers with lots of information.

Biotechnology Innovation Organization – BIO (largest trade organization in the world that represents the biotechnology industry) - changed their name to 'innovation' from 'industry' to seem more acceptable to the public.

CBAN looked at the past 20 years of the biotech industry in Canada. In 2000, 2.5 million Canadian dollars was the cost to send a flyer to each household and that's how

important the biotech industry is to the Canadian government. Lobbying groups for BIOTECanada promote the importance of this industry to the Canadian government.

Transgenics is one of the genetic modifications methods used.

Plants with novel traits are “novel foods”.

Redefining definitions:

Definitions are changed by industry and lobby groups in order to make things difficult for both the public and scientists, which is in the interests of industry.

Genetic engineering:

What is it? Generally, we on purpose, with tools other than conventional breeding, **change** the DNA, or the nuclear information. As soon as we go to a lab setting, and we change existing DNA sequences, or add, we are **modifying**. **Transgenic** these days means it's **coming from a different organism**. **Trans** (transgenic) is when genes from different species are used (Ex. Taking a DNA sequence from a crab and inserting it into an apple). **Cis** (cisgenic) if it's coming from the same breeding pool (Ex. could be an old relative like an old apple DNA sequence into a new apple DNA sequence). **Intragenic** - coming from the same pool but taking different sequences from a bunch of different species in the same pool, putting them together, and injecting them into the organism. **GE** (genetically engineered) is the umbrella where all of this exists. **Genome editing techniques** are now able to cut DNA strands exactly where you want in insert new sequence. They use to just shoot the sequence in and let it land randomly within the nucleus.

Where are GE/GM crops and food?

The Canadian Government has a listing for “novel foods”. However, this list includes more than GMOs and lists what's grown in the world entirety instead of just Canada. You need a lot of background information to sift through this list to really identify GMOs. Some GM salmon is now being sold in Canada. Only ten countries grow 98% of the world's GM crops.

Is it safe? What is the scientific consensus?

It doesn't need to have a human health risk to be a problem. GM alfalfa can spread. GM will increase pest/herbicide use. The story right now is that all scientists say that GM products are safe. Is it safe? Generally, we think that safe concerns only humans. But there are animals, our future, the earth.

Dr. Ricarda reports:

The decline of insects in Europe is phenomenal. Agriculture and habitat loss are the main reasons. Dr. Ricarda recalls there being insects all over her windshield as a child but now as she takes that same route there are none. *“Will I fall over dead if I eat a GM?”* No. So, it's safe? This is the type of testing we currently have in place. Long term,

low level, chronic toxicity impacts? Not tested. If we look back into history, the earth was flat. It must of been quite a change for people to think differently.

The next question is: Do we need it? What is it worth?

Scientific consensus is shutting the doors to this debate. Whose interests are served from GM? The Big Six. The Big Six is a global seed and agrochemical market share between six large agricultural corporations. “*Will it feed the world?*” is the argument that they use to sell GM. They say that to shut everyone up. No one disagrees that we need to solve the problem of world hunger. If we have a technological solution, it makes sense - but the GM argument is false. This ongoing pitch that technology will solve this problem is false. There is research on this.

Case study: GM herbicide tolerant crops

Propaganda! This leads to alfalfa GM contamination in non-GM fields. Industry has created a coexistence plan for alfalfa hay in eastern Canada. This is where the Canadian government should consult with farmers before it is approved. Farmers are standing up and saying contamination is going to happen and we will not accept that. When we are together and share our own stories, that’s when we can talk intelligently about GM crops. The BETTER apple/potato... is something we need to decide as a society, not for the industry to decide.

** ‘Modified’, Canadian documentary film available online, Nova Scotia film producer. **

Is there an offer for a single trait that can save the world? Will non-browning apples save the world? When it comes to feeding the world, what’s the best methods? Monoculture is not the answer. Plants typically do better when grown together. You can double yields with companion planting. Monocultures are for pesticides. There’s more at stake for the future than a little loss of innovation for some groups.

Is it economically safe to have GM?

This issue needs a lot of collaboration because all information doesn’t fit in one’s head, that’s where society comes in to help collaborate. In every situation, there are scientists who agree and disagree and that’s what science is. There wouldn’t be science if all scientists thought the same. In most countries, the ministry of environment and agriculture are separate and usually the ministry of agriculture is bigger. These industries usually don’t agree. Science is always on both sides, but it comes down to politics. Interests are used to make decisions for politics, which are not the interests of the world or the interests of the future.

Blight resistant potatoes:

The GM for this is short term, which is why new transgenes are being used and other different technologies, because their resistance to blight quickly goes down. What will this lead us to? This is why different methods are being created. Pests/herbs learn these new GM traits and these GM crops are no longer working as great as they once were.