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## FIELDS OF GENES: The Battle Over Biotech Foods

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### FIELD OF GENES PART 4 – MAY 6, 1999

AVRIL BENOIT (CBC): We continue now with our series on genetically modified foods this morning, with a look at how government regulators determine what turns up on our dinner tables. Our producer Bob Carty is in Ottawa. Good morning Bob.

BOB CARTY: Hi Avril.

BENOIT: Now, in the last couple of days we've looked at the international debate over biotech good and some of the corporate players like Monsanto and some of the new and contentious science concerning genetically modified foods. And all of these issues seem to point to a prominent role, doesn't it, for the government regulators?

CARTY: Absolutely. And a traditional role. Consumers want their governments to do some good science for two reasons. One is that the science is rather complex and very detailed and beyond most of us lay people. We talked about that a bit the other day. And secondly because, frankly, the companies involved, be they manufacturers of drugs or of novel foods, have vested interests. And we need to have some security that some objective regulator looking over their shoulders.

There's a trend though in the last 15 years in both North American countries, the United States and Canada, as well as a bit in England, towards industry self-regulation and less direct science by government departments. There's also been, in some countries like England, a great scare over mad cow disease, which has really scorched the credibility of regulators. People just don't have confidence in them over there.

Here, I would say most of us, most Canadians do have confidence in our regulators, though that has

been hurt by the scandals at the Health Protection Branch, which we talked about last fall. All of this though still points in the direction that regulation is needed, and it's needed actually more so because there is a new wave of genetically modified foods coming into the market called nutraceuticals.

BENOIT: Nutraceuticals, sounds like a cross between medicine and a healthfood component.

CARTY: Or a cross between maybe a food with a health additive. There's a formal definition the government has on it. They say nutraceuticals, or sometimes they're called functional foods, are: "foods that provide demonstrated physiological benefits or reduce the risks of chronic disease above and beyond their basic nutritional functions."

BENOIT: I see.

CARTY: Now, we have this first generation of genetically-modified foods, the ones that are resistant to corn bore beetles and the ones that are resistant to certain pesticides. Well, these don't have anything in it for the consumer, quite frankly. They have what are called agronomic benefits, supposedly, for the farmer, to help improve his bottom line.

But the next generations are designed for the consumer and it has both the food industry and the biotech industry very, very excited. I have a little piece of tape here. This is Kim Nill, he's deputy director for international marketing of the American Soybean Association. And he's talking about what genetic engineering can put into the lowly soybean.

TAPE BEGINS

KIM NILL: They will be able to genetically engineer soybeans and canola, for that matter, to contain a new biodegradable plastic. This plastic is all but edible, it breaks down fast. The day will come where a farmer will grow the soybeans, plastic will be processed out of them and we'll have a renewable and biodegradable plastic on which to benefit the environment.

There are terrific things coming in the next five years as far as value-added trade soybeans that will confer greater health benefits. Some will actually be able to prevent cancer. Another thing coming is conjugated linoleic acid which is another recently discovered anti-cancer ingredient, that can be put into soybeans, and again, through eating soyfoods literally we'll be getting healthier with every bite we eat.

TAPE ENDS

CARTY: Kim Nill, the deputy director for international marketing for the American Soybean Association.

BENOIT: Boy that is reason, though, isn't it, to be excited. But they really think they can make plastic inside a soybean plant?

CARTY: It's amazing. They can... and also from canola and corn. And of course, Mr. Nill told me that companies like McDonald's are very, very interested in this, because right now they have a tremendous cost inseparating garbage. Everything that's Styrofoam and non-biodegradable and all the foodstuff. If they get this kind of plastic in their fast-food outlets they could just throw everything into one stream of garbage. It'd be a tremendous cost-saving.

There's also in the pipeline things like putting a vaccine, say a cholera vaccine inside a banana, or adding vitamins or calcium, or making your french fries absorb less fat because you genetically engineer the potato to absorb less fat. They might even be able to take allergies out of certain foods and make certain foods even tastier.

All of this is exciting to biotech companies and to food industry people because it changes the balance of risk assessment by the consumer. If genetically modified foods are a bit of a hard sell now they become an easy sell, they believe, with these new products.

BENOIT: When they have positive attributes.

CARTY: Exactly. It changes the risk assessment. If you have in your hand a can of Diet Coke in one hand

and a can of regular Coke, one has a 120 calories in it and one has one calorie. Now you may not like that artificial sweetener Aspartame, you may have some questions about it, but if you think about how many people die of obesity or heart attacks, you might go for that Diet Coke. It changes the risk assessment and the industry feels this is going to really be a tremendous boon for genetic engineering.

BENOIT: Well, right now these genetically modified foods aren't labelled though. We don't have bottled water that says recommended to reduce the risk of cancer, which is the latest news here. But if they have positive attributes consumers would want to know that.

CARTY: Exactly. And the industry wants to have labels, and this is a bit of a contradiction they found in themselves, at least philosophically, because the biotech companies have opposed labeling for the negative traits that are in genetically modified foods right now. Those pesticide genes and so on. But they want it for positive ones because they can sell that kind of canola or soybean or corn with those cancer-fighting elements in them, they can sell those at a premium. So I think that means pretty definitively that labeling is coming for sure.

BENOIT: Right. It brings it back though to the government regulation of this kind of thing. What are the implications here for this new wave of genetically engineered nutraceuticals?

CARTY: Well, exactly, and labeling is one implication for government regulators, because they'll have to determine what are fair health claims in these new nutraceuticals. There's also a clear need for some more policy because there's no explicit regulations in the Canadian approval system for nutraceuticals, so they have to work on that, and frankly they've been talking about the need for a tremendous increase in staff, because of the tidal wave of new products that are coming. There's a question though as to whether the government will be doing adequate science screening, or are there still some of the risks that mistakes could get through.

BENOIT: In your series last fall, which was about drug approvals at the Health Protection Branch, there were some concerns that the government scientists were becoming lapdogs of industry, not watchdogs. How do they compare with the government scientists who are supposed to study biotech foods?

CARTY: In effect the biotech foods and novel foods are studied simply much, much less, and that's because they're assumed to be the same as normal crops. That is, the starting point for this kind of approval process is a determination by Health Canada and the Canadian Food Inspection Agency, or CFIA, as to whether or not these new crops are substantially different or equivalent then the old potato. And generally they've decided up to date with the 39 or so approved products that they are substantially the same. So if they're the same, a potato is a potato so why look at it, why even study it. When they do look at it a bit they take the information on it from the studies provided by the corporate sponsor. That's okay, as long as the producers, the companies, provide good information.

BENOIT: And what if the industry doesn't provide good information, accurate information?

CARTY: There's the problem. Because the regulators don't do their own science, don't do very much basic science at all. So if the biotech companies are less than honest we have a bit problem. There was the case that we saw late last year about the bovine growth hormone, BGH, where some scientists did talk about that lack and gaps in the analysis that companies put forward about bovine growth hormone. So this can happen. And I've got another cautionary tale, that's not directly about biotech, but it does involve Monsanto, the big biotech firm, formerly a chemical company. And it involves dioxin and a whistle-blower by the name of Cate Jenkins.

A couple of things before getting to the tape. We know now that dioxin is very, very carcinogenic, extremely bad stuff. But as recently as ten years ago humans were told not to worry because studies done by Monsanto and used by regulators in the United States showed that Monsanto workers did not have

higher levels of cancer. And so, as a result, regulators allowed for generous limits on dioxins and a lot of lawsuits were lost by people complaining of having cancer because of dioxins.

BENOIT: And Monsanto workers were exposed to a lot of dioxin.

CARTY: Yes, in a particular plant down in Nitro, West Virginia. But what happens in this little story is that about ten years ago an EPA, Environmental Protection Agency, environmental chemist by the name of Dr. Cate Jenkins finds out that Monsanto's studies were not accurate. So here's Cate Jenkins explaining how those early studies on dioxin betrayed the victims of that toxin.

#### TAPE BEGINS

DR. KATE JENKINS: The studies that served to show, supposedly, that dioxin caused no harm in humans, was conducted by the chemical producers. Monsanto was the generator of a number of studies. Unfortunately, the government is bound to use these studies, even though they are generated by the chemical producers of dioxin, because there are no other studies.

NEWS CLIP: Dioxin scare in Missouri. A whole town may be covered by the highly toxic chemical.

JENKINS: Dioxin was the chemical of concern in Times Beach, and that caused the evacuation of a whole community and that particular area that's contaminated with dioxin is still evacuated today.

NEWS CLIP: The people of Times Beach have been frustrated and angered by a series of federal warnings that their town is not safe to live in. Dioxin, a deadly chemical, has been found in the soil at levels 100 times higher than the Environmental Protection Agency...

JENKINS: Dioxin is a manmade chemical. It's an unwanted by-product that's created as a contaminant

when people make things like Santophen, which was the active ingredient in Lysol, weed killer, Agent Orange, that was a defoliant that was sprayed on trees during the Vietnam War so that we could see ground troops on the ground for bombing.

NEWS CLIP: The Monsanto plant at Nitro, West Virginia. For 20 years this plant manufactured the herbicide 245T, an ingredient in Agent Orange, the stuff the Americans sprayed all over Vietnam. A by-product of 245T was dioxin. Monsanto denies that 245T affected the health of its workers, other than to give them a rash...

JENKINS: At the time Monsanto was very worried about the impact of being sued by Vietnam veterans. So they were worried about lawsuits. They published a press release during the suit by Vietnam veterans saying our studies show that dioxin does not cause any cancers in humans.

NEWS CLIP: Bizarre defects in many of the Vietnam veterans' children is terrifying. The father of this mongoloid child was actually sprayed by Agent Orange. The baby has no eyes.

JENKINS: The studies were paid for by Monsanto. The bottom line is that the Vietnam veterans were denied compensation for their cancers, their birth defected children. You could not win a court case when you sued a chemical company for exposures to dioxin. Say around Times Beach, or around some other chemical company.

I am a chemist environmental scientist working for the Environmental Protection Agency since 1979. I was able to examine the actual statements of the scientist who had conducted the studies for Monsanto. And those were quite revealing. My evaluation of the studies, I would use the word, rigged. They designed a study to get the results that they wanted. The unexposed population that was supposed to be dioxin free actually did have exposures. Also certain key cases of cancers were eliminated from the Monsanto study for spurious reasons. There were many other problems.

So I forwarded the information to another part of

the agency. Initially they did start to really investigate the Monsanto fraudulent studies. They dropped that in favour of investigating me and retaliating against me. Monsanto wrote letters to EPA complaining. EPA wrote letters back apologizing for any harm that was done to Monsanto by my statements.

I was transferred to another branch where I was essentially given no duties. I believe that looking at the way Monsanto and these other chemical corporations have acted in the past that it behooves the governments to essentially cough up the money, conduct your own science. There's an attitude here in the United States, oh, we need to contract out all of this government work, or oh, we are too large a government.

No! We need to fund our own independent research and stop relying on just all of these outside sources. It costs money, but we need to do it.

TAPE ENDS

BENOIT: What a story. Cate Jenkins, a scientist with the Environmental Protection Agency in the United States. What happened to her after she was transferred?

CARTY: She was harassed for two and a half years inside the EPA. The Secretary of Labour of the United States government had to intervene three times to tell the EPA to stop harassing her. It's really quite a story. There's an internal study done, it's a fascinating study, it's on the Internet, about the whole case. It concluded that perhaps what had happened here is that some of the government scientists at the EPA were too interested in later leaving the EPA and getting jobs in industry and that's why they were more sensitive to the company than to Cate Jenkins. I do have to confess my own respect for people like that, those whistle-blowers. They're just fabulous.

BENOIT: What about the original Monsanto dioxin studies? Were they ever disproven?

CARTY: Yes, the EPA now has clear evidence that dioxin is a human carcinogen. The National Institute of Health has done other studies. But for years the

consequence was that those Vietnam vets that we've heard about suffering from Agent Orange dioxin effects had to accept what were little more than nuisance value settlements, compensation. And you have to wonder how many lives might be different if the science had been better.

BENOIT: Let's bring it back to Canada now. How good is our regulatory system in assuring that new biotech foods are safe for us and for the environment?

CARTY: Well, that's a question we can put tomorrow to the Minister of Agriculture Lyle Vanclief. But for today I went to talk to Brewster Kneen. He's an economist and a theologian - has degrees in economics and divinity. And he also was a sheep farmer for some 15 years. For the last couple of decades though he's been a food critic, the author of several books, the editor of a newsletter, and he's got a new book out called Farmageddon: Food and the Culture of Biotechnology. So I went to Brewster Kneen to talk to him about the regulatory system, but I just had to start off by asking him about why he called his book Farmageddon.

#### TAPE BEGINS

BREWSTER KNEEN: As I delved into biotechnology, genetic engineering, it's kind of the showdown. We thought nuclear was a showdown, but I'm not sure that biotechnology isn't. And that's why "Farmageddon" is a kind of play on things, that we're playing with forces that we really have little understanding of, and could be apocalyptic. We're creating an environment in which we don't survive.

So I'm kind of looking at it from a human perspective saying, okay, maybe it'll be an apocalypse for us. It's also a direct comment on the kind of hubris, the arrogant pride that seems to dominate the biotech industry and a lot of our technology, that oh, we know what we're doing and if we make a mistake we'll correct it with another technology.

CARTY: You used the word human hubris. What is so different about what is being done today by biotech

companies, and what farmers have always done. A farmer is very much an intervening factor in nature, and you've been a farmer.

KNEEN: Yes, and certainly we intervened, and interestingly, over the years, 15 years of farming, we learned to intervene less and less because most of our interventions weren't very successful. We learned that allowing a pasture to grow what it wanted to grow and then working with that was really the best way to proceed, and that's a radically different process than saying from a board of directors, we'd like a canola oil with a certain characteristic, give the instruction down the line to the lab, say okay guys, go to it. We want a plant with these characteristics, without regard to species barriers or any kind of natural processes creating that. I think it just is a very different kettle of fish than baking bread or making beer or breeding animals or selecting seeds traditionally.

CARTY: Brewster Kneen, your book Farmageddon does address some of the regulatory issues, which pose themselves after this week of examining biotech goods. How are genetically modified foods regulated in Canada?

KNEEN: I guess I could say quite simply, rather poorly. We've had a strange kind of situation where the mandate of Agriculture Canada and Industry Canada from 1983 was to push biotechnology, genetic engineering, as a driver of the economy, with a lot of hype and a great deal of public money to subsidize it.

CARTY: And why would governments be doing that? That'd be an interest of promoting jobs I assume.

KNEEN: Well, that was their rhetoric. You define genetic engineering as a technology, you define genes as information and kind of neuterize and neutralize the whole field so you can manipulate it at will without any kind of moral second thoughts. The assumption of the regulatory process, and we have to remember that the regulators started out as an office in Agriculture Canada, have had a dual responsibility of regulators and promoters and the promotional side

of it and getting new products to market has been a part of their mandate from day one. Okay, they've had this conflicting mandate.

So what they've done is said, well, okay there's a couple of principles. The first thing that was established was - and you see this is ideological from the beginning - one, there is nothing new about biotech. Therefore we can utilize existing regulations and so on, we don't need to come up with anything special, because there's nothing special about it. Well, that biased the regulatory process right from the beginning. And then they came up with a doctrine called substantial equivalents.

CARTY: That means that these products, the new genetically modified potato is the same as the old potato.

KNEEN: Yeah, they look at it and say well, let's see, it looks like a potato, tastes like a potato, Monsanto tells us it's a potato, so I guess it's a potato. So substantially equivalent to something we're very familiar with, so therefore go ahead and put it out on the market

CARTY: With what kind of regulation?

KNEEN: None really. I mean, initially you're supposed to do various trials, but the problem is, all of the research that is supplied and on which a decision is made, is supplied by the company seeking to commercialize a product.

CARTY: So we don't do any firsthand research.

KNEEN: Not really. Nothing to speak of.

CARTY: Should we?

KNEEN: Yes, I think quite unequivocally we should be doing some. Because one could do spot checks as you do with automobiles and so on, to say wait a minute, is this really what it says it is. And it's interesting, it came up a couple of years ago, there was a canola that got onto the market. In fact, there

was a whole lot of it seeded out. It was grown in Alberta. It was out west, it was two years ago. Before the company that was selling it realized that whoops, that was the wrong gene in that. Now Agriculture Canada had approved that, without actually knowing what the gene construct was that was in the seed that was released. Then the farmers that had planted it had to plough it up.

CARTY: You suggest the government department Agriculture Canada is Responsible for both promoting these products as well as regulating them. How is that a conflict?

KNEEN: I think the regulator - a public regulator, the Food Inspection Agency - has a primary responsibility to the health of Canadians, And that they are not allowing anything to be intentionally (we could do a lot of things unintentionally) introduced into the food system without knowing what the consequences would be and particularly for people who aren't so-called normal. As a white aging male I'm probably quite normal and I'm quite healthy. But there's a lot of people older than me, or people with compromised immune systems, or nursing mothers, or infants in the womb, that are not what we call normal and what is the effect? We have no idea.

CARTY: Brewster Kneen, are these products in any way regulated internationally?

KNEEN: There is an effort through Codex Alimentarius, which is not a regulatory agency. But it was established in 1962 by the World Health Organization and the Food and Agriculture Organization of the UN to, in its words, to guide and promote the elaboration and establishment of definitions to facilitate international trade. Now those are voluntary standards, and still are. So they're trying to say, okay, if I order a kiwi from New Zealand I'd like to know what I'm getting. So you have agreed international standards and it's voluntary and that's fine.

But what's happened now is that the World Trade Organization has decided that this agency should become a compulsory rule maker to enforce the trade

regime that it wants. And now we're into the labeling question which was just recently up in Ottawa at the meeting of the Codex Commission on Labeling. For example, the issue here is, you cannot label genetically engineered foods as such because that's a violation of trading principles. This is an obstruction to trade. And people say, well, I want to know what I'm going to eat. And that's where it becomes... it changes character all together, from establishing standards to establishing the rules of how a food economy should function.

CARTY: Brewster Kneen, you travel across this country talking about farm issues. What's your sense of the public mood about genetically modified foods?

KNEEN: Well, I've been on this for about 12 years now, and it's been an uphill battle for a long time. But somewhere in the course of the last 12 months I think the tide has turned and the public is beginning to have a great many questions about what's happening to our food and who is doing it? Because the question of control in all this is paramount and they look at that and say well, we've only got two supermarkets left and I can't buy local produce and I'm not sure I like what I'm eating anymore. It doesn't taste very good. And I'm not sure about residues and now this genetic engineering. And I think we're seeing a big wake-up call coming.

Besides, I just don't think it's a good idea. In fact, the whole idea of genetically engineered food in the hands of transnational corporations whose primary commitment is to their shareholders, that all gives me indigestion. I just don't think I want to eat it, period.

TAPE ENDS

CARTY: And Avril, that was Brewster Kneen. He's the author of *Farmageddon: Food and the Culture of Biotechnology* which is published by New Society Publishers.

BENOIT: Well, you make some interesting points there. Can you elaborate a little bit on this organization, this agency, Codex Alimentarius. We've talked about it on the program, but why is it so

important now?

CARTY: It's very obscure, and hard to say - anything in Latin is hard to remember, even though my Jesuit teachers tried to pound a bit of Latin in. But Codex Alimentarius just means food rules. It used to be an agency. Now it has the power of being a referee because it's the referee for the World Trade Organization. The consequences could be a loss of sovereignty in a sense because, for example, in the hormone war right now going on between... over beef between the United States and Europe, Codex has said the American beef is safe. The Europeans don't agree, but Codex allows the Americans to retaliate. So it's gaining tremendous importance in a whole range of issues and in regard to health and safety. And genetic foods will be a battle ground for sure.

BENOIT: All right. Well, tomorrow is the last day of this particular series. Maybe you could talk about what's ahead.

CARTY: Well, it's a little chat with you and the Minister of Agriculture. Lyle Vanclief will be with us and he, of course, is a farmer, and has been... and very interested in this industry and sees it as a boon to Canada. But also wrapped up with some of the issues we've talked about safety and trade.

BENOIT: Well, some of the issues you raised in the series will be putting to him tomorrow. Thanks very much, Bob.

CARTY: Okay, you're welcome, Avril.

BENOIT: Bye bye.

CARTY: Bye bye.

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**Features from the 2000-2001 season:**

