MONSANTO vs. SHMEISER

Sarah Heuer, Iowa State University Bioethics Program

CASE STUDY

PART ONE

From Justice Andrew MacKay's "Reasons for Judgment":

[1] *This is an action heard in Saskatoon, against the defendants, pursuant to the* Patent Act*…for alleged infringement of the plaintiffs' Canadian Letters Patent No. 1,313,830. The infringement alleged is by the defendants using, reproducing and creating genes, cells and canola seeds and plants containing genes and cells claimed in the plaintiff's patent, and by selling the canola seed they harvested, all without the consent or license of the plaintiffs. The commercial product resulting from the plaintiffs' development, from its patent and licensing agreements, is known as "Roundup Ready Canola", a canola seed that is tolerant of glyphosate herbicides including the plaintiffs' "Roundup".*

Background:

On February 23rd, 1993 Monsanto Canada Inc. was granted a seventeen year patent which covered genetically modified canola cells that allowed the plant to be resistant to the herbicide Roundup. The company sold the seed as Roundup Ready canola. In 1998 it was discovered by Monsanto that 95 to 98 percent of a farmer named Percy Schmeiser's fields were planted with this type of seed, which it perceived to be a direct infringement of the patent.

Schmeiser claims he did not intentionally plant the Roundup Ready variety of canola but that natural pollination through the air or an accidental spillage onto his field by an area farmer's truck must have been the cause. Monsanto urged that regardless of if the presence of seed with its patented gene was discovered accidentally, the seed is still property of the company and it deserves both the $15C/acre licensing fee as well as profits from the sale of Schmeiser's 1998 crop. Schmeiser on the other hand insisted that he had the right to replant seeds that grew on his own property and that this should override Monsanto's legal rights.

Since Monsanto's patent covered only the genetically modified plant cells but not the genetically modified plants themselves, it was up to the Court to decide whether growing genetically modified plants constitutes "use" of the invention of a genetically modified plant cell.[1] Ultimately this case is an issue of intellectual property rights versus physical property rights, whether "patent rights take priority over the right of the owner of physical property to use his

[1] For the full text of Canadian Patent 1,313,830: http://patents1.ic.gc.ca/details?patent_number=1313830

property"[2] and to what extent a patent can put limitations on the physical owner of the property as to what he or she may do to or with this property, including duplicating or producing it in any way without permission of the patent holder.

Activity:

You have been assigned to one of four different groups with each group representing a different interest group that is petitioning the Court concerning their interest in Monsanto vs. Schmeiser. For the purpose of this case study, you should consider yourself to be a member and advocate of the group to which you have been assigned and do your best to adequately and persuasively represent the interest of your group. This is a *role playing exercise.* Regardless of whether or not you actually agree with the position to which you have been assigned, you should do your best to accurately represent the stance of your group.

The four groups will be:

1) Percy Schmeiser (and Schmeiser Enterprises Ltd.) (Readings start p. 3)
2) Monsanto Canada Inc. (Readings start p.10)
3) Canadian organic farmers (Readings start, p. 16)
4) Mendel Biotechnology Inc. (Readings start p. 24)

Activity Schedule:

Step One: Study the readings for the group to which you have been assigned. These are sources both from the individuals and companies involved as well as relevant news articles from the time of the actual Monsanto vs. Schmeiser case. You do not need to read the assigned readings for any group except that which you are a part of. After completing the readings, write down some of the main points that you feel are good arguments for your case. Don't just write down facts; be sure to include reasoning and justification behind these claims.

Step Two: Get together with the others who have been assigned to the same group as you. Discuss the arguments you have gathered from the readings and work together to develop a short presentation (about 5 minutes) as if your interest group was petitioning the Canadian Supreme Court during the Monsanto vs. Schmeiser trial. Your group's presentation should explicate your interest group's position as well as provide arguments for why you believe that the Court should rule one way or another. In other words your group will ultimately need to express why the Court should either find Percy Schmeiser guilty of patent infringement or not.

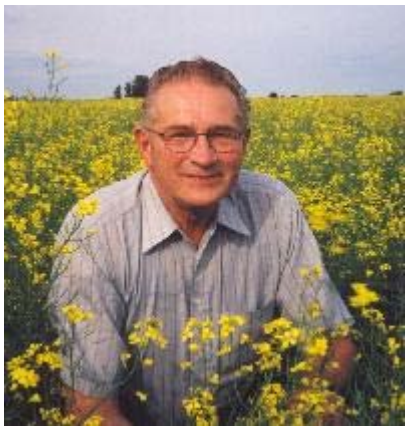
Step Three: Each group will present their case. After each group has presented there will be a brief opportunity for groups to pose questions to one another or raise objections.

[2] http://en.wikipedia.org/wiki/Monsanto_Canada_Inc._v._Schmeiser

Step Four (optional): After receiving questions and objections, your group will reconvene and discuss any alterations to their position that might be necessary to strengthen your position in light of the comments. Then you and your group will work together to write a one page brief summarizing your official petition to the Court. Each group only needs to turn in one brief.

Note: The outcome of the actual Monsanto vs. Schmeiser case should not come directly into play in your discussion and presentation. Even though some of the readings reference the Court's decision, the activity should be done without the assumption that it was right. You should do this activity as if this was the actual case and no ruling had yet been made.

GROUP I: Percy Schmeiser and Schmeiser Enterprises Ltd:



Percy Schmeiser is a long time farmer and farm equipment dealer from the small rural community of Bruno Saskatchewan. In addition to this he was involved in local politics for almost twenty years. In 2000 he was sued by Monsanto Canada Inc. for alleged patent infringement.

The following are excerpts from relevant news articles detailing Mr. Schmeiser's position as reported on his personal website, http://www.percyschmeiser.com.

Excerpt from Vancouver Sun article by Dave Margoshes, August 14, 1999:

"Percy Schmeiser was mad as hell, and decided he wasn't going to take it.

Schmeiser has been growing canola -- the yellow-blossomed oilseed that used to be known as rapeseed -- for 40 years, and he knows his stuff. He's been experimenting, developing his own varieties, using his own seed and generally prospering with canola, reaping the benefits derived from growing an increasingly popular crop.

So when Monsanto, the giant multinational agro-chemical company that is at the forefront of developing genetically modified foods, accused him of patent infringement and demanded restitution for its seeds**,** his pride was hurt. He chose to fight rather than roll over and take it."

"Monsanto, headquartered in St. Louis, makes the popular herbicide Roundup. Farmers all over the Prairies ---Schmeiser among them --- spray it on their fields, whereupon it kills every-thing growing there. Then they plant.

Using the controversial alchemy of genetic engineering, which has alarmed environmentalists and consumers, Monsanto has developed a canola seed completely immune to Roundup**.** That means a farmer can spray the herbicide over a planted field, kill all the weeds growing there, but not hurt the crop -- as long as it comes from Monsanto's seed.

The company sells the seed -- about half the canola planted in Saskatchewan this year comes from it -- but keeps the rights to the DNA itself.

It means that, rather than save seeds from last year's crop to use this year, as many do -- and as Schmeiser traditionally does -- farmers have to buy new seed from Monsanto each year.

In order to protect its investment, Monsanto has been vigilant in rooting out frugal farmers who might be cheating and saving seed, or borrowing a bit of seed from neighbors.

Farmers buying Monsanto's seed must sign a contract promising to buy fresh seed every year. And they must let Monsanto inspect their fields."

Excerpt from Macleans Magazine by Mark Nichols, May 17, 1999:

"For 40 years, Percy Schmeiser has grown canola on his farm near Bruno, Sask., about 80 km east of Saskatoon, usually sowing each crop of the oil-rich plants with seeds saved from the previous harvest. And he has never, says Schmeiser, purchased seed from the St. Louis, Mo.-based agricultural and biotechnology giant Monsanto Co. Even so, he says that more than 320 hectares of his land is now "contaminated" by Monsanto's herbicide-resistant Roundup Ready canola, a man made variety produced by a controversial process known as genetic engineering. And, like hundreds of other North American farmer, Schmeiser has felt the sting of Monsanto's long legal arm: last August the company took the 68-year-old farmer to court, claiming he illegally planted the firm's canola without paying a $37-per-hectare fee for the privilege. Unlike scores of similarly accused North American farmers who have reached out-of-court settlements with Monsanto, Schmeiser fought back. He claims Monsanto investigators trespassed on his land -- and that company seed could easily have blown on to his soil from passing canola-laden trucks. "I never put those plants on my land," says Schmeiser. "The question is, where do Monsanto's rights end and mine begin?"

Excerpt from Western Producer article by Adrian Ewins, August 19, 1999:

"The high profile legal battle between Monsanto and a Saskatchewan farmer will go to trial in Saskatoon next year.

The two sides will square off in federal court on June 5, 2000 to argue the company's lawsuit alleging that Percy Schmeiser grew Roundup Ready canola without a license.

The trial date was set at the end of an eventful week that has brought the issue of seed patenting to national attention by pitting a United States-based multinational corporation against a lone farmer from Bruno, Sask.

"The case found its way into the courts in August 1998, when Monsanto filed a statement of claim alleging Schmeiser illegally bought Roundup Ready seed from local growers in order to plant his 1997 crop, then retained some of that year's seed to plant in 1998.

Schmeiser said he planted his 1997 crop with seed saved from 1996, and insists that any Roundup Ready growing on his land was spread by wind or by grain trucks traveling on roads adjacent to his fields.

In the statement of claim, Schmeiser says Monsanto has libeled him by publicly accusing him of committing illegal acts, trespassing on his land in order to obtain seed samples and improperly obtaining samples of his seed from a local seed plant.

The statement also accuses Monsanto of "callous disregard" for the environment by introducing Roundup Ready into the area without proper controls, and of contaminating crops grown by Schmeiser."

On Aug. 10, 1999 mediation talks to settle the dispute without going to trial ended in failure.

The next day, Schmeiser launched a $10 million lawsuit against Monsanto, accusing the company of a variety of wrongs, including libel, trespass and contamination of his fields with Roundup Ready."

"Schmeiser's lawsuit against Monsanto won't be dealt with until the original lawsuit has been resolved." We want to have the patent infringement hearings run their course, then we'll pursue this," said Schmeiser's lawyer Terry Zakreski."

Excerpt from Saskatoon Star Phoenix article by Leslie Perreaux, April 28, 1999:

"Agrochemical giant Monsanto Co. has admitted its investigators went onto a Bruno farmer's land without permission to collect evidence against him."

"Monsanto admitted during recent secret court discovery testimony that it hired a Saskatoon private investigations company, founded by former RCMP officers, to go onto Percy Schmeiser's land and obtain canola samples.

The company also secretly obtained some of Schmeiser's seed from Humboldt Flour Mills, where Schmeiser was having his seed cleaned, according to documents filed this week in Federal Court."

"According to the court documents, Monsanto offered discounts to Humboldt Flour Mills in return for providing samples from targeted farmers. Humboldt Flour Mills officials couldn't be reached for comment Tuesday."

Excerpt from Western Producer article by Adrian Ewins, May 6, 1999:

"The motion to dismiss the case states that Monsanto has admitted in court it has no evidence of anyone providing Roundup Ready seed to Schmeiser. However, Ray Mowling (President of Monsanto) said the issue of where the seed came from is not crucial.

"Our case is built on the fact that he knowingly used our seed and planted it," he said. "Where he got the seed is interesting but not a critical factor."

Excerpts from Washington Post article by Rick Weiss, May 2, 1999:

"But while the vast majority of farmers approached by Monsanto have paid fines and agreed to allow the company to inspect their fields for years to come, Schmeiser last year became something of a folk hero in Canada by fighting back against the multinational giant. He has gained support of environmental groups and others around the world who oppose corporate restrictions on seed saving, which many subsistence farmers depend upon for survival."

"In testimony filed with the Federal Court of Canada -- part of Zakreski's motion to dismiss the case -- a Monsanto Representative reports that private investigators hired by the company in 1997 trespassed on Schmeiser's property to snip plant samples for DNA testing.

Moreover, according to documents and interviews, a Monsanto representative approached an employee of the Humboldt Flour Mill, where Schmeiser brought his harvested seed for cleaning, and asked for a sample of his harvest for DNA testing. The mill's manager at the time, Gary Pappenpoot, complied after checking with his boss -- a decision, he said Friday, he now regrets."

"Philip Angell, Monsanto's director of corporate communications, disputed the allegations against the company. Despite the sworn testimony, he said, it is still not completely clear that the investigators in 1997 actually crossed Schmeiser's property line. Even if they did, he said,

trespassing is neither a criminal nor a civil offense in Saskatchewan --a legal interpretation Zakreski (Schmeiser's attorney) disputes.

Angell also said -- and Pappenpoot confirmed -- that the Humboldt mill routinely saved samples of farmer's seeds in case questions arose later about contamination or mix-ups. Angell said Monsanto attorneys were now trying to determine whether those saved samples technically still belonged to Schmeiser or to the mill**,** which would then have the right to share them with anyone it chose to."

Excerpt from Saskatoon Star Phoenix article by Leslie Perreaux, August 14, 1999:

"Zakreski said the company's position in the lawsuit has frightening implications for farmers.

He noted the company has dropped its allegation that Schmeiser stole the seed. He said the company is now pursuing Schmeiser for simply using the seed, purposely or not.

"I don't think anyone who finds this innocently on their land should be responsible to Monsanto," he said.

"They seem to want to put the responsibility for identifying the DNA of crops on the farmer**.** That, if you think about, is very frightening."

Schmeiser: Monsanto lying about 98 percent of his crop being genetically modified

Article courtesy of CropChoice.com

By Percy Schmeiser

May 24, 2002 – CropChoice guest commentary – Monsanto has been deceitful as part of its lawsuit against me for allegedly infringing the patent on its genetically modified Roundup Ready canola.

Two examples of its actions really stand out in my mind. One involves a 1998 court order allowing Monsanto to sample crops from my land. The other is its contention that the results of tests on one sample of my crop registered more than 95 percent positive for the presence of its patented genetics.

A recent meeting of farmers whom Monsanto has sued, investigated or harassed reminded me of the beginning of the nightmare I've been through with this company.

In August of 1998, the company got a court order allowing it to enter my land to take crop samples provided that the company or its agents notified my lawyer and me. They were to contact me so that I could accompany them during the collection of a sample. More importantly, I was to take half of the sample and have it tested; Monsanto would do the same with the other half of the sample.

Yet, when the time came, neither my lawyer nor I was notified. Agents from the Robinson Investigation firm, the hired henchman for Monsanto, showed up in my driveway with bags marked "Monsanto" and "Percy Schmeiser." They claimed that they had been out sampling my field that day and that the bags marked with my name were mine to have tested. Funny thing is, I'd been in and around the fields all day and hadn't seen them. What's more, the land descriptions on the sample bags were for areas that I didn't even farm.

Incredibly, the judge didn't consider this during the trial. Before getting to the second example of Monsanto's deceit when it comes to obtaining evidence, I should mention that that the Robinson Investigation firm, which Monsanto hired to take canola samples from farmers, is itself under investigation. During my trial, Monsanto made no apologies for the actions of the Robinson firm, which acted on "tips" and "rumors" that farmers were growing Roundup Ready canola without a license.

At times investigators from Robinson would wear Monsanto or Roundup Ready clothing when they called on farmers. Their first words to farmers were: "We're ex-RCMP [Royal Canadian Mounted Police] officers." It was intimidation!

And now, back to the issue of my seed.

Before sowing my 1998 crop, I took some of my seed to Humboldt Flour Mills for inoculation against diseases and insects. Later, I learned that the milling company had kept one sample, which it returned upon my request.

In 1999 Monsanto formally accused me of illegally planting its transgenic seed the year before. It based this accusation on what its agents claimed was Roundup-resistant canola that they found growing in the ditch next to my fields.

Feeling uneasy about the pending lawsuit, I took samples from all of my fields, plus what the flour mill had returned to me, to the University of Manitoba to be tested for the presence of Monsanto's patented genes. I had to send the samples there at my expense because Agriculture Canada, a government agency, refused to test my seed. Yet, it did testing for Monsanto at taxpayer expense.

The U. of Manitoba test results revealed no detectable level of modified genes in several of the samples; in two other samples they detected 2 percent and 8 percent. The samples taken from the field and the ditch where I first noticed the Roundup Ready canola volunteers growing had a 60 percent level of genetic contamination. Notably, those areas abut land on which my neighbor planted Roundup Ready canola in 1996. Seed and or pollen from those canola plants, could quite easily have been transported to my field.

Months before the June 2000 trial began I received some shocking news. Monsanto announced that an employee of Saskatchewan Wheat Pool, which a year before had purchased Humboldt Flour Mills, found and turned over a sample of my seed from 1998. (Saskatchewan Wheat Pool was and is licensed to sell Monsanto's genetically modified canola seed.)

I phoned the employee, Morris Hofmann, to ask how he knew it was my seed. Hoffman replied: "You don't know."

At trial, Hofmann, a good friend to the local Monsanto representative, testified that he had found the sample. My lawyer, Terry Zakreski, pointed out that it would be difficult to know, after the passage of two years, the origin of the seed. To wit, I had not cleaned my saved (bin run) seed, full of chaff, that I delivered to Humboldt Flour Mills in 1998 for inoculation. The one-pound sample that the mill later returned to me was in the same condition. Contrast that with what Monsanto claimed Hofmann had discovered: 20 pounds of clean seed in Saskatchewan Wheat Pool bags.

I ran into Hofmann after the trial. He apologized to me for lying about supplying Monsanto with a sample of clean Roundup Ready canola seed for use in court. He told me that Monsanto had taken him on trips, to lunch and given him free products to use on his farm.

But he wasn't the only witness whom Monsanto wined and dined. Hofmann told me that Monsanto had a reception room where liquor and other refreshments were served to witnesses while the trial was happening.

Monsanto Continues Draconian Approach Over Contamination

Despite all of my efforts to work out an arrangement with Monsanto because of the re-emergence of Roundup Ready Canola in my fields, they have refused to remove the canola plants from my field unless I sign an agreement that removes all my rights. The agreement that they wanted me to sign was asking me and my family members to waive their rights. Their property (the RR canola plants) continues to sit on my field, against my wishes. With the plants still sitting there, the pods are shelling and the canola is being scattered on my field again which will result in more Roundup Ready canola plants emerging in the future.

Because of the presence of these plants, I am restricted as to what I can seed on this field in 2006. I had planned to seed Mustard, and even Monsanto's lawyer is suggesting that I do not seed Mustard as it will be impossible to keep out or separate the canola from mustard.

Monsanto has admitted that the volunteer canola plants are theirs, but for them to remove them they want to be absolved of any responsibility for them. I have to absorb the costs of additional chemical (they will only pay for one removal) and removal costs as their agreement states that future costs of removal would be my responsibility. I also would lose any ability to sue Monsanto in the future.

Because of this contamination, I have lost control of what I want to seed on my land, and thus, control of my land. Monsanto's response? Sign this agreement waiving all of my rights and any claims against them and they will clean up the plants this one time.

Monsanto's response is completely unacceptable; they were the ones that polluted my land, but I am the one that has to give up my rights, my choices for crops that I want to seed, and I have to assume future costs for clean up if the contamination continues next year and beyond.

The only possible choice I have to is to sue Monsanto for the damage that they have caused to my fields. This is something that I am considering. But this whole issue could have been resolved if Monsanto would show some reason and not act in such a draconian manner.

GROUP II: Monsanto Canada Inc.

"Monsanto Company is a leading global provider of technology-based solutions and agricultural products that improve farm productivity and food quality."[3]

It is Monsanto's position that Mr. Schmeiser knew infringed its patent on Roundup Ready technology when he planted his fields with seeds he had saved which he new to be glyphosate-resistant without paying a licensing fee to use the patented gene. Officials at Monsanto believed that by bringing this case to trial the Supreme Court of Canada would have the opportunity to set a precedent on intellectual property protection that would continue to make investment and innovation in genetic engineering a profitable venture.. "More than 30,000 Canadian farmers have chosen our technology because of the economic and environmental benefits it brings," said Carl Casale, executive vice president of Monsanto. "We believe [that this case] is good… for farmers and Canadians, all of who benefit from the innovative work that is going on across the country to produce more abundant, high quality food."[4]

Article from The Leader-Post by Kevin Hursh, January 21, 2004:

Don't Pity Poor Percy

Poor, downtrodden Percy. Some of those evil Roundup Ready canola seeds blew onto his property from passing trucks and now the huge multi-national monster known as Monsanto is trying to crush him like a bug.

What a hero for farmers everywhere. What an international icon. What a David taking on Goliath.

What a crock.

Many people love to cheer for the underdog and many people love to see anyone put the screws to large agri-business. But the Schmeiser / Monsanto Supreme Court case has lost any semblance of rational perspective.

Monsanto has no interest in going after farmers who by accident have Roundup Ready canola on their land. In fact, the accidental spread of the crop is a worry and embarrassment for the company.

[3] http://www.monsanto.com
[4] http://www.monsanto.com/monsanto/layout/media/04/05-21-04.asp

Most of the news stories don't mention the fact that Schmeiser had over a thousand acres of canola, which by independent analysis, was shown to be well over 90 per cent Roundup Ready. He isn't quite the innocent bystander portrayed in many media reports.

Percy has become an international star by dragging the issue through the court system. That was his choice. How sorry should we feel about his mounting court costs? No one seems to be saying how many dollars misguided environmental bleeding hearts have contributed to his campaign. His stardom may actually be a net benefit, with all the limelight an added bonus.

Patenting plant genes is an interesting issue and one that is worthy of debate, but unfortunately the Schmeiser case has generated all sorts of misconceptions about agriculture.

Herbicide tolerant crops and genetically modified crops are not synonymous. Herbicide tolerance has often been achieved through conventional plant breeding methods. CLEARFIELD canola is a prime example. CLEARFIELD lentils are now being developed and again this is through conventional plant breeding. They will not be considered GM (genetically modified).

Some people seem to believe that if Schmeiser wins the Supreme Court challenge, GM crop development will stop. That's not the case.

Certainly, Canada will no longer look like a hospitable nation in which to invest research dollars, but there are other ways for companies to get paid for GM crops. The top one on the list is hybrids and the canola industry is already moving in that direction. With hybrids, the crop a farmer producers is not suitable as seed. Thus, to use a hybrid system, a farmer has to buy new seed each year.

If patenting of genes is struck down by the Supreme Court, companies may still be able to patent the processes by which they developed GM crops. And the country still has protection for new crop varieties under Plant Breeders' Rights legislation.

It's also interesting to note that some companies make their new herbicide resistance traits widely available, because they make their money off the sale of that specific herbicide. Herbicides can still be patented, even if plant genes can't be.

Let's explode another fallacy. No matter the outcome of the Schmeiser case, there will continue to be many cropping options where the farmer has a contractual obligation to use purchased pedigreed seed. In many of these contracts, all of the crop has to be returned, and the farmer is not allowed to save seed.

These contracts are good for farmers or they wouldn't sign them. Personally, I've already signed two such contracts for the upcoming growing season. One is for a GM crop and one is conventional. Both have to be Identity Preserved from other production.

This type of contract exists beyond canola. Even for the market development programs of the Canadian Wheat Board or special contracts such as spring wheat grown for Warburton's, the farmer is required to purchase pedigreed seed.

Cheer for the underdog if you want, but Percy Schmeiser isn't doing anything to improve the bottom line on my farm.

Kevin Hursh is an agricultural communicator and farmer from Saskatchewan

Article from the National Post by Ben Chapman, October 5, 2002:

Roundup roundup

Farmers are planting more GE crops and pesticide use is down, but that won't stop Saskatchewan's Percy Schmeiser and his anti-biotech campaign

Percy Schmeiser, Canadian canola farmer and international genetically engineered (GE) crop martyr, has again lost in a court of law. A panel of three federal court judges recently dismissed an appeal against an earlier conviction for knowingly planting patent-protected GE canola on his Bruno, Sask. farm.

Unfortunately, this may only further his standing in the court of public opinion.

Big-bad multinational Monsanto dragged Mr. Schmeiser into court after it suspected that he had been growing a GE Roundup Ready variety of canola without paying the licensing fees that thousands of other Canadian farmers had willingly paid. A Canadian federal court ruled in 2001 that he had indeed infringed Monsanto's patent.

Mr. Schmeiser stood by his defense that the GE canola was blown into his field by passing seed trucks and then cross-pollinated his crop, resulting in the detectable traits; at least until a few months ago, when Mr. Schmeiser took a new tack, declaring that he had indeed deliberately planted the Roundup Ready canola, but that, as a farmer, it was his right to brown-bag seed or purchase it from a neighbor.

In his original decision, Mr. Justice Andrew MacKay ruled that Mr. Schmeiser "knew or ought to have known" that he had saved and planted seed that was Roundup tolerant, and had therefore infringed Monsanto's Roundup Ready patented technology. Judge MacKay pointed to independent tests that showed 1,030 acres of Mr. Schmeiser's canola were 95% to 98% tolerant to Roundup herbicide. At such a high level of tolerance, Judge MacKay ruled the seed could only be of commercial quality and could not have arrived in Mr. Schmeiser's field by accident.

The appeal panel unanimously rejected all of Mr. Schmeiser's 17 points of contention, leaving only the Supreme Court of Canada as the last refuge for legal appeals. Of course, this won't prevent Mr. Schmeiser from touring the world -- he recently returned from Australia -- preaching against the evils of multinationals. After all, the court of public opinion has a much lower standard for admissibility of evidence, one that seems to decrease exponentially the further one travels from home. Mr. Schmeiser has been on a public relations whirlwind since the initial lawsuit was filed against him in 2000. He has been to Africa, India, New Zealand and Australia twice. He has touted the terror and fear that Monsanto has allegedly directed at him, including the purported use of a herbicide bomb on his acreage to discover if his crop was really Roundup resistant. All this in the name of fighting the biotech companies that are supposedly enslaving him and others.

Except that this year, some 70% of canola grown in Canada is expected to be derived from GE varieties, chosen by farmers of their own accord. Overall, the use of genetically engineered crops in North America continues to increase. Some 35% of corn and 30% of soybeans grown in Canada will be from genetically engineered varieties this year. In the United States, about 75% of soybeans, 70% of cotton and 30% of field corn will be GE.

Part of the reason is a 46 million-pound reduction in pesticide use in the United States in 2001 because of genetically engineered crops such as cotton, canola, soy and field corn.

Such crops helped American farmers reap an additional 14 billion pounds of food and improve farm income. The most recent study from the Washington-based National Center for Food and Agricultural also predicted that if the 32 other biotech crop varieties still under development were planted, they would reduce pesticide use by 117 million pounds per year, bringing total pesticide reduction for all biotech crops to 163 million pounds annually. Field corn resistant to rootworm, which could be approved in the United States in the next few weeks, could replace 14 million pounds of insecticides used on this crop each year (the complete report, commissioned with a grant from The Rockefeller Foundation and later expanded with industry funding, was reviewed by nearly 70 plant biotechnology scientists from 20 academic and government institutions and is available at www.ncfap.org).

Closer to home, Mr. Schmeiser's own production organization, the Canola Council of Canada, published a study in 2000 demonstrating that planting herbicide-tolerant canola resulted in a 29% reduction of chemical use, increased yields and contributed to a net gain of $5.80 an acre. In short, certain genetically engineered crops, on certain farms, can help farmers produce safe, affordable food while minimizing the environmental impact.

But that isn't what Percy Schmeiser or the anti-GE campaign would have you believe. Stompin' Tom Connors sang a song that, if it weren't for copyright laws (not that Mr. Schmeiser has shown much respect for legally protected things), would probably become Mr. Schmeiser's theme. A line of the lyrics reads: "I'm a poor, poor farmer, what am I going to do?" Now that he has been instructed to pay Monsanto's court fees of $153,000, he really will be. Mr. Schmeiser

has been preaching a tale of corporate omnipotence, but only after getting caught with his hand in the cookie jar. His rants against corporate rule have nothing to do with the safety of genetically engineered foods. It appears that good old Percy, practical as are most farmers, wanted to use a product that worked but didn't want to pay for the technology.

As several African countries approached mass starvation conditions in recent weeks, a debate raged over the safety of GE crops and whether U.S. food aid containing GE corn was safe or suitable. Those African countries have now agreed to accept the same food eaten routinely by Canadian and Americans, but not without considerable effort debunking the mythologies spread by Mr. Schmeiser and others. As the World Summit for Sustainable Development wrapped up recently, a group of African and Asian farmers presented three NGOs, including Greenpeace, with a trophy comprising dried cow dung on a piece of wood. The award, aptly entitled the "Bullshit Trophy," was handed over to the organizations for their contribution to the "preservation of poverty." Percy Schmeiser had my vote long ago. The courts apparently agree.

Benjamin Chapman is a graduate student with the Food Safety Network at the University of Guelph.

Article from the Montreal Gazetter by Joe Schwarcz, November 9, 2002:

When excuses won't fly: No seed of doubt in canola trial. Farmer claim's he's victim of corporate cruelty but explanations don't stand up to scrutiny.

Way back in Grade 6, a couple of friends and I did something that I'm not proud of. We shot a bird.

I had pestered my parents to allow me to buy a BB gun, which we then used to take potshots at cans on a fence in the back yard.

One day, a sparrow had the misfortune of taking a break on the same fence. Without thinking, my friend aimed and fired.

I'm sure he never expected to hit the bird, but did. As luck would have it, a nosy neighbor witnessed the crime and called the police. By the time they arrived we had put the bird out of its misery with a hail of BBs and laid it to rest in an unmarked grave.

Unfortunately for us, the neighbor had spied on the funeral as well. The creature was quickly exhumed and the police officer now had in hand the bird that should have been in the bush.

At this point we offered an explanation. We had been shooting at a target and the bird happened to fly by. This didn't pass muster.

The sleuth quickly determined the bird had been riddled with about a dozen pellets, quite uncharacteristic of a fly-by incident.

This necessitated yet another story. We did shoot the bird, we admitted, but for humanitarian reasons. "It was the kind that eats the rice in China," my friend volunteered.

The police decided that we needed a tour of the police station. Finally our parents were called and we were released into their custody. I never saw the gun again.

I was reminded of this dark historical moment when I began to look into the fascinating legal case of Monsanto, the giant agrochemical company, vs. Percy Schmeiser, an unknown Saskatchewan canola farmer.

Today, Schmeiser is no longer unknown; he travels around the world lecturing to anyone who cares to listen (and pay) about the evils of genetic modification and the corporate brutality to which he has been subjected. But there's more to the story.

After many years of research, Monsanto developed a variety of canola that was resistant to the herbicide glyphosate (Roundup).

This plant produces the seeds from which canola oil is pressed and is an important crop in Canada. Indeed, the name derives from "Canadian oil."

Roundup Ready canola offers several advantages to the farmer. Fields can be sprayed with glyphosate to kill weeds without harming the crop. This reduces the number of herbicide applications needed and reduces the need for tilling. There is therefore less soil erosion, a significant saving in herbicide costs as well as in diesel fuel. Canadian farmers obviously think there is a benefit since acreage devoted to genetically modified canola has been increasing every year.

The introduction of Roundup Ready canola presented Monsanto with a problem: How do you make a profit from the invention?

This is not a simple question to answer. Traditionally, farmers grow crops and keep the seeds from the best plants for use during the next growing season. According to this practice, a farmer would only have to buy the modified seeds once.

But if this were the case, Monsanto could not recoup its investment, let alone make a profit. And profit, of course, is what the game is about.

So Monsanto came up with a plan. Any farmer wishing to plant Roundup Ready canola had to sign an agreement to buy fresh seed every year. If you want to use the technology, Monsanto said, you have to pay for it. Not at all an unreasonable business move. And more than 30,000 Canadian farmers agree.

Naturally, the company monitors the use of its product. In 1998 it had reason to suspect that Schmeiser's field harbored Monsanto canola. When the farmer refused to pay for the technology, Monsanto sued.

At trial, Schmeiser admitted the presence of the plants, but said they were unwanted and must have grown from seeds that had blown off passing trucks.

But curiously, he never contacted the company to complain. Later, he would explain that he didn't even know about the existence of such seeds. Another curiosity, since the company had advertised widely and held information sessions in his area.

When Monsanto introduced its shipping records, it became clear that no truck had passed in the vicinity.

Schmeiser now suggested that the plants resulted from cross-pollination from neighboring farms. Not likely, either, since the nearest farm was 8 kilometers away. Also, the pollen (or the seed from the trucks) would have had to have an amazing property, unknown even to Monsanto: the ability to organize the canola plants produced into neat rows!

Admittedly, cross-pollination is a legitimate concern for farmers who do not want modified canola in their fields. But Monsanto has a clear policy: it has no intention of taking action against growers affected by such accidental pollen drift and is willing to work with farmers to address the problem.

Based on the evidence, the judge ruled Schmeiser "knew or ought to have known" that he had violated Monsanto's patented technology. There simply was no reasonable explanation for how his fields became "contaminated" with 95-98 percent Roundup Ready canola, planted in regular rows yet!

The farmer appealed the judgment and introduced a novel nuance. Yes, he explained, he knowingly grew Monsanto's canola but it was his right to acquire seeds in any way he chose and what he planted was his business.

The Federal Court of Appeal wasn't biting and dismissed all Schmeiser's appeals. He would now like to take the matter to the Supreme Court of Canada.

There would appear to be some interesting similarities between our "bird hunt" and Schmeiser's canola episode.

But in the end, when confronted by the eyewitness testimony and the pellet-riddled sparrow that "eats the rice in China," we recognized that we had better make a clean breast of it.

The only appealing we did was to our parents to avoid punishment. The appeal was rejected.

Joe Schwarcz is director of McGill University's Office for Chemistry and Society.

GROUP III: Canadian Organic Farmers

This landmark case is of particular interest to Canadian organic farmers for several reasons, generally because they think that it could set a precedent for how much control giant biotechnology companies can have over farmers. Specifically, the case is of interest as growing biotechnological innovations make it increasingly difficult for farmers who practice traditional or organic methods of farming to be competitive. Furthermore, if accidental contamination by the alleged carelessness of the company and those using its technology can lead to the kind of repercussions felt by a farmer like Mr. Schmeiser, this could have huge implications both for organic farmers and those who choose not to use genetically modified plants in their farming practices.

Article from "Monsanto Assault on U.S. Farmers Detailed in New Report" by Craig Culp, January 13, 2005:[5]

The Center for Food Safety released today an extensive review of Monsanto's use and abuse of U.S. patent law to control the usage of staple crop seeds by U.S. farmers. The Center (CFS) launched its investigation to determine the extent to which American farmers have been impacted by litigation arising from the use of patented genetically engineered crops. Monsanto vs. U.S. Farmers details the results of this research, discusses the ramifications for the future of farming in the U.S. and outlines policy options for ending the persecution of America's farmers.

"These law suits and settlements are nothing less than corporate extortion of American farmers," said Andrew Kimbrell executive Director of CFS. "Monsanto is polluting American farms with its genetically engineered crops, not properly informing farmers about these altered seeds, and then profiting from its own irresponsibility and negligence by suing innocent farmers. We are committed to stopping this corporate persecution of our farmers in its tracks."

The report finds that, in general, Monsanto's efforts to prosecute farmers can be divided into three stages: investigations of farmers; out-of-court settlements; and litigation against farmers Monsanto believes are in breach of contract or engaged in patent infringement. CFS notes in the report that, to date, Monsanto has filed 90 lawsuits against American farmers in 25 states that involve 147 farmers and 39 small businesses or farm companies. Monsanto has set aside an

[5] http://www.percyschmeiser.com/MonsantovsFarmers.htm

annual budget of $10 million dollars and a staff of 75 devoted solely to investigating and prosecuting farmers.

“Monsanto would like nothing more than to be the sole source for staple crop seeds in this country and around the world,” said Joseph Mendelson, CFS legal director. “And it will aggressively overturn centuries-old farming practices and drive its own clients out of business through lawsuits to achieve this goal.”

The largest recorded judgment CFS has found thus far in favor of Monsanto as a result of a farmer lawsuit is $3,052,800.00. Total recorded judgments granted to Monsanto for lawsuits amount to $15,253,602.82. Farmers have paid a mean of $412,259.54 for cases with recorded judgments. Many farmers have to pay additional court and attorney fees and are sometimes even forced to pay the costs Monsanto incurs while investigating them.

“Monsanto is taking advantage of farmers with their marketing and their threats and lawsuits,” said Rodney Nelson, a North Dakota farmer sued by Monsanto. “It’s hard enough to farm as it is. You don’t need a big seed supplier trying to trip you up and chase you down with lawyers.”

Farmers even have been sued after their fields were contaminated by pollen or seed from a previous year’s crop has sprouted, or “volunteered,” in fields planted with non-genetically engineered varieties the following year; and when they never signed Monsanto’s Technology Agreement but still planted the patented crop seed. In all of these cases, because of the way patent law has been applied, farmers are technically liable. It does not appear to matter if the use was unwitting or if a contract was never signed.

Various policy options supported by CFS include passing local and state-wide bans or moratoriums on plantings of genetically engineered crops; amending the Patent Act so that genetically engineered plants will no longer be patentable subject matter and so that seed saving is not considered patent infringement; and legislating to prevent farmers from being liable for patent infringement through biological pollution.

Excerpt From Canadian Court trial news:[6]

Monsanto is the lightning rod for protest amongst environmental groups. When anti-GM activists gather, Monsanto is their target. When they protest, it’s Monsanto they want to stop. The campaign has not only dramatically slowed the growth of the GM industry; it has also cast Monsanto in the role of villain at a time when it is struggling financially. They sold off about $4 billion worth of subsidiaries in the last two years to reduce debt.

Farmers that are against genetic engineering are angered that Monsanto’s crop management and disease resistance plans offer noting to those who do not wish to use genetically manufactured seed.

[6] http://www.ddh.nl/duurzaam/duurzaamlijst/archief1/msg00297.html

Excerpt from Science Creative Quarterly by Corinne Cluis, Issue Two: September to November 2006:

Rounding up the Schmeiser Case: Benefits and Liability Issues of Transgenic Crops

For thousands of years, it has been common practice for farmers to keep the best seeds from their fields for the next growing season. This has allowed them to develop breeds of high quality, high yields and nurture those adapted to the local conditions. Trading seeds with other farmers is also a secular tradition that is important for maintaining a diverse genetic background within a field. So when Percy Schmeiser, a 59 year old Saskatchewan farmer, inadvertently found that some of his canola plants that boarded a local road, were resistant to a herbicide purchased to get rid of the weeds growing around telephone poles, he did what millions of farmers had done before him: he collected some seeds and added them to his pool of grains of highest quality for future growing seasons. To his surprise, a year later, he received a letter stating that the biotech company Monsanto was suing him for $300,000 due to the unlicensed use of its herbicide-resistant canola. Consequently, this began a 6 year judicial battle that became a principle symbolic cause for farmer's rights, that also set the ground for Canada's position toward genetically modified (GM) organisms [1] [2].

Essentially, the conflict revolved around the use of Roundup Ready canola, a new special line of GM plants released by the agrochemical company Monsanto. This particular canola was designed to be resistant to the herbicide Roundup which is chemically based on a compound known as glyphosate, also produced by Monsanto. When Roundup is sprayed on undesired weeds, glysophate penetrates inside the plant cells and works to block the activity of an enzyme called EPSPS. This enzyme is involved in the synthesis of certain amino acids that are essential for plant protein production and therefore are crucial for growth and survival. In essence, the presence of glysophate rapidly leads to the death of the weed. Furthermore, one of the greatest advantages of this system is that EPSPS, the enzyme inhibited by glysophate, is present in plants and bacteria but not in animals. As a result, the Roundup herbicide is harmless to any human or wild animal that may consume it. In fact, because of its efficiency and its specificity, Roundup is one of the most widely approved herbicides around the world [3].

Roundup Ready *plants* (which include soybean, corn, canola and cotton) were also developed in conjunction with the herbicide in the 1990's, and are essentially made to be resistant to glysophate. This consequently allows farmers to get rid of undesirable weeds by massively spraying their fields with the benefit of no worry of killing their own crop. To obtain such plants, Monsanto's scientists first found a species of bacteria that harboured an EPSPS enzyme that not only continued to perform its role in amino acid synthesis, but that was also resistant to glysophate treatment. They then isolated this EPSPS gene and modified it accordingly so that it could function effectively in plants. Finally, this modified EPSPS gene was then inserted into a plant genome, and characterized extensively so that researchers were convinced that: first, it performed its synthesis role efficiently; and second, it confer Roundup resistance to the transgenic plant.[4].

Of course, laid down in such simple words, the whole procedure appears remarkably straightforward. However, in reality, the Roundup Ready plants resulted from many years of

research and development by Monsanto's scientists. Consequently, it seems reasonable that Monsanto was now hoping to get paid back for the time and money invested in the development of such useful plants. But unfortunately for them, plants are not like prescription drugs or other patented devices, where consumption occurs only once - they are a living organism that reproduce and set seeds, and these in turn can be grown again to obtain exactly the same plant, with the same patented gene. In order to ensure that they can enjoy the full benefit of their product, Monsanto makes sure that farmers sign a Technology Use Agreement (TUA) upon purchase of the Roundup Ready seeds. The TUA is a license that allows farmers to use the Roundup Ready technology with a number of rules to be followed. For instance, the farmer is not allowed to save Roundup Ready seeds for replanting or for inventory, nor will he be permitted to give out seeds to other farmers. To enforce this contract, Monsanto regularly samples fields to check for unlicensed growth of Roundup Ready canola. The company even has a toll-free phone line where people can call to report suspicious use of Roundup Read [1] [2].

This very phone line resulted in a tip that led to Monsanto investigating the Schmeiser farm. In 1998, they found that 95-98% of the canola grown on his farm was unlicensed Roundup Ready canola. Schmeiser said that in fact, he never wished to grow Roundup Ready. To his defense, Schmeiser argued that the GM canola seeds ended up on his field by accident, probably by falling from a truck. Because he did not know that he was growing Monsanto seeds and in fact, never even sprayed his fields with Roundup, he therefore was not infringing Monsanto's patent. On Monsanto's side, the argument was that it was highly improbable that Schmeiser did not know about Roundup Ready canola, given its popularity and the publicity around it. They claimed that Schmeiser willingly grew Roundup Ready without a license, and that by harvesting and selling the resulting grain, he made a profit from which Monsanto should have benefited [1, 2, 5]. These claims, arguments and counter arguments continued for 6 years, involving hearings in front of three different courts. Finally, in May 2004, the Supreme Court of Canada ruled against Schmeiser, stating he had violated the company's rights by growing the GM plants without a license. However, the court also overturned a previous judgment that ordered Schmeiser to pay back the sales profit to Monsanto and to pay for the company's legal fees [5, 6].

Despite its controversy, the Supreme Court's decision is likely to make history because it is one of the first to debate intellectual property on genetically modified plants. On a somehow similar matter, the same court had ruled in 2000, against the patenting of the so-called "Harvard" mouse. In that case, the judges refused to grant a patent to Harvard University for the development of a transgenic mouse with special characteristics that could be of great use in cancer research [7]. Despite the fact that it took years of research to obtain the mouse, the court stated that such a higher form of life could not be patented. During his trial, Schmeiser used this particular case to suggest that despite Monsanto's holding of a patent for the gene responsible for glysophate resistance, it could not claim to have property rights on the *plants containing the patented genes, when the plants themselves are not being used to exploit the benefits given by the gene*. However, the Supreme Court ruled that since Monsanto holds a patent for a gene inside canola seeds, it therefore also has full control over the use of the plant [2].

In practical terms, one could say that this is not very far from having a patented plant. As a result, the court has set the groundwork for a system where a biotech company can claim rights

and royalty payments on any organism that bears their patented gene, whether it is in the possession of someone who is aware of it or not.

Perhaps more interesting, is the notion that with such a strict level of control over the benefits from its products, biotech companies should in turn also be accountable for the damage, even accidental, caused by their products [8]. In the case of GM plants, the engineered trait can easily escape out of the company's control through a variety of mechanism such as seeds inadvertently spreading out in neighbouring fields or through cross-pollination with non-GM plants of the same species or not. This creates the potential for numerous liability issues. For instance, the wide use of transgenic canola in western Canada has made it practically impossible for organic farmers to propose certified GM-free canola. The market losses resulting form this are estimated to $100,000 to $200,000 a year, without taking into account potential growth of the market resulting from growing consumer concerns about GM food [8]. In this respect, two organic farmers had filed a lawsuit on the behalf of all Saskatchewan certified organic farmers against the biotech giants Monsanto and Aventis for the damage caused by the release of transgenic canola. In the same manner, the European Union had recently banned Canadian honey from its imports because of the inability of the producers to guarantee that it does not contain pollen from GM plants not yet approved in Europe [8].

In many ways, the growing place of GM crops in our agricultural system poses the same kind of problem as music sharing programs on the internet for the music industry. In that both technologies exploded before the legislation system could even understand what they were exactly. From the Schmeiser case and the growing number of legal imbroglios created by the use of patented transgenes in agriculture, it appears clear that there is urgent need for new regulations concerning benefits and liabilities of GM plants. In particular, biotech companies should take significantly more responsibility towards the plants they release on the market and set up stricter procedures in order to contain their products. Furthermore, public institutions and governments should establish clear legislation on GM crops that effectively enforce the intellectual property right of biotech companies, but that also prevents damage on the environment and on non-GM markets.

References

1. Broydo, L., The trouble with Percy. 2000, Mother Jones

2. Online, C.N., Percy Schmeiser's battle. 2004, CBC News Online.

3. Monsanto, Backgounder - A story of Monsanto's glysophate herbicides. 2002, Monsanto.

4. Monsanto, Roundup Ready corn: food and feed safety, Monsanto.

5. Edwards, A., Monsanto v. Schmeiser. 2004, Centre for Innovation Law and Policy: Toronto

6. Kondro, W., Canada. Monsanto wins split decision in patent fight over GM crop. Science, 2004. 304(5675): p. 1229.

7. Kondro, W., Canada’s supreme court rejects broadcaster’s appeal on doctors’ libel verdict. Lancet, 2002. 359(9312): p. 1132.

8. Smyth, S., G.G. Khachatourians, and P.W. Phillips, Liabilities and economics of transgenic crops. Nat Biotechnol, 2002. 20(6): p. 537-41.

Article from Greenpeace International, May 21, 2004:

Monsanto wins right to pollute

After years of fighting against bio-tech giant Monsanto, Percy Schmeiser, a Canadian farmer who Monsanto claims did not acquire a licence to grow his crop of canola, has lost his appeal in the Supreme Court of Canada.

In a 5-4 decision, the Canadian Supreme Court held that Mr. Schmeiser had violated Monsanto's patent by planting seed from GE canola that had been found on his farm the previous year.

"This is a sad day for farmers worldwide," said Pat Venditti, our Genetic Engineering campaigner in Canada. "Monsanto's canola has been contaminating the fields of Western Canada for years now, as there is no way to contain their transgenic pollution. Unfortunately, the Court has held that Monsanto can keep polluting farmers' fields and keep menacing them with costly lawsuits. Farmers should be able to keep their fields GE-free, but the Court has held that's a decision best left to Monsanto."

In 1997, Schmeiser discovered, while routinely spraying herbicide along a ditch, that some of his canola plants had become herbicide-resistant - contaminated by pollen from Monsanto's patented herbicide-resistant canola.

In August 1998, Monsanto launched a lawsuit against Schmeiser for patent infringement, alleging that Schmeiser had acquired and planted seeds containing patented genes without a license, and then sold harvested seed, thus infringing the company's patent. Mr. Schmeiser has become a globally known figure during his long legal battle with Monsanto.

Three main issues were deliberated by the Canadian Supreme Court:

1) The validity and scope of genetic patents - whether or not life forms may be patented.

2) What kind of use constitutes infringement? Schmeiser argued that since he never sprayed his plants with Monsanto's Roundup, and thus never took advantage of the crop's herbicide resistance, he never benefited in any way from the presence of Monsanto's patented material in his crops. In this case, Schmeiser argued that as he did not exploit Monsanto's invention, he did not infringe Monsanto's patent.

3) The "innocent bystander" problem. Schmeiser argued that where patented material passively and inadvertently mixes with personal property, the property holder should not be held accountable to the patent holder. Instead, in such cases the innocent bystander should be protected by an implied license from the patent holder.

"Genetic contamination from genetically engineered canola is rampant," continued Mr. Venditti. "Monsanto has introduced an uncontrollable crop with no liability to farmers or the public. This ignores the widespread contamination being caused by Monsanto. The decision of the court essentially makes farmers liable to Monsanto for Monsanto's own genetic pollution. It means that Monsanto can reach into farmers' fields and steal their profits and livelihoods."

The decision follows two major setbacks for Monsanto, who announced last week they would back off on plans to commercialise GE wheat globally and GE canola in Australia after strong consumer and industry resistance to the crops. In a small win for Schmeiser, he will not be required to pay Monsanto for the seed or legal costs relating to the case.

GROUP IV: Mendel Biotechnology Inc.

International biotechnology promotion groups have an interest in the Monsanto vs. Schmeiser case for many reasons, including the implications the decision could have about the patentability of genetically engineered products. These companies notice that Canadian farmers seem to generally embrace herbicide-resistant crops since tens of thousands of them regularly pay license fees to use the technology. Mendel Biotechnology is a good example of this time of promotion group. According to their website (www.mendelbio.com):

> *Mendel Biotechnology was founded in early 1997 to develop the idea that controlling gene expression would create new opportunities to improve plant growth and development. We have focused on a large class of genes called transcription factors because they control the degree to which each gene in a cell is activated. The approximately 27,000 genes in the Arabidopsis genome are controlled by approximately 1,800 different transcription factors. By systematically analyzing the function of all Arabidopsis transcription factors, Mendel scientists have discovered that single transcription factors can control complex traits such as the ability of plants to withstand freezing or drought, yield, morphology, disease resistance, nitrogen use efficiency and many other complex traits. We believe that no other company or academic institution in the world has a comparable understanding of the function of transcription factors and that Mendel is the leading company in the world in this area.*
>
> *Knowledge of the function of plant transcription factors has enabled many novel inventions by Mendel scientists. The company has filed a large number of patents describing these inventions. We believe that the inventions described in our patent filings have placed the company in a strong position to participate in future developments in plant biotechnology, plant breeding, horticulture, and forestry. We are also using knowledge of plant gene expression to discover new ways of using chemicals to control plant growth and development.*

The following excerpts are from the “News and Events” page of Mendel Biotechnology Inc.’s website.

April 14, 1999:

Mendel Biotechnology issued patent covering method for increasing cold and drought resistance in plants

Mendel Biotechnology, Inc. announced today that the Patent and Trademark Office has issued U.S. Patent No. 5,891,859 entitled *Method for Regulating Cold and Dehydration Regulatory Genes in a Plant*. The patent provides methods for regulating the expression of cold and dehydration regulated genes in a plant by transforming a plant with CBF1 or a homologous gene, and then expressing the gene. In addition, Mendel Biotechnology has received Notices of Allowance for a number of other related patent applications.

CBF1 is a transcription factor that binds to the upstream region of specific cold and drought regulated genes and enhances the cold and drought resistance of plants expressing CBF1. CBF1 is being commercialized under the WeatherGardTM trademark.

Plants with the WeatherGardTM gene will be more resistant to freezing and to drought said Dr. Michael Fromm, Mendel's President and CEO. *These are very important traits as the recent $650 million of freezing damage to the California citrus crop and the $1,600 million of drought damage to Texas crops demonstrate. Mendel is working with partners to introduce the WeatherGardTM gene into various crops to create new stress-resistant plants. Reducing the weather-related risks of farming should reduce the stress of being a farmer as well.*

The issued patent covers technology, which is being developed by Dr. Mike Thomashow at Michigan State University in association with Mendel Biotechnology and has been exclusively licensed to Mendel Biotechnology. The license grants Mendel Biotechnology the right to sublicense the technology for environmental stress resistance in different crops.

Mendel Biotechnology, Inc. is a plant functional genomics company focused on the discovery and development of technologies that will improve plant traits for agriculture, horticulture and forestry. Mendel Biotechnology has established research collaborations with Monsanto, Empresas La Moderna (ELM) and Seminis Vegetable Seeds, a subsidiary of ELM.

November 20, 2001:

Mendel Biotechnology Announces a New Five-Year, $20 Million Research and Commercialization Partnership with Monsanto

Mendel Biotechnology, Inc. ("Mendel") today announced a new five-year, $20 million research and commercialization partnership with Monsanto Company ("Monsanto"). This new partnership expands the relationship initiated in 1997 in which Mendel successfully identified many genes

that regulate high-value plant traits such as enhanced yield, drought resistance, and disease resistance. If commercialized, Mendel will receive royalties from Monsanto on products containing these genes.

"Mendel is extremely pleased that Monsanto has agreed to this expansion of our strategic partnership to discover and advance high value, plant genes," said Dave Summa, Mendel's president and chief executive officer. "Our first collaboration was about discovering gene function. This new collaboration will continue that successful work and move into lead advancement. Monsanto is a world leader in the development and commercialization of high-value, sustainable agricultural products that bring value to growers and improve the abundance and nutritional value of food and feed crops. They are a great channel to global agricultural markets for Mendel's discoveries."

Rick Stonard, Ph.D., vice president of genomics at Monsanto added, "Mendel has delivered on time and on budget. This extension provides Monsanto with continuing access to Mendel's gene function discovery and lead advancement capabilities. We expect that Mendel will continue to play an important role in our integrated genomics network."

December 15, 2005:

Mendel Biotechnology Awarded SBIR Phase IIB Grant for Continued Research on Disease Resistance

Mendel Biotechnology, Inc., a privately held biotechnology company, announced today that it was granted a Phase IIB Small Business Innovation Research (SBIR) grant from the National Science Foundation. The SBIR phase IIB grant provides two years of supplemental funding for a Phase II grant awarded to Mendel Biotechnology, Inc. for development of crops with improved disease resistance, based on matching funds from a third party investor. Protection of crops against fungal pathogens is one of the most significant unmet needs in agriculture. Over $600 million is spent each year in the United States to protect plants against fungal pathogens. Nonetheless, annual losses to fungal pathogens are approximately $900 million in North America for soybean alone, with total crop losses of approximately $5 billion. The grant will fund research that aims to enhance a plant's natural ability to resist pathogen infection, thereby reducing or eliminating the need for fungicides.

T. Lynne Reuber, Ph.D., Director of Research, will serve as the Principal Investigator of the grant.

Founded in 1997, Mendel Biotechnology, Inc. was a pioneer in the application of functional genomics to the study of plant genes. Mendel's initial mission, now largely complete, was to discover and characterize the function of plant transcription factor genes as the basis for creating novel products for agriculture. Mendel is now commercializing transcription factor technologies in the agricultural biotechnology and chemistry sectors. Products incorporating Mendel technologies are being developed for large acreage row crops, and for the forestry, ornamental

and horticultural markets. Mendel has partnerships with leading agriculture companies, including Monsanto, the world's leader in commercializing transgenic crops.

Article from the New York Times by Andrew Pollack, February 14, 2006:

Biotech's Sparse Harvest

At the dawn of the era of genetically engineered crops, scientists were envisioning all sorts of healthier and tastier foods, including cancer-fighting tomatoes, rot-resistant fruits, potatoes that would produce healthier French fries and even beans that would not cause flatulence.

But so far, most of the genetically modified crops have provided benefits mainly to farmers, by making it easier for them to control weeds and insects.

Now, millions of dollars later, the next generation of biotech crops — the first with direct benefits for consumers — is finally on the horizon. But the list does not include many of the products once envisioned.

Developing such crops has proved to be far from easy. Resistance to genetically modified foods, technical difficulties, legal and business obstacles and the ability to develop improved foods without genetic engineering have winnowed the pipeline.

"A lot of companies went into shell shock, I would say, in the past three, four years," said C. S. Prakash, director of plant biotechnology research at Tuskegee University. "Because of so much opposition, they've had to put a lot of projects on the shelf."

Developing nonallergenic products and other healthful crops has also proved to be difficult technically. "Changing the food composition is going to be far trickier than just introducing one gene to provide insect resistance," said Mr. Prakash, who has promoted agricultural biotechnology on behalf of the industry and the United States government.

In 2002, Eliot Herman and his colleagues got some attention when they engineered a soybean to make it less likely to cause an allergic reaction. But the soybean project was put aside because baby food companies, which he thought would want the soybeans for infant formula, instead are avoiding biotech crops, said Mr. Herman, a scientist with the Department of Agriculture.

In addition, he said, food companies feared lawsuits if some consumers developed allergic reactions to a product labeled as nonallergenic.

The next generation of these crops — particularly those that provide healthier or tastier food — could be important for gaining consumer acceptance of genetic engineering. The industry won a victory last week when a panel of the World Trade Organization ruled that the European Union had violated trade rules by halting approvals of new biotech crops. But the ruling is not expected to overcome the wariness of European consumers over biotech foods.

New crops are also important for the industry, which has been peddling the same two advantages — herbicide tolerance and insect resistance — for 10 years. "We haven't seen any fundamentally new traits in a while," said Michael Fernandez, executive director of the Pew Initiative on Food and Biotechnology, a nonprofit group.

Now, some new types of crops are appearing. Monsanto just won federal approval for a type of genetically engineered corn promoted as having greater nutritional value — albeit only for pigs and poultry. The corn, possessing a bacterial gene, contains increased levels of lysine, an amino acid that is often provided to farm animals as a supplement.

Coming next, industry executives say, are soybean oils intended to yield healthier baked goods and fried foods. To keep soybean oil from turning rancid, the oil typically undergoes a process called hydrogenation. The process produces trans fatty acids, which are harmful and must be disclosed in food labels under new regulations.

Both Monsanto and DuPont, which owns the Pioneer Hi-Bred seed company, have developed soybeans with altered oil composition that, in some cases, do not require hydrogenation. Kellogg said in December that it would use the products, particularly Monsanto's, to remove trans fats from some of its products.

Monsanto's product, Vistive, and DuPont's, which is called Nutrium, were developed by conventional breeding. They are genetically engineered only in the sense that they have the gene that allows them to grow even when sprayed with the widely used herbicide Roundup.

But Monsanto and DuPont say the next generation of soybean, which would be able to eliminate trans fats in more foods, would probably require genetic engineering. Those products are expected in three to six years.
Beyond that, both companies said, would be soybeans high in omega-3 fatty acids, which are good for the heart and the brain. These are now derived largely from eating fish, which in turn get them by eating algae. Putting algae genes into soybeans could allow for soy oil that is rich in the fatty acids.

"Our hope is it is easier to formulate into food without it smelling or tasting fishy," said David M. Stark, vice president for consumer traits at Monsanto.

Other second-generation crops are also on the way. DuPont is trying to develop better tasting soy for use in products like protein bars.

Some efforts are under way to develop more nutritious crops for the world's least developed countries, led by what is termed golden rice, which contains the precursor of vitamin A. Vitamin A deficiency is a leading cause of blindness in certain poor countries.

There has been progress in crops able to withstand drought. While those would mainly benefit farmers, it would also help consumers in regions like Africa, where droughts bring famine.

Mr. Stark said Monsanto had not anticipated that use of genetic engineering would discourage food companies from using the company's soybeans. "I don't get many requests for 'Is this a G.M.O. or not?' " he said, using the abbreviation for genetically modified organism. "It's more 'Does the oil work?' "

Still, opposition by consumers and food companies has clearly forced big companies like Monsanto and DuPont to choose their projects carefully. It has also made it difficult for academic scientists and small start-ups, which typically provide much of the innovation in other fields, to obtain financing.
Avtar K. Handa, a professor at Purdue, said he had stopped work on a tomato he helped develop a few years ago that was rich in lycopene, a cancer-fighting substance. Genetically modified crops are not being brought to market and research funds have diminished, he said.

Still, opposition is not the only problem. Alan McHughen, a professor at the University of California, Riverside, said that for small companies and university researchers, the main obstacles were patent rights held by the big companies and the cost of taking a biotech crop through regulatory review. That has made it particularly difficult to apply genetic engineering to crops like fruits and vegetables, which have smaller sales than the major grain and oil crops.

Technical issues are another obstacle. While a single bacterial gene can provide herbicide resistance or insect resistance, changing the nutritional composition of crops sometimes requires several genes to alter the metabolism within a cell. That raises a greater risk of unintended effects, some experts say.
Enhanced crops must also meet the demands of farmers for high yields and of food companies for good taste and handling properties.

DuPont won approval for a soybean high in oleic acid, which could produce healthier oils, back in 1997. But instead of becoming a showcase of the consumer health benefits of genetic engineering, the crop is now used only to make industrial lubricants.

Erik Fyrwald, group vice president of DuPont's agriculture and nutrition division, said one reason the crop was not sold for use in food was that demand for healthier oils was not as great then as it is now. But other experts say there was another problem — foods made with the oil did not taste good.

"The high-oleic oils are not very well received by the consumer," said Pamela White, a professor of food science and human nutrition at Iowa State University. Further, she predicted that soy oils containing the omega-3 fatty acids would be unstable, making them hard to use in fried foods.

William Freese, a research analyst at Friends of the Earth, which opposes genetically engineered crops, said genetic engineering had been oversold. "The facts show that conventional breeding is more successful at delivering crops with 'healthy traits' than genetic manipulation, despite all the hype from Monsanto and other biotech companies," he wrote in an e-mail message.

Scientists at the International Maize and Wheat Improvement Center in Mexico have already used conventional breeding to develop corn rich in lysine, similar to the new Monsanto product,

he said.

The biotech companies concede that if improvements can be made conventionally, results would come quicker because such crops do not face regulatory scrutiny. Mr. Stark of Monsanto said that if his company could develop high-oleic soybeans using breeding, the product could reach the market in three years, rather than six for the genetically engineered version.

But in some cases, scientists and executives say, it is not possible to get a trait, like the omega-3 fatty acids, without using genes from another species. "With genetic engineering you can go further," said Mr. Fyrwald of DuPont.

Mr. Fernandez of the Pew Initiative said polls have shown that consumers seem to be receptive to genetically modified products that have direct benefits for them. But whether that would be enough to win wide acceptance of genetically engineered foods remains to be seen.

One issue is whether consumers would even know what they are eating. Right now, in the United States, genetically modified and conventional crops are typically mixed together, and food made from biotech crops is not labeled.

But it is likely that crops with consumer benefits would be segregated so farmers could charge more for them. And food companies are probably going to want to label them. But the labeling is likely to proclaim that the food has healthier oil or is better for the heart, rather than mention it was the product of genetic engineering.

In Europe, food containing genetically modified ingredients has to be labeled to that effect, but it is not clear whether the health aspects would be linked to genetic engineering on the label.

Chris Somerville, chief executive of Mendel Biotechnology, a small company developing drought-resistant crops, said acceptance would depend more on big food companies than consumers. Companies, he said, would not want to risk their brands by using biotech crops if they thought there was even a slight chance of consumer rejection.

"Really, they're the gatekeepers," said Mr. Somerville, who is also head of the plant biology department at the Carnegie Institution. "The consumers aren't going to have any choice before the brand companies think it's safe to go out."

Article from The Saskatoon StarPhoenix by Robert Wager, April 15, 2005:

Convicted farmer makes unlikely hero for rural lifestyle

A tremendous amount of misinformation spread by groups with an agenda makes it tough for the public to separate the wheat from the chaff when it comes to genetically engineered crops and food. The Percy Schmeiser case used by Michael Mehta in his viewpoint Biotechnology could

destroy rural social fabric (SP, April 14) to illustrate the danger to privacy posed by the technology, is a prime example.

Biotechnology has engineered herbicide tolerant crops. HT crops are unaffected when sprayed with particular broad-spectrum herbicides, such as the Roundup Ready (RR) crops produced by Monsanto.

RR canola allows a farmer to spray a canola crop with Roundup and only the weeds will die. If a farmer plants these HT varieties, he can expect higher yields, plus cheaper and easier weed control. The Canadian Canola Growers Association says biotech canola seeds have reduced chemical use by 29 per cent, and increased profits by $5.80 per acre.

Today, 70 per cent of Canadian canola farmers grow herbicide tolerant varieties -- a rapid change, given that GE canola varieties only have been available for eight years.

Biotech seeds are more expensive, and farmers who want to grow them must sign a technology use agreement promising not to save and replant the biotech seeds. More than 30,000 Canadian farmers, who know first-hand the benefits to the environment and their bottom-line from growing GE crops, have signed such agreements.

A reality of modern agriculture is that farmers rarely save seeds anymore. Most buy hybrid seed varieties, which must be repurchased annually.

In 1997, Schmeiser sprayed "a good three acres" of his canola crop with Roundup. One might ask why a farmer would purposely spray a herbicide that should destroy three acres of his crop? Once it was clear that the canola in this field was herbicide tolerant, Schmeiser decided to harvest the seed from there and save it to plant the next year. Clearly, most farmers would have realized the canola in the field was Roundup tolerant, since it survived.

The next year, he planted 1,030 acres with the saved seed, knowing that the use of such GE seed required a technology use payment. The result was 1,030 acres of 95-98 per cent Roundup-tolerant canola. When this high level (equivalent to commercial grade seed) was discovered, Monsanto asked Schmeiser to pay the fee of $15 per acre. He refused, and the court cases began.

The Federal Court on March 29, 2001, found Schmeiser guilty of patent infringement. Said Judge Andrew MacKay: "He planted his crop for 1998 with seed that he knew, or ought to have known, was Roundup-tolerant." Schmeiser appealed.

By now, his legal war chest was growing, in part, with significant support from groups opposed to GE crops.

On Sept. 4, 2002, the Federal Court of Appeals upheld the verdict, rejecting all 17 points raised by Schmeiser's counsel. That decision was appealed to the Supreme Court, this time with a twist.

Instead of arguing that Schmeiser did not violate Monsanto's patent, his lawyer argued that the company's patent on Roundup Ready canola was invalid on grounds that no one should be able

to patent a life-form.

What started as an obscure case between a farmer and a multinational corporation blossomed into a show watched closely by the entire biotechnology industry.
Ramifications would be huge should the court rule against Monsanto's patent. It would mean no patent protection for biotech products in Canada, leading to their mass exodus from this country. Clearly, this was the agenda of Schmeiser's financial backers.

Fortunately, the Supreme Court found Schmeiser guilty, too. Canada is one of the world leaders in agricultural biotechnology, and the courts have determined that will continue.

People should understand this was not a David vs. Goliath case but a Goliath vs. Goliath case, with David as the front man. The real players were the biotechnology industry and the multinational, billion-dollar anti-biotechnology industry.

Robert Wager, is a biotechnology instructor at Malaspina University College in Nanaimo, B.C.,

MONSANTO vs. SHMEISER

CASE STUDY

PART TWO

Activity: Read this abbreviation of the actual court document from Monsanto vs. Schmeiser. Then prepare an official response to the Court's ruling from the perspective of a member of your assigned interest group. Each person should prepare a separate response. They should be no more than two pages long.

These are excerpts from Justice Andrew MacKay's "Reasons for Judgment" which were handed down on March 29th, 2001. In some cases the full paragraph is not present; it has been edited out of spatial concerns. The entire document can be accessed in PDF format at http://www.percyschmeiser.com/T1593-98-%20Decision.pdf.

Reasons for Judgment

(Edited by Sarah Heuer, October 2006)

Plaintiffs: Monsanto Canada Inc. and Monsanto Company

Defendants: Percy Schmeiser and Schmeiser Enterprises Ltd.

[2] On consideration of the evidence adduced, and the submissions, oral and written, on behalf of the parties I conclude that the plaintiffs' action is allowed and some of the remedies they seek should be granted. These reasons set out the bases for my conclusions, in particular my finding that, on the balance of probabilities, the defendants infringed a number of the claims under the plaintiffs' Canadian patent number 1,313,830 by planting, in 1998, without leave or license by the plaintiffs, canola fields with seed saved from the 1997 crop which seed was known, or ought to have been known by the defendants to be Roundup tolerant and when tested was found to contain the gene and cells claimed under the plaintiffs' patent. By selling the seed harvested in 1998 the defendants further infringed the plaintiffs' patent.

[7] Mr. Schmeiser has been farming near Bruno in the Rural Municipality of Bayne, Saskatchewan, for approximately 50 years. He has grown canola since the 1950's. There, in

1998, the year giving rise to the plaintiffs' claim, his corporation farmed nine fields, in which 1,030 acres were devoted exclusively to growing canola.

[8] The plaintiffs' claim alleges that in 1998 the defendants planted glyphosate-resistant seeds to grow a crop of canola, for harvest, having a gene or cell that is the subject of the plaintiffs' patent. By so doing the defendants are said to use, reproduce, and create genes, cells, plants and seeds containing the genes and cells claimed in the plaintiffs' patent. The parties agree that the defendants did not at any time sign a Technology Use Agreement ("TUA"), the plaintiffs' form of license for growers of the seed containing the patented gene.

[11] The defendants do not deny the presence of Roundup Ready canola in their fields in 1998, but they urged at trial that neither Mr. Schmeiser nor Schmeiser Enterprises Ltd. have ever deliberately planted, or caused to be planted, any seeds licensed by the plaintiffs containing the patented gene. They do urge that, even if the plaintiffs' patented gene is present in the canola grown by the defendants, that gene must be used, in the sense that the crop must be sprayed with the herbicide Roundup, before any infringement of the patent can be found.

[13] The defendants further asserted at trial that Canadian Patent No. 1,313, 830 is, and always has been, invalid and void because:

> a) the alleged invention is a life form intended for human consumption and is not the proper subject matter for a patent; it is self-propagating and can spread without human intervention;
>
> (b) the patent was obtained for an illicit purpose of creating a noxious plant that would spread by natural means ot the lands of innocent parties so as to entrap them with nuisance patent infringement claims. I note that no evidence was adduced and no argument was directed at trial to the alleged illicit purpose;
>
> (c) if infringement is found the plaintiffs would in effect obtain a patent for a plant, which it is urged is not possible in Canada in light of the Plant Breeders' Rights Act which provides for protection of new varieties of plants

[16] By laboratory developments scientists of Monsanto US created a genetic insert, known as RT73, which, when introduced into the DNA of canola cells by a transformation vector, produces a variety of canola with a high level of tolerance to glyphosate. Once the modified gene is inserted in the DNA of the plant cells, the plant, its stem, leaves, seeds, etc. contain the modified gene. The plant's progeny, growing from seed with the patented gene and cells, will largely be comprised of cells with the modified gene. Thus the offspring or seeds of Roundup Ready canola, which is mainly self-germinating, contain the modified gene so that they too are glyphosate-tolerant.

[27] Because the progeny of glyphosate-resistant canola will contain the modified gene and will also be glyphosate resistant, Monsanto developed a licensing arrangement to protect its patent, and its market, by limiting the opportunity of a grower, under license, to sell or give seed to another or to retain it for its own use.

[28] All of the plaintiffs' licensing arrangements in Canada are made on behalf of Monsanto Canada. It licenses commercial seed growers to grow Roundup Ready canola for seed purposes. Farmers are required to attend a Grower Enrollment Meeting conducted by Monsanto representatives who describe the gene technology and the licensing terms for its use. A grower must be certified to use the gene technology by signing a Roundup Ready grower agreement. This entitles a farmer to purchase Roundup Ready canola seed from an authorized Monsanto agent, but to acquire seed the farmer must also sign a Technology Use Agreement provided by the retail seed agent acting for Monsanto Canada. Under the latter agreement, the farmer can use the seed for planting only one crop, to be sold for consumption to a commercial purchaser authorized by Monsanto. The farmer undertakes not to sell or give seed to any other third party and not to save seed for his own replanting or inventory. Under the TUA Monsanto has the right to inspect the fields of the contracting farmer and to take samples to verify compliance wit the agreement.

[29] As is apparently common practice for a number of canola farmers in the Bruno area, Mr. Schmeiser routinely saved a portion of the canola harvested on his property to serve as seed for the next generation of crops. Through this procedure, Mr. Schmeiser was able to avoid

purchasing canola seed after 1993, until 1999, and over the years he believes he was able to develop his own strain of canola that was relatively resistant to various forms of diseases that tend to attack canola.

[33] In the 1996 crop year, from which Mr. Schmeiser's 1998 seed was said to be derived through they 1997 crop, there were five other growers with farms in the Rural Municipality of Bayne No. 371 who grew Roundup Ready canola. It is the evidence of Aaron Mitchell, Biotechnology Manager, Research Development Department of Monsanto, at Saskatoon, that of the farms licensed to grow Roundup Ready canola in 1996, the closet field to the defendants' field number 2, from which seed was saved in 1997, was approximately five miles.

[37] In the summer of 1997, the plaintiffs, through Robinson Investigations, a private agency in Saskatoon, undertook random audits of canola crops growing in Saskatchewan. The farms were identified by Monsanto from among their licensed farmers, or from leads or tips suggesting that Roundup Ready seed might be growing on property of an unlicensed farmer, or from random inspections undertaken to audit a farming area. The defendants' farm was included in this audit process after an anonymous tip was received indicating that Roundup Ready canola was being grown in Schmeiser's fields, where it was not licensed.

[38] As we have noted Mr. Schmeiser testified that in 1997 he planted his canola crop with seed saved from 1996 which he believed came mainly from field number 1. Roundup-resistant canola was first noticed in his crop in 1997, when Mr. Schmeiser and his hired hand, Carlysle Moritz, hand-sprayed Roundup around the power poles and in ditches along the road border fields 1, 2, 3 and 4. These fields are adjacent to one another and are located along the east side of the main paved grid road that leads south to Bruno from these fields. This spraying was part of the regular farming practices of the defendants, to kill weeds and volunteer plants around power poles and in ditches. Several days after the spraying, Mr. Schmeiser noticed that a large portion of the plants earlier sprayed by hand had survived the spraying with the Roundup herbicide.

[39] In an attempt to determine why the plants had survived the herbicide spraying, Mr. Schmeiser conducted a test in field 2. using his sprayer, he sprayed, with Roundup herbicide, a

section of that field in a strip along the road. He made two passes with his sprayer set to spray 40 feet, the first weaving between and around the power poles, and the second beyond but adjacent to the first pass in the field, and parallel to the power poles. This was said by him to be some three to four acres in all, or "a good three acres". After some days, approximately 60% of the plants earlier sprayed had persisted and continued to grow. Mr. Schmeiser testified that these plants grew in clumps which were thickest near the road and began to thin as one moved farther into the field.

[41] Before the 1997 crop was harvested, acting for Robinson Investigations, on August 18, 1997, Mr. Wayne Derbyshire, after trying unsuccessfully to speak with Mr. Schmeiser at his garage and at his residence, took pod samples of canola from the west side, along the road allowance, beside field 2 and from the south and east sides along the road allowances bordering field 5. He testified he did not trespass on Schmeiser's land, taking his samples from the crop apparently planted, as Mr. Schmeiser does and many other farmers do, in the road allowance bordering his fields. Mr. Derbyshire placed the samples of pods from three or four plants in separate bags, marking them for identification by Mr. Schmeiser's name, the date, his own file number and the number of the sample. The location of the sample gathering was described by Mr. Derbyshire in a document dated August 21, 1997, which, with the samples, was delivered to Robinson Investigations in Saskatoon on August 27, by courier.

[42] After these samples were received by Mr. Mike Robinson, president of Robinson Investigations, he forwarded them on September 2, 1997 to Aaron Mitchell, who was accepted at trial as an expert on weed control and agronomy, including the use of Roundup and canola. Mr. Mitchell air-dried the samples, removed seeds from the pods and resealed the seeds in envelopes. He delivered these in the fall of 1997 to the Phytoton Manager at the Crop Science Department of the University of Saskatchewan. Four seeds from each sample were planted for a grow-out test. The remaining seed samples were returned to Mr. Mitchell, who retained those samples until they were delivered to Dr. Keith Downey on January 24, 2000 for the purpose of undertaking a further grow-out test of the remaining samples taken originally in 1997.

[43] At the University of Saskatchewan in the fall of 1997, four seeds of each sample were planted and two, three or four of the seeds germinated from each sample. When these reached the two or three leaf stage they were sprayed with Roundup herbicide. More than three weeks later all plants from five of these samples had survived the spraying. One of the samples from the border of field 5, from which only one seed germinated, did not contain any plant tolerant to Roundup. Mr. Mitchell believes this demonstrated that Roundup Ready canola was growing on Mr. Schmeiser's fields.

[44] In early 2000 Dr. Downey arranged for a grow-out test of the sample provided by Mr. Mitchell from seeds retained from the 1997 sample. Mr. Schmeiser and his counsel were invited to be present at commencement of the test. There were differences in the testimony of Dr. Downey and Mr. Schmeiser about the presence of cleaver seeds among the sample seeds. All seeds in the sample provided to Dr. Downey were planted. The grow-out test of the seeds resulted in about 50% of the seeds germinating. The subsequent application of Roundup herbicide left surviving all of the plants which germinated from the seed, demonstrating they were glyphosate tolerant. This led Dr. Downey to conclude that the seeds provided to him from the 1997 sample taken of plants growing along the road allowances of fields 2 and 5 demonstrated that the canola plants growing there were not the result of pollen movement into those fields, or out crossing between glyphosate-resistant and susceptible plants. Rather, in his view, the high percentage of glyphosate-tolerant plants, among those which had germinated, indicated they were grown from commercial Roundup Ready canola seed.

[46] Later in the spring of 1998, Monsanto representatives learned that the defendants had seed treated at the [Humboldt Flour Mill ("HFM")] and that HFM had retained samples of his seed for its own purposes. They requested a sample of the seed withheld from Mr. Schmeiser by HFM. Mr. Schmeiser had not previously used HFM for seed-treating purposes, and he was not aware that samples were regularly taken from the seed provided by farmers. As was done for all others whose seed was treated, HFM did take samples of the seed brought in by the defendants and of the seed after treatment and before delivery to Schmeiser. HFM provided a portion of both samples to Monsanto without informing Mr. Schmeiser that this had been done.

[47] Half of [the samples from HFM were] sent, on January 18, 1999, to Mr. Leon Perehudoff of Prairie Plant Systems, to conduct further grow-out tests… The other half of the sample… was sent by him to Schmeiser's council on April 23, 1999. It was later delivered by counsel to Mr. Lyle Freisen of the University of Manitoba on August 26, 1999, for the purpose of conducting grow-out tests on behalf of the defendant.

[48] In late July, 1998, Mr. E. L. Shwydiuk, a representative of Robinson Investigations, acting for Monsanto, collected random samples of leaves from several canola plants growing in the rights of way near the boundary of each of Schmeiser's nine fields… As a result of tests by Monsanto all of these samples were positive for the presence of the patented gene.

[49] On July 30, 1998, a representative of Monsanto requested permission from Mr. Schmeiser to enter his fields and take samples from the current canola crop. Mr. Schmeiser denied the request.

[50] Following this failed attempt to gain further samples, Monsanto obtained a court order to allow its representatives to take samples from the defendants' crops.

[51] On August 13, 1998, Messrs. Don Todd and James Vancha, representing Robinson Investigations and Monsanto respectively, arrived at the defendants' farm to take samples under the court order… Ultimately samples were taken from all of the defendants' nine fields, three samples from each field…

[53] The samples taken in August 1998 and held for Monsanto were divided by Mr. Vancha so as to provide two separate samples for Mr. Aaron Mitchell. The first sample was delivered to Mitchell on September 8, 1998, and it was forwarded by Mitchell to Ms. Dixon of Monsanto US, for the purpose of genetic testing. The second sample, originally retained by MR. Vancha, was given to Mr. Mitchell on January 14, 1999. he used this half to conduct a grow-out test, and to provide a sample to Mr. Leon Perehudoff of Prairie Plant Systems on January 19, 1999, who also conducted a grow-out test. After that test by Mr. Perehudoff, the tissue of 30 surviving plants was subsequently delivered to Ms. Dixon of Monsanto US at St. Louis to conduct further genetic

testing. The results of these tests show the presence of the patented gene in a range of 95-98% of the canola sampled.

[56] In July 1999, Mr. Schmeiser conducted his own grow-out test using a portion of the seeds in the samples provided by Messrs. Todd and Vancha and those obtained from the HFM. ON completion of his own grow-out test, Mr. Schmeiser observed that, of the seven rows of canola he had planted for the test, the sample of his 1997-produced untreated seed obtained from HFM showed approximately 40-50% of the plants that germinated had survived after being sprayed with Roundup, with the exception of one row where 104 of the 105 that had germinated, died. The HFM treated samlple had a Roundup survival rate of about 32%.

[58] Mr. Freisen obtained further seed samples of Mr. Schmeiser's 1997 seed directly from the Saskatchewan Wheat Pool (which had taken over the former HFM) in April 2000, to complete the grow-out tests prepared for the preparation of expert evidence at trial. After testing all of the samples provided to him by both the defendants and HFM, Mr. Freisen obtained a variety of results that ranged from 0% Roundup-tolerant to 98% Roundup-tolerant canola. At trial, he testified that while he could determine an average percentage of glyphosate-tolerant canola for the 17 samples he tested, there was little point in doing so because of the drastic differences in the level of Roundup tolerance noted. His evidence did reveal that of the seeds grown from samples provided by HFM, before and after treatment, both those received from the defendants after they were obtained by MR. Schmeiser in 1999 and those received directly from Saskatchewan Wheat Pool at Humboldt in April 2000, the survival rate of germinating plants after spraying with Roundup ranged from 95 to 98%. That range is evidence of the prsecne of commercial Roundup Ready canola. This evidence is supportive of the plaintiffs' claims.

[60] The issues arising in this action concern

- the admissibility of evidence of the tests conducted on samples of Schmeiser's canola
- the validity of the plaintiffs' patent
- possible waiver of patent rights by the plaintiffs
- infringement of the patent
- the remedies applicable if there be infringement

- costs

[62] The defendants submit that evidence of most of the tests conducted on various samples should not be admitted or considered by the Court, for several reasons. This submission is made despite the defendants' acknowledgement that under the common law relevant evidence, however obtained, is generally admissible.

[77] The defendants question the validity of the plaintiffs' patent on the ground that the subject matter of the patent is not patentable. Further, it is urged that the enactment of the *Plant Breeders' Right Act*, S.S. 1990, c.20 (the "PBRA") is a clear indication of Parliament's intent "that intellectual property rights pertaining to new plant varieties are to be governed by legislation other than the *Patent Act* and only to the extent permitted under the former "Act". The PBRA preserves the right of a farmer to save and reuse seed. Monsanto does not deny that it seeks protection under the *Patent Act* for its intellectual property rights, to promote its commercial interests, including its interest to preclude by licensing agreements the saving of seed for use by farmers licensed to grow Roundup Ready canola.

[80] The PBRA was intended to create a new form of intellectual property right in new plant varieties, as defined, for registered plant breeders. These are more limited in scope than the rights of a registered patent holder, but they apply to new registered varieties of plants resulting from breeding, even if the result or the process giving rise to the result is not patentable. Nothing in the PBRA precludes an inventor from seeking registration under the *Patent Act*. In 1989 proceedings of the Parliamentary Committee considering Bill C-15 (which became the PBRA) the Minister of Agriculture of the day commented, *inter alia*,

> …Bill C-15, will enable plant breeders to collect reasonable royalties for their varieties, thus encouraging greater private and public sector investment.
>
> …
>
> …this is not patent legislation. This is plant breeders' rights… The patent legislation will be more encompassing than what is outlined here…

[81] In my opinion the PBRA was not intended to, and by its terms it does not, preclude registration under the *Patent Act* of inventions that related to plants, and that may lead to new varieties or characteristics in plants.

[85] The grant of the patent is consistent with the implications of the decision of Mr. Justice Lamer, as he then was, for the Supreme Court of Canada in *Pioneer Hi-Bred* (*supra*, para. 79). In that case he dismissed an appeal from a decision of the Federal Court of Appeal that a new variety of soybeen produced by cross-breeding (hybridization) was not patentable under the *Patent Act*. He found that the description of the plant was insufficient to qualify under that *Act*. In the course of that decision he distinguished between a product resulting from hybridization and a product resulting from a process for change in genetic material caused by human intervention within a gene. As I read his decision Lamer J. was careful to restrict this comments to the facts of the case, a product resulting from hybridization. The processes of genetic engineering, properly described, were not excluded from patent protection by implication of that decision.

[92] …a farmer whose field contains seed or plants originating from seed spilled into them, or blown as seed, in swaths from a neighbor's land or even growing from germination by pollen carried into his field from elsewhere by insets, birds, or by the wind, may own the seed or plants on his land even if he did not set about to plant them. He does not, however, own the right to the use of the patented gene, or of the seed or plant containing the patented gene or cell.

[97] Indeed the weight of evidence in this case supports the conclusion that the plaintiffs undertook a variety of measures designed to control the unwanted spread of canola containing their patented gene and cell.

[101] The plaintiffs claim that the defendants infringed Monsanto's 830 patent by growing, in 1998, seed that Mr. Schmeiser knew was from his 1997 crop and was from plants that were Roundup resistant. By doing so the defendants reproduced the patented gene and cells. The canola crop so grown in 1998 was harvested and sold by the defendants.

[114] I reach the tentative conclusion having also concluded on a balance of probabilities that the samples taken from the borders of nine fields in July 1998 and three samples taken at random from within each field in August 1998 are representative of the entire crop, bearing in mind that all of the nine fields were planted with seed that was saved in 1997 in field number 2, which seed was known to be Roundup tolerant.

[115] I turn to submissions of the defendants in reply to the claim for infringement. First, the defendants urge that there was no intention to infringe the patent. However, it is well settled that infringement is any act which interferes with the full enjoyment of the monopoly rights of the patentee… Further, intention is immaterial, for "infringement occurs when the essence of an invention is taken", regardless of the intention of the infringer.

[117] A variety of possible sources were suggested, including cross field breeding by wind or insects, seed blown from passing trucks, or dropping from farm equipment, or swaths blown from neighbors' field. All of these sources, it is urged, could be potential contributors to cross-breeding of Schmeiser's own canola or to deposit of seeds on his land without his consent.

[118] However, I am persuaded by evidence of Dr. Keith Downey, an expert witness appearing for the plaintiffs, that none of the suggested sources could reasonably explain the concentration or extent of Roundup Ready canola of a commercial quality evident from the results of tests on Schmeiser's crop.

[119] …the source of the Roundup resistant canola in the defendants' 1997 crop is really not significant for the resolution of the issue of infringement which relates to the 1998 crop. It is clear from Mr. Schmeiser himself that he retained seed grown in 1996 in field number 1 to be his seed for the 1997 crop. In 1997 he was aware that the crop in field number 2 showed a very high level of tolerance to Roundup herbicide and seed from that field was harvested, and retained for seed for 1998.

[121] The principal defense raised by the defendants is that they did not use the patent because they did not spray their 1998 canola crop with Roundup after it had commenced growing. Thus

they say they did not make use of the invention as the inventor intended and so, did not use the patented gene or cell.

[123] In my opinion, whether or not that crop was sprayed with Roundup during its growing period is not important. Growth of the seed, reproducing the patented gene and cell, and sale of the harvested crop constitutes taking the essence of the plaintiffs' invention, using it, without permission. In so doing the defendants infringed upon the patent interests of the plaintiffs.

[125] His infringement arises not simply from occasional or limited contamination of his Roundup susceptible canola by plants that are Roundup resistant. He planted his crop for 1998 with seed that he knew or out to have known was Roundup tolerant.

[126] Other farmers who found volunteer Roundup tolerant plants in their fields, two of whom testified at trial, called Monsanto and the undesired plants were thereafter removed by Monsanto at its expense.

[146] I find on a balance of probabilities that the growing by the defendants in 1998 of canola on nine fields, from seed saved in 1997 which was known or ought to have been known by them to be Roundup tolerant, and the harvesting and sale of that canola crop, infringed upon the plaintiffs' exclusive rights under Canadian patent number 1,313,830...

Discussion Questions:

1. Is there some possible circumstance that could explain the data to the Court in a way that would exonerate Percy Schmeiser?

2. If Schmeiser had saved the seeds from his 1997 crop and waited until 2010 when Monsanto's patent expires to plant the seeds, would he have been committing patent infringement?

3. What is the <legal, moral> relevance of the fact that he did not actually use Roundup on his crops makes it just that he was not found personally liable?

4. Canada has laws against patenting higher life forms. Do you think it should be permissible under these laws to patent *part* of a higher life form, like a gene in this case?

5. Should it be morally permissible to patent higher life forms? Why or why not?

6. Although the Court ultimately ruled that *how* Roundup Ready canola ended up on Schmeiser's field was irrelevant, should Monsanto's patent rights have been nullified if it had been better established by the defense that it arrived by natural means? In other words, would Monsanto's property rights have been rescinded if they were found to be negligent in containing their patented seed?

Glossary:

Canola- previously called “rapeseed”, it is an oilseed that has been one of the main cash crops in Canada since the 1970s.

GE- genetically engineered

GMO- genetically modified organisms

Glyphosate-resistant- the scientific term for a gene that is not susceptible to certain herbicides such as Roundup.

***Inter alia*-** Latin for “among other things”.

Patentability- in order to be patented, an invention must be of patentable subject matter, in some way new, useful, and non-obvious.

Possession- under Canadian patent law, possession constitutes violation. This means that merely possessing a patented object even if you do not use it for its intended purpose constitutes infringement.