

CANADA

Monsanto Wins Split Decision in Patent Fight Over GM Crop

OTTAWA—A 6-year patent battle between a Canadian farmer and U.S. biotech giant Monsanto has come to a confusing end. Canada's Supreme Court last week ruled 5 to 4 that the farmer had violated Monsanto's patent rights by planting the company's genetically modified (GM) canola seed without paying a licensing fee. But it overturned lower court awards against the farmer, leaving both sides declaring victory. And its decision laid out guidelines for patenting GM organisms that have left many experts puzzled.

"On the surface, [the decision] looks good for the biotech industry," says patent law expert E. Richard Gold of McGill University in Montreal. "But once you read further, you have no idea what the implications are."

The case* pitted Percy Schmeiser, a 73-year-old farmer from Saskatchewan, against one of the world's biggest GM crop breeders. It began after Schmeiser harvested a 1997 crop of canola that contained an herbicide-resistance gene patented by Monsanto. The farmer said that the canola had grown

from seed that had blown off passing trucks or had gained the gene from pollen that drifted in from adjacent GM fields. The next year, he used his saved seed to sow his own fields—without paying Monsanto an estimated \$11,000 licensing fee.



Canola confusion. The Canadian Supreme Court said farmer Percy Schmeiser violated Monsanto's gene patent but didn't penalize him.

The company successfully sued, and Schmeiser appealed to the Supreme Court, claiming that the company couldn't control how he used the seed. The case became a rallying point for farmers' rights groups and was seen as a test of Canada's approach to patenting GM organisms.

In a 38-page opinion, the court's majority reaffirmed an earlier landmark decision banning the patenting of "higher life forms," such as whole plants or GM mice (*Science*, 13 December 2002, p. 2112). But it rejected arguments against allowing patents on specific DNA sequences or cells to be enforced outside the laboratory, comparing them to patented Lego blocks that can be included in larger products. As a result, Schmeiser infringed Monsanto's gene patent when he planted his seed, even if he obtained it inad-

vertently or accidentally, wrote Chief Justice Beverley McLachlin and Justice Morris Fish. Infringers must act "quickly to arrange for removal [of the patented material]" if they want to avoid breaking the law, they added.

Although Schmeiser didn't follow that guidance, the court declined to order him to turn over profits from the sale of the canola, or pay Monsanto's legal fees, because he earned no additional profit from using the pirated seed. He didn't even spray his canola plants with the herbicide—called Roundup—that they were engineered to resist, the justices noted.

Monsanto officials were elated by the split decision. "This ruling maintains Canada as an attractive investment opportunity," said executive vice president Carl Casale in a statement.

Schmeiser was also upbeat, noting that he wouldn't have to sell his farm to pay court awards. "It's a personal victory," he said. But Terry Boehm of the National Farmers Union in Saskatoon feared that the ruling "allows seeds to become a tool of oppression" by seed companies.

Gold says the "bizarre outcome" may reflect the fact that two new judges have joined the court since its 2002 ruling against patenting whole GM organisms. "From a practical point of view, they have gutted" that decision, he says. Other experts say the decision may give a company that produces an organism with a single patented gene enough legal standing in Canada to claim infringement even if it can't patent the whole organism. The decision has "changed the meaning of 'use' in such a way that nobody knows what it means," says Gold. "Patent lawyers across the country are scratching their heads."

—WAYNE KONDRO

Wayne Kondro writes from Ottawa.

PUBLIC HEALTH

Asthma Linked to Indoor Dampness

Indoor mold can cause or exacerbate respiratory problems, says a new report by the U.S. Institute of Medicine. But its impact on a host of other health problems is much less clear.

The study, released this week, was requested by the U.S. Centers for Disease Control and Prevention in response to growing concerns about the health effects of indoor mold. Damp conditions are common in about 10% of U.S. housing. "It's a considerable public health issue," says panel chair Noreen Clark of the University of Michigan School of Public Health in Ann Arbor.

Although the panel found that indoor mold can aggravate asthma and cause coughing and wheezing in healthy people, it failed to support arguments about its role in other health problems. The evidence was only suggestive that dampness or visible mold causes

lower respiratory illness, such as bronchitis, and asthma in healthy children, the report says. And due to a dearth of well-done studies, the panel couldn't tell whether there is any link to other conditions, including acute pulmonary hemorrhage in infants, forgetfulness, chronic fatigue, or cancer.

Part of the challenge is the complexity of damp conditions. In addition to mold, dampness fosters bacteria and mites and causes chemicals to be released from decaying furniture and building materials. Most studies have not teased apart these variables, the panel found. All these unknowns mean that it's hard to quantify the problem and rank it on a list of public health priorities, says epidemiologist Jonathan Samet of the Johns Hopkins University School of Public Health in Baltimore, Maryland.



Rising damp. Mold, growing here in a flooded school basement, can worsen asthma.

The committee calls for more research on health effects, including better ways to gauge exposure, as well as studies of interventions to fight mold. It urges national guidelines to prevent or correct the problem. Those fixes are unlikely to be technical challenges but can be a financial hurdle for cash-strapped schools or low-income homeowners.

—ERIK STOKSTAD

* www.lexum.umontreal.ca/csc-scc/en/rec/html/2004scc034.wpd.html