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Support grows for GM

Asa Wahlquist | March 25, 2008

VICTORIAN graingrower Eric Sharkey wants to plant canola that has been genetically modified to withstand being sprayed with the herbicide Roundup.



Eric Sharkey is looking at growing genetically modified canola. Picture: David Crosling

"It is simpler, cheaper and more environmentally friendly," he says of Roundup. Sharkey, who farms at Balliang, west of Melbourne, has been growing a conventional canola that can be sprayed with herbicides such as atrazine. The weeds die but the canola survives.

"One of the disadvantages (of growing conventional canola) is you have to use atrazine, and atrazine has been banned in other countries," Sharkey explains. "There are a lot of examples of atrazine getting into watercourses. Roundup is so much safer and simpler."

Sharkey practises no-till farming. Instead of ploughing the soil, which leads to soil loss, moisture loss and poorer soil structure, no-till farmers drill the crop seed straight into the ground and use herbicides to get rid of weeds.

As a Victorian, Sharkey will be allowed to grow GM canola this year. NSW is still going through a process of permitting GM canola. But across the border in South Australia, and in Western Australia and Tasmania, the moratorium on GM canola will remain in place.

South Australian Agriculture Minister Rory McEwen refuses to lift the moratorium, saying "the risks far outweigh the rewards". McEwen points to the Japanese demand that farmers guarantee livestock have not been fed GM products, and signals from the supermarket chains Foodlands and Woolworths that they prefer non-GM product.

McEwen argues that the introduction of GM canola would benefit a handful of growers while putting markets at risk. But he admits he will closely watch what happens in NSW and Victoria following the lifting of their moratoriums.

The National Farmers' Federation has welcomed the lifting of the moratorium in Victoria and NSW. President David Crombie contends that farmers risked falling behind their competitors but will now be able to develop more sustainable, drought-resistant and better yielding crops.

A review for the Victorian Government, chaired by eminent scientist Gustav Nossal, reported that "GM canola is estimated to have a gross margin benefit for Victorian farmers of about \$45 per hectare in an average season".

It found that the moratorium had cost Victoria between \$60 million and \$65 million, and that extending the moratorium to 2016 would cost a further \$110m to \$115m.

Australia is the largest canola exporter after Canada. It is a high-value crop that provides a beneficial break between cereal crops. But weeds are a problem, and Australian farmers have been so desperate to combat weeds that they have been prepared to grow the low-yielding atrazine-tolerant variety. In Canada, where 80 per cent of the canola is GM, yields have increased to 1.49tonnes a hectare. In Australia, canola production has actually decreased to 1.19tonnes a hectare.

Robert Green, the president of the Australian Oilseeds Federation, which represents customers who want GM canola and those who do not, says the AOF supports choice.

Green dismisses arguments that big Australian customers, such as Japan, will not buy GM canola.

"Many of our markets around the world that we supply canola to are either using a very high proportion of GM already or are rapidly switching to using GM. The majority of (Japan's) canola is from Canada. We don't get a premium when we ship (non-GM canola) to Japan."

Victorian farmer Scott Kinnear is a spokesman for the Biological Farmers of Australia and an opponent of GM crops.

"We don't think they are safe," he says. "The core objection is that this is a technology that has not been proven beyond reasonable doubt, or even beyond remotely near reasonable doubt."

Kinnear argues that GM crops threaten the organic industry, which is growing at 15 to 20per cent a year.

"Our customers are strongly opposed to the adulteration of food; they want food to be grown as naturally as possible," he says.

He worries that labelling is inadequate and that organic farmers will bear the cost burden of future testing.

Kinnear particularly fears crop contamination from drifting pollen and cross-contamination through human error with planting, harvesting and processing machinery, and during transport and storage.

He says it has not been possible to keep GM product out of the organic chain in North America. And he says there are liability problems looming.

"Uncontrolled release in Victoria and NSW will spread contamination across the country," Kinnear says.

"For those people who believe that these foods are unsafe and really don't want to eat them, it means we are going to have to be much more careful about what we eat and where it comes from."

But a report by the Australian Bureau of Agriculture and Resource Economics in May 2007 concluded that the introduction of GM canola would have a negligible impact on organic farming, including honey production, due to the absence of

THE WORLD MARKET UNDER MODIFICATION

- In 2007, 114.3 million hectares were planted to GM crops worldwide. GM crops were grown by more than 12 million farmers in 23 countries.
- The US is the largest grower of GM crops, followed by Argentina, Brazil, Canada, India and China.
- In Australia, GM organisms are assessed by the Office of the Gene Technology Regulator. Its role is to protect human health and safety, and the environment, to identify and manage any risks posed by the use of gene technology.
- The Office of the Gene Technology Regulator has approved the use of GM food-processing enzymes and more than 50 therapeutic GM products.
- Food Standards Australia, the Australian Pesticides and Veterinary Medicines Authority and the Therapeutic Goods Administration decide whether to approve GM products for use and sale.
- Two GM crops are grown in Australia: cotton modified for pest resistance and herbicide tolerance, and carnations modified to produce blue flowers.
- The latest crop of GM cotton required 82per cent less insecticide and 33 per cent less herbicide.
- The moratorium on GM canola has been lifted in Victoria and NSW. It remains in SA, WA and Tasmania. Queensland does not ban GM, but canola is not grown there.

canola from Australian organic agriculture.

Bob Watters is a northern Victorian graingrower who has been chairman of the Gene Technology Grains Committee. He points out that Canada "never attempted to segregate (GM from non-GM canola). They just put the whole lot in the one bin. Now we can segregate, as the market demands."

Ironically, he thinks that when Australia grows GM canola there will be a premium for the non-GM product. "Right now we can't get a premium because we have too much non-GM."

Canola pollen is thick and sticky and most falls within one metre of the plant. Watters says the pollen is so prolific that receptor plants are pollinated by their own pollen. But he acknowledges that pollen can drift in the wind, and a separation of several kilometres could be necessary to ensure no cross-fertilisation.

The AOF's Green points out that the industry grows specialty canolas without cross-contamination. "You have segregation, but you don't have to have kilometres of segregation," he says. "The industry has developed a code of practice for managing the segregations and providing the protocols as to how the crop should be grown."

Rick Roush, the dean of land and food resources at the University of Melbourne, says there are strong environmental arguments in favour of GM crops.

He points out that a growing number of graingrowers, such as Sharkey, practise the no-till method of farming, which has replaced ploughing. As a result, the most recent drought was free of the huge dust clouds that descended on Melbourne and Adelaide in earlier droughts.

The International Service for the Acquisition of Agri-Biotech Applications estimates that in 2007, GM crops reduced carbon dioxide emissions by 14.8 million kg, equivalent to removing 6.5 million cars from the road. It said 1.2 billion kg of carbon dioxide was saved though the reduced use of fossil fuels, herbicides and pesticides. In addition, 13.6 billion kg remained sequestered in the soil rather than being released as a gas after ploughing.

Roush rejects food safety concerns over GM canola, arguing from what he calls first principles. He says Roundup works by blocking an enzyme, known as EPSPS, so the plant effectively starves to death.

"To make the plants resistant, (agricultural company) Monsanto has introduced a different EPSPS, from either agro-bacterium or from another plant like petunia that is much less sensitive. The introduced enzyme takes over when the plant's EPSPS is knocked out by Roundup.

"We eat EPSPS every time we eat fruits and vegetables. It is hard to imagine how adding a slightly different form of it to the plant is going to make any difference," Roush says.

The EPSPS is introduced to the cell with a gene promoter taken from a virus, such as cauliflower mosaic virus.

"We have all eaten zillions of cauliflower mosaic virus particles: it's very common in broccoli, cabbages and cauliflowers," Roush says. "Just from first principles, it is hard to imagine how anything could go wrong," adding that there have been extensive safety studies.

Roush, an entomologist who specialised in the biological control of insects and the genetics of pesticide resistance, says he initially opposed GM crops.

"One of the things that persuaded me that GM cotton was a good idea was the first field trials in Mississippi. The reduction in pesticide use and the health of the crop were astonishing."

He says pesticide use in cotton has been reduced by 70 to 90 per cent.

He worries that the debate over GM canola is obscuring the real potential of GM crops.

Sharkey agrees. He was deeply impressed by a visit to a research station and seeing the latest work on drought-tolerant and frost-tolerant varieties.

Other Australian projects include oilseeds with improved Omega-3, wheat with improved digestibility, ryegrass with reduced hayfever-causing pollen, and sugar cane that is a precursor to biodegradable plastic.

Roush says he is in a dilemma: "On the one hand, the consumer doesn't like these things. On the other hand, the consumer has been completely misled about the health risk of these things. And the environmental advantages are enormous, and I am inclined to weigh in, in favour of the environment."

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