

DECISION: Are NZ farmers prepared to put everything, including their country's bio-security and economic survival, on the line? The pro-GE thrust is dominated by self-interested corporates, scientists and entrepreneurs, and is supported by a pro-GE 'PR' machine funding much seemingly independent glossy pro-GE publicity.

In 1999, the US, Canada and Argentina grew 99 percent of all GE crops planted (www.rachel.org). Now, farmers in Europe, as well as North America, are turning their backs on GE crops.

The canola trials in Tasmania have become an environmental and bureaucratic dilemma. The inspector's audit report found farmers involved were frustrated and disillusioned. One said that in hindsight it was the worst decision that he and his family had made in all their years in farming.

Bill Christison (President, US Nat. Farming Family Coalition) said: "The consumer's always right. You are not going to be financially successful ramming things people don't want down their throats. ... Contamination during processing is impossible to prevent, and it is virtually impossible for GE, conventional or organic production to co-exist. The infrastructure is not set up for it, it's impossible to keep seeds apart.

"The promise was that you could use less chemicals and produce a greater yield. But let me tell you none of this is true."

Tom Wiley, a farmer with the Dakota Resource Council (DRC), said: "They say it is sound science, but sound science 30 years ago was filling buildings full of asbestos and spraying everything with DDT. I guess I am a little reluctant when they start talking about what sound science is."

NZ is untouched by GE crop contamination. Should we ignore the experiences of those over-

seas or risk what may be an irreversible and damaging form of production?

NZ farmers need to know that if NZ agricultural markets collapse because of a major GE bio-security scare, our tourism markets are likely to collapse at the same time. This happened recently in the UK with foot and mouth. We do not have the diversified and robust economies of the USA, UK or even Australia. Take agriculture and tourism out of the NZ economy and there really is not much left. In fact, there will be no effective NZ economy remaining to support farmers.

See: The Sustainability Council of NZ, PO Box 24304, Wellington, www.sustainabilitynz.org; **The Adoption of Bio-engineered Crops*, www.ers.usda.gov/publications May 2002; **The StarLink Saga*, Agri. Law Digest, 11:22; **What farmers need to know about transgenic crops* www.attra.ncat.org; **When does it pay to plant Bt corn*, www.iatp.org; **10 reasons why farmers should think twice before growing GE crops* www.plant.uoguelph.ca; **Pollen flow between herbicide tolerant canola*, Weed Sc. Soc. Am. 40:48; **Soil Effects of Transgenic Agriculture*, www.psrast.org; **Monsanto v. Schmeiser* www.percyschmeiser.com, www.fct-f.gc.ca. **Websites:** www.nffc.net; www.acga.org; www.cropchoice.com; www.ucsus.org; www.directAg.com; www.iowagrains.org; www.farmprogress.com; www.kingcorn.org; www.biotech-info.net; www.familyfarmer.org; www.ecologic-ipm.com. **See** USDA PS&D Database; Agribusiness Exam; ARS News Service.

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Genetic Engineering Facts for Primary Producers

GE is the biggest bio-security threat NZ faces. Its agriculture is critically and uniquely vulnerable to this threat, as are NZ's 'Clean Green' and 'Pure New Zealand' images.

Three major issues affect production:

ECONOMICS: NZ is a quality primary producer and careful consideration must be given to its customers.

Gary Goldberg, when CEO of the American Corn Growers Association (ACGA), spoke about the harm GE technology has caused US farmers: **"This is a case of if we knew then what we know now, American farmers would not have been so easily convinced that GE crops were the way to go.** Our land has become contaminated with GE pollution that we cannot control or remove from our environment. Conventional farms are being contaminated, and we have no choice of GE or non-GE crops ...

"None of the promises have come true and it is time for your farmers to understand that the promises that have been made and will continue to be made will not come true either. We are losing export markets ... Those markets can be filled by your farmers ..." (US corn exports: to Europe, 2.8 million tonnes 1995-96, 2300 tonnes, 2000-01 (USDA); commitments for 2000-01 down 3.8 million tonnes (World Commodity Analysis Corp)

US export customers are not buying GE crops. Goldberg said about 24 percent of the US corn

crop was GE, contamination and lack of segregation systems compromised the other 76 percent.

The ACGA asked its members if they would plant more or fewer GE corn acres. Across the States questioned, 64.6 to 100 percent of farmers said they would grow fewer GE acres.

PRODUCTION: Industry promises that GE crops will yield more and use less chemicals.

- GE crop yields are down - confirmed by US university studies and farmers.
- USDA data shows chemical use on GE crops is not reduced, despite 71 percent of GE crops being engineered for chemical resistance. Herbicide use on RoundupReady® soybeans in 1998 averaged more than conventional varieties.

Bt cotton is cotton engineered with *Bacillus thuringiensis* to control bollworm. US, Indian and Indonesian farmers have had pest infestations. Monsanto's guide advises Australian farmers to spray additional insecticide *under conditions of reduced INGARD plant efficiency*. Bt cotton can fail to control the pest it is engineered to destroy.

GE canola is a survivor: volunteers are growing where they have never been planted. Martin Entz (Agronomist, Univ. Manitoba): Canola "is absolutely impossible to control. ... What we've embarked on here is a very big experiment ... releasing these traits ... we're assuming we're going to be able to contain them and we can't." Chemical and DNA tests have verified canola volunteers resistant to three chemicals; Roundup, Liberty and Pursuit.

A US study (Snow et al) showed that when a weed cross-breeds with a farm-cultivated relative and acquires new genetic traits - including

engineered genes that make it hardier - the hybrid weed can pass the traits on to future generations. The result may be very hardy, hard-to-kill weeds.

Engineered traits and crops may travel through stock into manure, in contaminated seed, by rain- and flood-water, wind-blown pollen and/or by horizontal gene transfer (HGT). (NB. HGT occurs naturally, e.g. between grasses and clovers. It does not occur naturally between a lettuce and a rat, or between a fish and a strawberry.)

- Glyphosate-resistance has spread to weeds and Bt-resistance to insects.
- Tons of canola, contaminated with a trait not approved for export, were withdrawn.
- UK scientists tested a conventional canola variety and found a promoter used in GE plants.
- Canada's honey and canola exports have been badly affected by GE contamination.
- Conventional potatoes, planted up to 1100 m from GE potatoes, were contaminated (Skogsmyr).
- GE StarLink corn - not approved for human-kind - contaminated corn food products.

Native corn varieties in the centre for corn biodiversity, Mexico, are contaminated with GE DNA. This has been re-affirmed by government scientists at 95 percent of the tested sites.

LIABILITY ISSUES: Insurance companies will not insure against the effects from GE crops and no government has legislation on liability.

Dr Ann Clark (Plant Agri., Guelph Univ.) asks:

?? Who should be held accountable for the enormous economic losses suffered by the farmers who believed what they were told - not just by industry, but by government and university professors?

?? Given the significant pollen-travel distances for corn (or perennial ryegrass, canola, potatoes, etc.) who should be liable for the resultant inadvertent contamination of neighbouring crops - those who grew the offending crops, those who sold it to them, those who authorised their commercial release into the marketplace, or those who produced and marketed them in the first place - each of whom knew full well this would happen? In the case of Starlink corn, although 35,000 ac were sown, an estimated 150-200,000 additional acres were contaminated.

GE crops carry patents. Farmers are contracted to producers. Farmers are being sued for growing GE crops without paying technology fees, the crops contaminated unbeknown to the farmer. Mark Fraase, an attorney representing farmers Roger, Rodney and Greg Nelson, said: Monsanto "haven't got any evidence. They can't gather any, yet they persist." An independent body found no evidence of wrongdoing by the Nelsons.

StarLink corn was not approved for human consumption, but it contaminated corn used in food products. Over 300 were withdrawn, the developer, Aventis, paid out almost US\$100 million in damages and the USDA spent US\$20 million buying contaminated seed to incinerate.

Monsanto and Aventis admit traits never meant to leave the laboratory may have been present in seed sown in the last three US growing seasons. The two companies are running GE field trials in Australia without disclosing locations. Prof. Geoff Lawrence (Cen. Queensland University) claims farmers' rights are compromised because they are unable to gain compensation if their fields are contaminated by GE crops. That contamination happened following field trials in Tasmania was acknowledged by the federal government.