

The AgLaw Papers

BOOK 2

ON AGRICULTURE AND BIOTECHNOLOGY

GM crops - science, agriculture and potential legal issues

Andrew Clarke

Dr John Stanley

Professor Acram Taji

What Australian Courts might say about "damage" from cross-pollination by a GMO

Associate Professor Mark Lunney

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A story of Australian realities, law and judges - as witnessed in agricultural cases during the first century of our lead court.

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Dr Sandra J Welsman

The Australian Centre for Agriculture and Law

UNE's AgLaw Centre started in June 2003. The Centre, a unique initiative for Australia and likely world-wide, is a joint venture of the Faculty of Economics, Business and Law, the Faculty of The Sciences and the School of Law. Dr Sandra Welsman was commissioned as Founding Director to establish the Centre over six months.

AgLaw's reason for being is to bring together skills from across these disciplines to achieve a range of outputs that will contribute to the progress of Australia's agricultural industries and businesses in the context of the domestic economy and global marketplaces.

Priorities during 2003 included the development of the new Bachelor of Agriculture/ Bachelor of Laws (BAgr/LLB) double degree – the only such course in Australia. Enrolments for the BAgr/LLB commenced late 2003 for start-up in February 2004. In addition, over 2004 the Centre will be looking to develop postgraduate courses and practical seminars at the key working interfaces of agricultural business, science and law.

The series of AgLaw Papers has been a parallel priority. Our aim has been to achieve a series of original and useful publications that examine key agri-law issues from first principles and from a 'for Agriculture' perspective'– initially in the four linked areas identified through an AgLaw marketplace scoping study late in 2002:

- **Farming and environmental rules**
- **Rural industry regulation**
- **Agricultural supply chains**
- **Agriculture and biotechnology**

This series of AgLaw Papers has been developed for a wide readership, with a particular eye to interested farm and agri-business managers, researchers and agri-industry and government leaders. Within the University, our aim has been to start building cross-disciplinary investigative teams harnessing and enhancing current skills, and opening up ag-law research areas. We are looking to position our work with key audiences and to indicate University and AgLaw Centre capacities through interesting, informative papers.

The first set variously achieves these aims. Styles and communication approaches vary but the intent of each is consistent with the AgLaw aims.

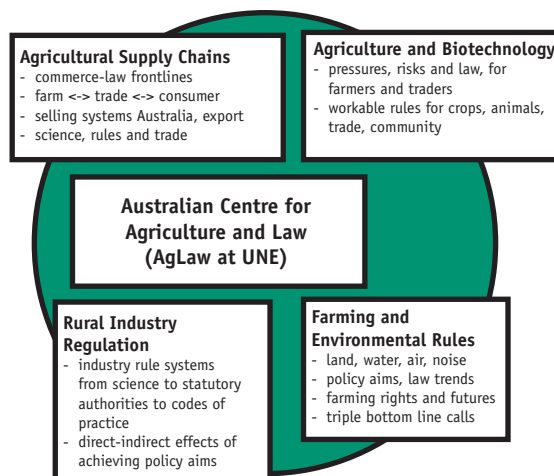
Looking forward

Coming decades will see Australian rural enterprises and scientists aiming for substantial long-term productivity increases even as world marketplace, economic, social and environmental expectations become more complex.

Laws, policies and rules of many types define the basics of rural business and hover at scientific and economic frontiers of production and supply chain innovation. Regulatory regimes affecting Australian agricultural businesses from farms through processing, transport, export and sale of products to consumers are unlikely to get simpler – or at least not without considerable effort.

Challenges facing agribusinesses in dealing with law and policy changes have been recognised by the University with the formation of the unique Australian Centre for Agriculture and Law, as a cross-faculty venture. The UNE Faculty of The Sciences is recognised for research and teaching, is leading or involved in six Co-operative Research Centres. The new BAg/LLB double degree will have the highest entry requirements for Bachelor of Agriculture or similar studies in NSW. The Faculty of Economics, Business and Law has a long-standing reputation for courses and research in economics, agricultural economics and agribusiness. The UNE Law School is one of the largest enterprises in the University with growing demand for places.

Now ‘founded’, the AgLaw Centre will continue to work with interested academics and researchers across these disciplines to achieve outputs that contribute to Australian agricultural industries.



The AgLaw Papers 2004

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Genetically modified crops—science, agriculture and potential legal issues

Andrew Clarke, Dr John Stanley, Professor Acram Taji

Co-authored by experts in agricultural science and law, this paper aims for a wide audience including industry groups and professionals plus farmers. Using case studies, the authors look at a number of scientific and legal issues possibly arising with GM cropping. The paper discusses:

- **Messages for farmers considering GM cropping**
- **Potential points of legal action**
- **Features of a negligence claim and limiting risk**

What Australian Courts might say about 'damage' from cross-pollination by a GMO

Associate Professor Mark Lunney

This paper considers closely the question loss or damage—one essential element of a negligence claim—in GM cropping scenarios. Courts have handled physical damage to property differently to pure economic loss—though this may be changing. Liability and remedies in 'nuisance' and 'negligence' are considered, as well as possible issues and defences for an 'innocent GM farmer'.

GM crops – science, agriculture and potential legal issues

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This paper, co-authored by experts in agricultural science and law, aims for a wide audience including industry groups and professionals plus farmers working in the agricultural sector.

The GM debate is obviously a broad one, covering a raft of issues including livestock, regulation and crops. This paper will focus on GM issues as they affect crops. To bring the issues alive, we use case studies in the sections below. One is an hypothetical situation, whereas the second case study is based on a recent High Court case.

This approach is intended to convey the practical nature of the issues that lie on the horizon concerning GM crops.

Legal, commercial and scientific issues in context

Big questions are developing. The next 10 years will reveal their answers:

- Will Australia be a leader or a follower in the GM debate and practices?
- How will GM crops be different to traditional crops?
- What legal issues and scenarios are likely to arise with the advent of GM crops?

These questions cover a huge terrain. In this paper, we are aiming to provide a focus on how the issues might actually play out 'on the ground' and possibly through legal action in courts.

CASE STUDY 1 – The Smith, Brown and White Farms (a totally fictitious but potentially realistic scenario)

Farmer Smith – grower of GM canola crops

Smith's property is near Young in NSW and adjoins Farmers White and Brown. Smith plants a large crop of GM canola which has two genetic modifications:

1. an introduced gene expressing herbicide tolerance so that the crop can be sprayed with one particular herbicide to control most of weeds that you encounter with canola but without injuring the canola
2. a gene taken from a pepper tree, introduced to block the production of glucosinolates.

Glucosinolates are undesirable, bitter tasting compounds produced by conventional canola, thought to be a defence against herbivores. Traditional breeding has successfully reduced the amount of glucosinolates in canola varieties but genetic technology can remove them all together, thereby improving the taste of canola products and making the meal (the mash of seed material remaining after oil extraction) more palatable as stock feed.

What happens. Smith's canola crop is sprayed with the GM-related herbicide a few times during the growing season. This is a typical requirement for weed control. The crop performs well and Smith is very satisfied. Yield and weed control were excellent. Furthermore, Smith receives a premium (25%) for the low glucosinolate quality of his produce and goes on to grow another large GM canola crop in a nearby field the following season.

White family farm—neighbouring non-GM canola grower

In both of these canola growing seasons the White family, next door, puts in a conventional (non-GM) canola crop in a field adjacent to the Smith's GM canola crop.

What happens. In the first season nothing appears to be amiss but after harvest in season two, laboratory tests on the delivered seed from White's second harvest show a 2.0% GM content. The Whites lose their contract with OillyGanics®, a firm which cold crushes guaranteed GM-free canola seed for products (canola cooking oil, stock feed, etc) exclusively delivered to SowPure® markets (a solely organic grocery and agriculture outlet).

OillyGanics® were paying a 50% premium for guaranteed non-GM canola seed. White sustains an immediate loss of A\$25,000 by being forced to sell his produce on the 'common canola' market (a loss of his usual organic premium). The Whites also lose their Organic Grower status for four years for any produce they grow in or adjacent to the 'GM infested' field (as deemed by their organic organisation). This adds another \$800,000 loss from lost production opportunities and several associated cleanup costs, for example, repeated cultivations to kill self sown GM canola. The White's expect this will break their business and they will be forced to leave farming.

Brown—another neighbouring non-GM canola grower

Farmer Brown also grew a conventional (non-GM) canola crop in a field adjacent to the Smith's GM canola crop over both canola growing seasons. He, like White, supplies his conventional canola crop to OillyGanics® aiming for the organic premium.

What happens. Unlike White, Brown's harvest in the second year did not show GM contamination when tested by OillyGanics® and was accepted for processing.

BUT canola products appearing in SowPure® markets were found to be GM positive. This discovery was made by the "Scientists for Truth", a self-appointed but well respected group of chemists taking on the role of keeping the Agricultural and Health Testing Agencies honest. Federal government agencies verified the claim, and quality assurance trace-backs indicated that Brown's canola crop was the source of the contamination.

What happens. Despite the extremely low level of GM protein detected (one part per million), the impact on this exclusively GM-free supplier is unprecedented. SowPure® suffers a share price collapse, an estimated loss of A\$2.5 billion Australia wide, and goes into receivership. Further, a class action has started among fundamentalist organic consumers who consider that the consumption of these products has already caused them allergic, toxic and psychological illnesses.

Case study 1.

Further factors/others involved

The Office of the Gene Technology Regulator (OGTR) has not yet settled on the requirements it will set for growing GM canola to keep the supply chain for GM and conventional canola separate, so the following are fictitious but realistic in nature.

The OGTR requires

Smith to ensure that:

- harvesting equipment used to harvest the GM canola crop be thoroughly cleaned before leaving the crop
- volunteer canola (canola plants that come up usually from seed spilt at harvest) is controlled with herbicides or cultivation when they appear
- the field is cultivated at least twice during the off-season to encourage any volunteer GM canola seed to germinate and therefore be killed by herbicide.

There are no requirements set for buffer zones (distance between crops at times imposed to reduce contamination).

GM canola seed supply company SeedyGene® requires a contract with the grower (Smith). The contract says:

- any GM seed purchased, be used in the same season
- no GM seed is to be transferred (given or sold) to any other person
- no GM seed can be retained from the harvest of the GM crop for sale or sowing in following seasons (unless enlisted to do so by SeedyGene®)
- crop grower must be registered with SeedyGene® and pay a licence fee to be allowed to grow the GM crop
- grower to provide the GPS (Global Positioning System) coordinates of fields used to grow their GM varieties
- grower must also allow SeedyGene® staff reasonable access to any property owned by the grower to check that their stipulations are being carried out.

Issues arising—scientific

The Nature of Biotechnology and Transgenics

Biotechnology refers to technology of living things. The development of medicines, diets, plant breeding, pesticides (including herbicides) and even winemaking or beer brewing can be regarded as biotechnology.

Recently the focus of biotechnology has been dominated by the relatively newly discovered ability to transfer genes from one organism to another, called 'transgenics'. Before, genetic changes were only possible via 'selective breeding' that takes advantage of the gene mixing that occurs between sexually compatible individuals during sexual reproduction or through mutagenic techniques such as using radiation or chemicals to alter DNA.

Transgenics is about choosing genes that code for one or more desirable characteristics, potentially from any animal or plant (ie any organism), and using biotechnological techniques to introduce those genes into a recipient organism you wish to express that characteristic.

- For example, taking a gene for herbicide resistance from ryegrass and transferring it to a crop to protect that crop from the herbicide designed to kill the majority of the other weeds.

Transgenics provides a new weed management tool. It is important to bear in mind that weeds, like other pests, must be managed with multiple strategies. Strategies offered by biotechnology add to the collection of tools available for weed management. The predominant new tools for weed management arising from biotechnology have been herbicide-tolerant crops (HTCs). In fact HTCs are currently the biotechnology products that dominate all crop production.

Canola as a candidate for transgenic manipulation (Genetically Modified, GM)

Canola is a good subject for our case study because it has been the focus of genetic manipulation for some time. The first commercial product of changing the composition of a plant seed via genetic engineering resulted from the introduction of genes to produce a high lauric-acid content in canola oil. Lauric acid is found in very high levels in tropical oil plants. American scientists discovered the biochemical pathways responsible for lauric acid synthesis, extracted DNA and cloned genes from Californian Bay trees. The cloned genes were inserted into canola, altering the quality of the oil.

Gene movement and transfer leading to the escape of the gene or overall organism

Gene movement can occur via the spread of GM seed which may simply grow in new areas. The second method is via the transfer of pollen (crossing) to other receptive plant species whether they be crops, nursery plants, environmental plants or 'weeds' (recognising that whether a plant is a weed depends on someone's judgment of whether a plant is desirable or not).

High levels of contamination across crops is more likely due to seed spread, than to crossing, though both can occur at the same time.

- The term 'outcrossing' is used when the pollen crosses to another variety (cultivar) or species.

How far might pollen travel ?

Cross pollination (outcrossing) through spread of pollen has been measured in fields up to three kilometres apart and could well occur further but at a very low rate.

One experiment to mimic the transfer of pollen from a GM crop by wind or insects to fertilise the seeds of the non-GM crop thereby producing seeds with GM-DNA and potentially GM characteristics, identified a very low cross-pollination at a rate of less than 0.2% in fields three kilometres apart at the edge of the study. Rieger *et al* 2002¹

Expert scientific evidence is highly likely to attest that only up to 0.2% outcrossing would be expected even with no buffering zone between the crops.

So levels such as 2% of foreign plants in a crop would be extremely high, too high to be solely from out-crossing in any particular year. However, if there was outcrossing of 0.2% and spilt seed from the harvest of that crop also grew the next year, the proportion of GM seeds could be different in subsequent years.

Outcrossing by wind-carried pollen spread would be unlikely and low level (Rieger *et al* 2002). However, canola seed is tiny and can be spread by wind during harvesting or by unsatisfactory cleaning of harvesting or cultivating equipment between fields if shared by two or more growers.

Smith, White and Brown are, or were, co-operative and shared all of their farming equipment and regularly used the same contractors for various farming operations, particularly harvesting and cultivation. At this time, the likelihood or extent of spread of seeds by these means is not confidently known by scientists.

- Seed spread is the probable reason for the high level (2%) of GM contamination in White's crop.
- GM presence in Brown's crop in season 2 could be pollen outcrossing or seed spread, or both.

There may also be a possibility that 'GM activists' deliberately caused the contamination to discredit efforts by producers to segregate GM from non-GM products, or to draw attention to their concerns.

Part of the illustrative case story: questions about GM canola and health risks

At the same time, scientific research is surfacing that suggests the GM modification that blocks glucosinolate production also leads to the production of another metabolite called glucocyanide. This compound has not been recorded in canola before but seems capable of causing anaphylactic shock (an extreme allergic reaction leading to asphyxiation and death).

Such sensitivity to glucocyanide, although extremely rare, is associated with people descending from Papua New Guinean races who typically lack certain respiratory enzymes. Five cases have been recorded over the past 10 years, apparently linked to the introduction of a product containing a herbal pepper extract, distributed a decade ago in PNG.

Recently, a case of glucocyanide-anaphylaxia led to the death of a five year old boy in Australia. He was a Papua New Guinean from an isolated village near Mount Hagen in the central highlands. Apparently, his reaction followed the consumption of an energy bar. The packet was clearly marked 'GM-free'.

Note: Canola oil had been a common ingredient in many products sold throughout PNG for many years with apparently no health problems.

Issues arising—regulatory and responsibility

As indicated in the case study, the protocols for growing GM crops in Australia are still under development. We have endeavoured to present a realistic set of regulations (from the regulatory bodies and GM seed supply company) to demonstrate which group or person might carry liability or responsibility if a GM problem arises.

Farmer Smith believes he has followed all the regulatory procedures asked of him by the Federal body (Office of Gene Technology Regulator), plus the licencing and crop management protocols imposed by the company which sold him the GM canola seed (SeedyGene®).

However, issues of understanding or effectiveness or responsibility could arise, such as:

- Was the spread of seed the cause of GM contamination in the Brown and White crops, or was it the wind, the equipment, or anti-GM activists? Scientists would be unlikely to be able to distinguish among these methods of seed dispersal in the second year of cropping.
- The OGTR procedures included cleaning down harvesting equipment before it was moved from Smith's crop. But there is some question about the extent to which a farmer can be expected to ensure equipment is cleaned.
- Smith had carried out at least two post-harvest herbicide applications of a type which controls the GM canola. He had no difficulty with buffer zones (as these were not set) but he did neglect to inform his neighbours that he was going to grow GM canola, even though he was fully aware of their organic production chain (Smith had also sold to OillyGanics® previously).
- Smith was also assured by SeedyGene® sales staff that the amount of outcrossing expected from GM canola would almost certainly be below that normal detectable by organic marketing groups, basing their arguments on the low levels of outcrossing found with similar canola varieties (but not GM varieties) in recently published Australian scientific papers.
- Smith also claims that, as a progressive agriculturalist, he was simply following the obvious direction of mainstream Australian agriculture, citing several publications from Australian agricultural organisations and Government research bodies clearly encouraging the GM path.

GM cropping—critical messages

The Case Study 1 chain of events is not far-fetched. The study illustrates a number of critical points:

- the importance of crop locations
- the potential affect (and unintended consequences) of GM take-up on neighbouring properties and the potential for crop contamination
- that 'choice', when it comes to the question of introducing GM crops may be a fiction for some farmers, given the self-seeding potential of GM crops and related issues
- there are food chain expectations that affect seed choice, harvesting and handling right through to the retail process
- the possibility of litigation arises across several fronts.

Potential points of legal action (litigation)

From this basic set of facts we can see several potential points of litigation and therefore, associated risk management needs.

- Farmer White might sue Farmer Smith in negligence law because his crop has been contaminated and is now worthless as an organics crop, and because he has lost a lucrative contract with OillyGanics.
- Farmer Brown might sue Farmer Smith in negligence law because his crop has been contaminated and also rendered worthless for organics use. He is also now a defendant in a class action along with SowPure®.
- Farmer Smith might sue the seed supplier, SeedyGene®, in contract law on the basis that staff of SeedyGene® warranted that the seed would not affect neighbouring crops.

These scenarios could be just the beginning of a potentially complex chain of litigation. That is because when legal action is started against one party, they will often look to take legal action (sue) another party involved either to share the blame or to transfer the blame because they feel they have done nothing wrong in law.

The above scenarios raise two basic types of law:

- Negligence law
- Contract law.

Negligence law in Australia

Negligence law is still largely in the province of the courts; that is, it is 'judge made law'. Negligence is classified as part of tort law. It is the most common tort. (Others include defamation and assault.)

Our negligence law is fault based. It requires an element of fault or blameworthiness on the part of the defendant (the person defending the legal action) for the plaintiff (the person who started the legal action) to be successful.

Two recent developments have drawn attention to Australian negligence law. These are:

- the public liability crisis in which the premiums paid by businesses have risen exponentially, despite their claims-free history
- the medical indemnity crisis in which the premiums paid by doctors, especially

obstetricians, have risen steeply to the point that many people are leaving the profession.

Obviously the reasons behind these crises are complex, but they have served to focus public attention on how negligence law is working in this country.

The three essential features of a negligence claim

To succeed in a negligence claim in Australia, plaintiffs must provide evidence to the court that proves (convinces):²

1. that they are owed a duty of care. This means that defendants must be careful as regards their conduct in relation to the plaintiff and others. The duty of care establishes a legal relationship between the plaintiff and defendant. The problem for defendants is that they may not even have realised they owe a duty of care until a case has been brought to court and the court has made a ruling
2. that defendants breached the duty of care owed. That is, they were careless in a legal sense – they were negligent. This requires the court to examine the conduct, behaviour and standards adopted by defendants
3. that damage flows from defendants' breach and has been suffered by the plaintiff. Damage can be physical (eg a broken leg or illness), mental (eg psychiatric illness) or monetary (economic eg a loss of profits) or a combination of the three.

The Australian legal system and negligence

As a federation, with Federal and State governments, Australia has a complex system of courts. Each state and territory has their own Supreme court and the Commonwealth has a system of Federal courts.

The High Court is the highest court and the arbiter of all cases coming before it. It sits at the apex of both the State and Federal courts. Its decisions must be followed by all other courts in the land.

There have been rogue cases in the negligence field in which the courts have been accused of being out of touch, soft and as acting like Santa Claus. These cases include facts where a patron at a hotel was injured on the way home and sued the hotel for a breach of duty in negligence on the basis of the hotel not controlling the amount he had drunk and failing to oversee his safe journey home. Such cases make headlines because they are unusual and they give rise to results that appear not to accord with common sense.

They are not typical and the High Court has indicated that if such cases get as far as their door, they will give them strict scrutiny. The court is aware of the public relations problems that such cases represent.

Justice McHugh of the High Court recently wrote in a court judgment, *Tame v NSW* (2002):³

“I think that the time has come when this Court should retrace its steps so that the law of negligence accords with what people really do, or can be expected to do, in real life situations. Negligence law will fall – perhaps it already has fallen – into public disrepute if it produces results that ordinary members of the public regard as unreasonable. Lord Reid himself once said ‘[t]he common law ought never to produce a wholly unreasonable result’. And probably only some plaintiffs and their lawyers would now assert that the law of negligence in its present state does not produce unreasonable results.”

High Court’s general approach to negligence cases

Despite infamous cases such as the ‘injured hotel patron’ arising from time to time, actual results are somewhat different, especially for cases going all the way to the High Court. In negligence cases, the High Court has not been pro-plaintiff in the last few years. More cases have been decided in favour of defendants. This means that the High Court has rejected pro plaintiff approaches and has been making it more difficult for plaintiffs.⁴

The current medical indemnity crisis and public liability debate will inevitably mean that the High Court will carefully consider the ramifications of a decision in favour of a plaintiff. This is due also to the fact that a decision for one plaintiff may give rise to many similar type cases coming forward.

GM litigation and the courts

GM litigation will be novel and this novelty means it is difficult to predict the court’s attitude to cases brought before it. Whilst the general trend of the High Court has been, and looks set to continue, to be fairly tough on plaintiffs, GM litigation (if and when it occurs) will have some special features:

- it is largely untested in Australian courts
- it is scientifically-based so that it will involve competing expert opinions and
- it will create widespread public interest (and, possibly alarm).

This means it is difficult to predict a court’s attitude to it at this stage. Factoring in

the court's attitude will be a key part of risk management planning until the courts, especially the High Court, give some clear guidance in case decisions.

Bringing a negligence claim

The difficult areas of negligence law for the courts are those where it is hard to cap the damages. This may be because the damages which arise could potentially flow unchecked and affect many people, involve large dollar losses, and continue over a long period of time.

The two areas where these types of 'indeterminate liability' arise are in the area of:

- psychiatric damage. Take the example of many people at a live sport event seeing a distressing incident. Could those present claim damages for their distress? Those watching at home? In the GM context, there is less likelihood of this type of damage but we could foresee the possibility
- economic loss. More likely to be of significance in the context of GM crops, due to the ripple effect of losses. For example, if non-GM crop is infiltrated by GM stock, what might the consequences be, and where will liability end?

The High Court has written about economic loss:

One reason why the law will often refuse to impose a duty to take reasonable care to protect another person from economic loss is its concern to avoid the imposition of liability 'in an indeterminate amount for an indeterminate time to an indeterminate class'. Concern about indeterminacy most frequently arises where the defendant could not determine how many claims might be brought against it or what the general nature of them might be. One feature that is more likely to be present in economic loss cases than physical damage cases is the 'ripple effect' of careless conduct. Dr Jane Stapleton has pointed out that "economic loss can 'ripple' down a chain of parties; for example, the loss of profits which D (the defendant) causes P (plaintiff) may in turn cause loss of profits to P's supplier and in turn to that supplier's suppliers, etc.

McHugh J⁵

In a negligence claim the plaintiff has the burden of proving 'on the balance of probabilities' (ie more likely than not), that he is owed a duty of care, that the duty has been breached and that damage has flowed from the breach of duty.

Defending a negligence claim

If the defendant, whether as an individual, a firm or company, holds relevant insurance, the claim will be usually be defended by the insurer. For example, this occurs in a motor vehicle case or public liability case involving a council.

The defendant has three broad strategies available in defending a negligence case. The defendant can bring evidence:

- that reduces the effectiveness of the plaintiff's case
- to show that the plaintiff is to blame for his own loss
- to show that other parties are to blame, or should share in the blame. This is 'joining a third party' to the legal proceedings started by the plaintiff and defended by the defendant.

'Joining' is likely to arise in litigation arising as the result of a GM crop problem. Take the example of unintended crop contamination referred to earlier. The White family sues their neighbour, Smith for contaminating White's crop. Smith would seek to join the GM seed producer and others in the action.

Likely features of a GM crop contamination claim

Litigation arising as a result of GM issues affecting crops is likely to be complex. Much of the key evidence is likely to be delivered by what the courts refer to as 'expert' witnesses. As the name suggests, these are people giving evidence on the basis of their qualifications and expertise in a given field, including scientists, agriculturalists.

The issues will include:

- the competing scientific claims concerning GM crops. These include the issues outlined in Case Study 1 above
- competing experts with different views on these issues and the science behind them
- the particular chain of events and causation questions. The court will seek to determine exactly what event gave rise to the plaintiff's loss. This is likely to be complex in GM crop litigation given the complexities of the food chain from 'conception to consumption' and the number of people involved in the process.

At the end of the day, the court may face the problem of having to make a finding that prefers the evidence of one expert or set of claims over another. The credibility of the scientific witnesses will lie at the heart of this choice.

We will look at a High Court case study below.

Contract law issues

Contract law is likely to be the other main area of law involved in GM-type litigation.

Contracts can be in any number of formats including:

- in writing via a document or series of documents
- oral by way of conversation or meeting
- partly oral and partly written, or
- referred to by way of express (actual agreed terms) or implied terms (matters assumed to form part of the contractual agreement).

One of the issues in contract based litigation, just as we have seen in negligence based litigation, is that the evidence provided is critical and at the end of the day, the court will have to make judgment calls about the credibility of witnesses.

The problems are easy to foresee when thinking about an oral contractual term based on a single meeting three years before. Memories will be less than perfect and recollection of events are likely to differ widely.

It is therefore always useful to commit oral terms and assumed terms to a clear written format in a timely fashion and have both or all parties sign off on them.

The contractual issues in a GM crop disagreement are likely to be similar to those that have arisen out of mercantile law over a long period of time. These would include disputes about the stipulated (or implied) qualities or performance of products sold or supplied.

For example, if a GM seed is 'Roundup Resistant' and sold on that basis, the purchaser would have a claim in money damages if that turned out not to be the case.

As with negligence-based GM litigation, expert scientific and agricultural evidence is likely to play an important role in the outcome of contractually-based cases.

CASE STUDY 2. – Spread of bacterial wilt in potato crops
High Court of Australia 1999

Perre v Apand Pty Ltd (1999) 198 CLR is a High Court decision. So it binds all other Australian courts and is 'good law' until the High Court itself decides to vary it. (The High Court would need compelling reasons to vary its own decision, and therefore, rarely does so.)

The relevant facts

This case involved potato crops grown in South Australia. The plaintiffs, the Perre family were potato growers. The defendants, Apand Pty Ltd were seed suppliers who supplied potato seed to the Sparnon family. The Sparnon family suffered 'bacterial wilt' in their crop. This created an immediate and devastating problem for the Sparnon family. Their crop was worthless.

The bacterial wilt also gave rise to unforeseen commercial consequences to neighbouring and district farms. In particular, it also created a financial disaster for the Perre family farm. The Perres were not neighbours of the Apands or even a 'close by' farm. Their property was some kilometres distant. The critical issue, however, was that the Perre property was within a 20 kilometre zone of the Sparnon farm. The export market for the Perre potato crop was Western Australia. Their crop was perfectly healthy. However, under Western Australian import regulations (the Plant Diseases Regulations (WA) Sched 1, Pt B, Item 14(1)(b)) a 20 kilometre zone from land affected by bacterial wilt had to be excluded—that is, the Perre farm could not sell their potatoes into the WA market. Perre brought a claim against Apand Pty Ltd as the seed supplier on the basis that they were losing business, and they were out of pocket—they were suffering from 'economic loss'.

As Chief Justice Gleeson of the High Court wrote:

- "The issue to be decided is whether [Apand PL], whose careless conduct resulted in financial loss to others, unconnected with physical injury to their persons or property, owed them a duty of care such as to sustain an action for damages for negligence.
- "[On] the facts of the case ... the issue is whether [Apand PL], whose conduct is, for the purposes of argument, assumed to have caused harm to each of the appellants [Perre and others], owed a duty of care to all or any of them.'

The Court's decision in *Perre v Apand*

All seven judges held that the defendant, Apand Pty Ltd owed a duty of care to the Perre family. Chief Justice Gleeson concluded his judgment as follows:

"I agree with the reasons given by Gummow J for concluding that, in the present case, [Apand] owed the appellants a duty of care. In particular, I would emphasise the following matters.

"The acknowledgment, in the internal communications of [Apand], that there was a need to be careful so as not to damage the interests of those involved in potato growing on land within 20 km of a farm that might be affected by bacterial wilt, is not merely a matter of legally irrelevant prejudice. It shows actual foresight of the likelihood of harm, and knowledge of an ascertainable class of vulnerable persons.

"If it had been the fault of the Sparnons, rather than [Apand], that there was an outbreak of bacterial wilt on their land, then the resulting interference with the use and enjoyment of neighbouring land would not have gone without remedy.

"[Apand] controlled the activity on the Sparnons' land, which resulted in land and facilities within 20 km being treated by Western Australian law, for practical purposes, as if contaminated. "The reasoning in the Federal Court was strongly influenced by the consideration that there was seen to be no rational basis for distinguishing between the position of the present appellants and that of an indeterminate number of other people. That was unquestionably an important issue to address.

"A decision that a duty of care is owed to some who suffer financial harm as a consequence of negligent conduct, but not to others, is only just if it is capable of being explained on a rational basis. As the judgments of other members of this Court show, to an extent the Federal Court's conclusion was based upon a view of the facts, and in particular of the critical aspect of the negligent conduct, which cast the net of potential liability too wide.

"Furthermore, the combination of circumstances involving the use and ownership or enjoyment of land, the physical propinquity of such land to the Sparnons' land, the known vulnerability of people in the position of the appellants, and the control exercised by [Apand] over the relevant activity on the Sparnons' land, is unlikely to apply to an extent sufficient to warrant an apprehension of indeterminate liability.

"I agree that the appeal should be allowed, and orders made as proposed by Gaudron J."

The second most senior judge, Justice Gaudron wrote:

"Where a person is in a position to control the exercise or enjoyment by another of a legal right, that position of control and, by corollary, the other's dependence on the person with control are, in my view, special factors or, which is the same thing, give rise to a special relationship of "proximity" or "neighbourhood" such that the law will impose liability upon the person with control if his or her negligent act or omission results in the loss or impairment of that right and is, thereby, productive of economic loss.

"Although it would not be strictly accurate in this case to describe the respondent as being in a position of control, its relationship with the appellants is closely analogous to that which obtains where one person is in a position to control the exercise or enjoyment of a legal right by another person. In this case, [Apan] knew that there was a class of persons who availed themselves of the right to sell potatoes in the Western Australian market and/or who used their property and equipment to produce potatoes for that market.

"It knew that those who did so would lose those rights or would have them impaired for a period of five years if bacterial wilt were discovered within 20[km] of the place or places in which their potatoes were grown, cleaned, washed, graded or packed. And the respondent knew or ought to have known that, if bacterial wilt were to be transmitted to potatoes grown within that 20 [km] zone, those persons who grew potatoes for the Western Australian market or who used their land and equipment for that purpose were powerless to protect their own interests.

"In my view, where a person knows or ought to know that his or her acts or omissions may cause the loss or impairment of legal rights possessed, enjoyed or exercised by another, whether as an individual or as a member of a class, and that that latter person is in no position to protect his or her own interests, there is a relationship such that the law should impose a duty of care on the former to take reasonable steps to avoid a foreseeable risk of economic loss resulting from the loss or impairment of those rights."

Lessons to emerge from *Perre v Apand*

As we have seen, the High Court found for some of the plaintiffs (Perre and others) in this case.

Key points to emerge from the case were:

- despite the High Court's tough stance on plaintiff claims, the plaintiffs succeeded in this case
- the economic strength of the defendant company, Apand Pty Ltd put them on notice to take extra care in supplying disease-free potato seed
- as the supplier of the diseased seed, Apand Pty Ltd owed a duty of care to the people they supplied and to neighbouring farms
- the litigation was complex and expensive
- even though the case involved 'pure economic loss' suffered by the plaintiff some kilometres away from the site of the diseased seed, the court held that duty of care was owed
- Apand Pty Ltd was legally responsible for the out of pocket or economic losses suffered by the Perre family and others ie the loss of their export market to WA.

Looking at our GM case study and eventual wider use of GM crops, we can extrapolate the *Perre v Apand* decision and suggest that:

- the suppliers of GM seeds and other products will owe a duty of care to the people they supply and to neighbouring properties
- the content of the duty will depend on the facts and circumstances of each case
- the potential number of people and properties affected may be large
- the distances affected may cover a wide area
- the time during which the dollar losses accrue to potential plaintiffs may be difficult to quantify
- the ultimate liability of the defendant may be very difficult to predict
- even an 'innocent' planter of GM seed may be roped in as a party to litigation which is complex, expensive and time-consuming.

Limiting your legal risk

The legal risks associated with GM crops are still to be identified.

Only when cases come before courts will we be able to fully ascertain the issues.

In the meantime, handling potential legal risks should be seen as part of a sound management program that is clear sighted, strategically focused and realistic.

Within this larger framework, some of the ways of reducing your potential legal risk are as follows:

- do thorough research or 'due diligence' on the GM product you are purchasing
- ensure that your contractual arrangements are clear and in writing where practical
- discuss matters with your neighbours and keep them informed
- liaise closely with suppliers
- seek the advice or assistance of experts in a timely fashion
- seek clarification from the GM regulator and other government agencies. Where possible, make sure such advice is in writing.

Endnotes

- ¹ Rieger MA, Lamond, M, Preston, C, Powles, SB, Roush RT, 2002, "Pollen-mediated movement of herbicide resistance between commercial canola fields", *Science* 296, 2386-88.
- ² See also Clarke, A, 2003, *Negligence: A Practical Learning Approach*, Butterworths, Sydney.
- ³ *Tame v New South Wales; Annetts v Australian Stations Pty Limited*, 2002, HCA 35, 5 September 2002, Para 101.
- ⁴ Generally Luntz, H and Hambly, D, 2002, *Torts: cases and Commentary*, 5th ed., Butterworths, Sydney.
- ⁵ *Perre v Apand Pty Ltd*, 1999, 198 CLR, para 106.

What Australian courts might say about 'damage' from cross-pollination by a GMO

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Debate continues to rage about the safety of genetically modified organisms.¹ On one side genetic scientists in general argue that such organisms are no less safe than their primitive forbears that were created by plant cloning carried out by those involved in farming for many hundreds of years and that a conservative attitude to the introduction of the technology could reduce the otherwise significant gains in global welfare that would be obtained by its introduction.²

On the other side, conservationists fear that cross-pollination of non-GM crops and other plants will create the opportunity for significant and irreversible environmental and biodiversity damage.³ Underlying these debates is the fear by many in national agricultural industries that the failure to engage with the new technology will result in a competitive disadvantage in relation to those countries that actively engage in using gene technology to improve productivity and efficiency.⁴

Conversely, opponents of the technology stress that increasing consumer suspicion towards GMOs may lead to the benefits of using GM technology being overstated, and that fresh markets may be found in increasing organic or non-GM produce. Although the debate has been at the forefront of public opinion in Europe for some time,⁵ the recent decisions of the Gene Technology-Regulator to approve in principle the release of two GM food crops in Australia has pushed the issue into the limelight in Australia.⁶

Before the Court—issues of science, agriculture and law

Whilst there are no reported successful cases against farmers in respect of the planting of GM crops, in the United States a class-action is proceeding against the creator of a GM corn (Starlink GM) and a distributor. Starlink was approved for feed and industrial uses, but traces of one its proteins were found in human food products. Bayer AG, the owner of Starlink, has reportedly set aside US\$98.6m in respect of its potential liabilities.⁷

Major litigation in Canada is also pending, where a class action on behalf of organic grain farmers is being brought against Monsanto in respect of alleged widespread contamination of organic canola by GM canola in Saskatchewan.⁸ The Australian Biological Farmers' Association has threatened legal action against farmers planting approved GM crops

ABC News Online, 29 June 2002.

In light of the increasing importance of the subject, the purpose of this article is to consider what legal remedies may be available to a farmer whose non-GM crop has been contaminated by cross-pollination from a GM crop. One issue that is important in this context is how the effect of cross-pollination is characterised, as this may determine what kind of action the innocent farmer may have against the planter of the GM crop.

Types of GM crop plantings

GM crops may be planted in Australia in one of two circumstances:

- under a specific authority from government allowing such crops to be planted for the purpose of a scientific trial. As far as GM food crops are concerned, these are the only plantings that currently exist in Australia,⁹ as most States have a moratorium on the commercial planting of GM food crops¹⁰
- by farmers as a means of commercially using their land as part of a farming business. This will also have required some kind of regulatory consent. There are a number of such plantings in Australia, the most important being a form of GM cotton which has been grown since 2000.

Federal or State licencing – no protection in private law

Since the introduction of the *Gene Technology Act 2000 (Cth)*, plantings for scientific trials or farming will require an authority from the Office of the Gene Technology Regulator. To the extent that the Federal legislation cannot cover all plantings, it has been agreed that the States will pass legislation mirroring Commonwealth legislation so that the system can be regulated.

At the date of writing not all States had done so,¹¹ but in the long run it seems certain that the decision to grant a licence to test or grow GM crops will be made in the same way – through the Gene Technology Regulator.

For present purposes, however, it is important to note that the grant of a licence does not provide the grantee with a statutory defence to any private law action

that may be brought against the grantee. However, the decisions made, particularly for the risk assessment, in granting the licence may be useful evidence to the grantee of the licence in defending any private law claim brought against them.

What "loss" is suffered by cross-pollination of a non GM crop ?

Assume that a non-GM crop is cross-pollinated by a GM crop. What loss may be suffered by the owner of the non-GM crop? Whilst this may appear a fairly obvious question, the answer is more difficult. One possibility is that the loss depends on what the owner of the non-GM crop would have done with it. For example, if the owner of the non-GM crop had planned to use it as a source of fuel by burning it, it would be difficult to say that the owner had suffered a loss by the cross-pollination.¹²

Conversely, if the owner was planning to market the crop as non-GM, he clearly cannot do this after the cross-pollination. However, if the farmer could sell his now-contaminated crop for the same price as the non-GM crop it is again difficult to see how the owner has suffered any loss.

If the farmer cannot sell at the same price, it is easy enough to say that the loss to the farmer is the difference between the sale price of the non-GM crop that he would have achieved but for the cross pollination, and the sale price of the GM crop that he actually achieves. This, however, is not the end of the story. In either scenario there may be another loss to the farmer. If the farmer produced organic produce, the presence of the GM contamination will result in the organic status of the farm being lost. Whether this loss of status results in a loss to the farmer will depend on whether in the future the farmer can sell the GM contaminated produce at the same price as the non-GM produce previously produced.

In some of the scenarios identified above it is clear that the owner of the non-GM crop which has been contaminated may suffer a loss as a result of the contamination. However, as discussed below, how that loss is characterised may determine what, if any, private law claims may be brought against the planter of the GM crop whose pollen is responsible for the contamination.

Possible Private Law Actions

The two most likely causes of action for a person affected (plaintiff) bringing a successful private law action against the planter of GM crops responsible for cross-pollination (defendant) are the torts of 'negligence' and 'nuisance'.

- 'Negligence' provides compensation in respect of certain types of losses where that loss was caused through carelessness of the defendant.
- 'Private nuisance' protects the reasonable use and enjoyment of one's land from unreasonable interference from one's neighbour.

To succeed in an action for negligence it is necessary to establish not only that the defendant was careless but also that the defendant owed the plaintiff a legal duty to take care.¹³ It is here that the characterisation of the loss suffered by a plaintiff is important, as whether a duty of care is owed is often dictated by the type of damage suffered by the plaintiff.

The basic requirement for any duty of care to be owed is that the loss suffered by the plaintiff must be a foreseeable consequence of the defendant engaging in his activity. For some types of damage – notably physical injury – if this inquiry is answered affirmatively a duty of care will be held to exist. For present purposes it can be assumed that the same rule applies where the damage may be classified as damage to property.

This relatively undemanding test of foreseeability for the establishment of a duty of care may be contrasted with the position where the loss suffered is characterised as purely economic.

The general rule is that there is no duty to take care in respect of pure economic loss. In particular, the mere fact that pure economic loss is a foreseeable consequence of the defendant's conduct does not establish a duty of care.¹⁴

Accordingly, before it can be decided whether the planter of GM crops owes a duty of care to the owner of cross-pollinated crops it must first be decided what kind of loss the cross-pollination inflicts.

Assuming that the cross-pollinated crops are the property of the owner,¹⁵ if the damage caused by cross-pollination can be characterised as property damage, it will be much easier to establish a duty of care than if the loss is considered as purely economic. But can it be so classified? There is remarkably little case law to help answer this query, so it is necessary to examine the concept of damage to property at its roots.

What does it mean to say property is damaged?

The conventional notion of damage implies that the thing damaged is placed in a deleterious state compared with its state prior to the conduct which it is alleged caused the damage.¹⁶ Again, this is question-begging, as it requires a definition of deleterious state. It would be possible to determine this question subjectively (by asking the plaintiff whether he thought the property was worse off after the conduct in question), but the approach of

the law seems to be to look at the (objective) monetary value of the property before, and after, the conduct in question.

If the property is worth less after the conduct it may be said to be damaged. To illustrate the point, a motor vehicle that hits a tree is damaged vis-à-vis its state or repair prior to the accident. But when the car is repaired by a panel beater it is not damaged. Its physical state has been changed – it is no longer dented – but it is not damaged as the conduct in question has increased, not decreased, the value of the car.

So, it seems that damage to property must entail both a change in the physical structure of the property and a corresponding loss of value as a consequence of that change.

Proving 'damage' to property – cases in point

An example from outside the law of negligence assists. In *Blue Circle Industries v Ministry of Defence*¹⁷ (a UK case) the defendant's ponds flooded onto the claimant's adjoining land after some heavy rain with the result that radioactive plutonium intermingled with the soil on the claimant's land. Under the relevant legislation, compensation was payable for "damage to property". One issue that arose was whether it could be said that the land had been damaged as a result of the intermingling of the radioactive plutonium with the soil. It was held both in the first court and by the Court of Appeal that the property had been damaged by the intermingling.

"The plutonium intermingled with the soil in the marsh to such an extent that it could not be separated from the soil by any practical process ... The land itself was physically damaged by the radio-active properties of the plutonium which had been admixed with it. The consequence was economic, in the sense that the property was worth less and required the owner to expend money to remove the topsoil, but the damage was physical."

*Aldous LJ*¹⁸

A case which fell on the other side of the line is *Merlin v British Nuclear Fuels Plc.*¹⁹ Here the plaintiff claimed damages, also under the UK *Nuclear Installations Act* 1965, for loss in value of his home after it was discovered that radionuclides from the defendant's plant were present in the house. It was held that the notion of "damage to property" required there to be physical damage to tangible property. As the radionuclides did not damage the fabric of the property there was, accordingly, no damage to property for the purposes of the Act.

Whilst the line is in principle clear, it is evident that at the boundaries the distinction will be difficult to draw.

In the well-known case of *Hunter v Canary Wharf Ltd*,²⁰ one of the claims of the plaintiffs was that the dust associated with the construction of an arterial road link to the Canary Wharf development in east London had spread to the plaintiffs' properties and had damaged those properties. On an appeal on a point of law the Court of Appeal accepted that it was arguable that the deposit of dust on property might amount to physical damage to that property. Whether such deposits would amount to damage to property would depend on the circumstances of the individual case, but Pill LJ thought that an excessive deposit of dust that was trodden into the carpet in such a way as to lessen the value of the carpet would be property damage. However, it was also said that if the effect of the excessive dust was to require the carpet to be professionally cleaned this cost would also be recoverable as damage to property. It is not entirely clear whether his Lordship meant this example to be linked to his first but this is the better view.

On principle it is difficult to see how making property dirty can be said to have damaged it in the absence of some physical change to the property. It would be some stretch of the imagination to say that a dirty motor vehicle was a damaged motor vehicle, although the problem becomes more difficult where the property in question absorbs the dust (as in the carpet case). Again, however, the question must be whether the property has been altered. If the carpet can be cleaned so that it is reinstated to its condition prior to the exposure to the dust, the cost of cleaning is not damage to property but pure economic loss.

Proof of these issues is beyond the scope of this article, but it can be noted that complex questions of causation may also arise (for example, was the post-cleaning state of the carpet caused by the exposure to the dust or would it have arisen from the need to clean the carpet in the ordinary course of events?).

The Importance of Suffering "Damage to Property"

Given that the distinction between damage to property and pure economic loss may be difficult to ascertain, what is the point of making the distinction in the first place? The answer lies in the more beneficial liability rules that attach to damage to property as opposed to pure economic loss in the torts of negligence and nuisance.

As noted above, if it can be said that the defendant's conduct has caused the plaintiff damage to property, it is much easier to establish the existence of a duty of care. If it was reasonably foreseeable that, as a result of planting GM crops, cross-pollination might

occur, the defendant planter will owe a duty to take reasonable care to ensure that cross-pollination does not take place.

The existence of a duty of care does not mean that the defendant is liable in negligence (the plaintiff must also prove through evidence that there was carelessness and that the careless conduct caused the damages being claimed) but if there is no duty of care owed there can be no liability in negligence. The identification of the type of damage for which the plaintiff is claiming as property damage makes this element of the cause of action in negligence much easier to establish.

It is also easier to establish liability in private nuisance if the damage suffered is considered as damage to property. Nuisance is a tort that protects interests in land. The conventional view of the law of nuisance is that the proprietary interests that are protected are divided between material physical damage to property and interference with amenity.²¹

There is some controversy about what both these terms mean,²² but for present purposes it may be assumed that material damage to property corresponds to the definition of property damage described above. If the plaintiff can argue that the defendant's use of land has caused this kind of damage – material physical damage to property – the plaintiff is much more likely to succeed in an action of private nuisance. The law assumes that it is unlawful to use one's land so as to cause material physical damage to one's neighbour. This does not mean that the plaintiff will always win if this is the case but, as a general rule, the infliction of property damage is likely to result in a successful action by the owner of the affected land.²³

How does this relate to the farmer who plants GM crops which spread and contaminate an adjoining neighbour's non-GM crops? This depends on the nature of the affected farmer's complaint.

Assuming that the cross-pollination has resulted in the creation of a hybrid plant, it has been argued that an alteration in the genetic make up in one's crops would constitute damage to property.²⁴ Certainly it would have satisfied the first of the two elements of damage to property identified above. However, it will also be necessary for the plaintiff to show that this change resulted in loss to him or her. This may be the difference in the sale price between GM and non-GM crops. Assuming that this can be proved, further consequential *economic* losses may be recoverable. Costs may be incurred in 'cleaning-up' the property so as to eradicate any trace of GMOs; these costs should be recoverable. It may also be that the value of the land is reduced because of the contamination by GM crops.²⁵ There seems no reason in principle why this loss should not be recovered as economic loss consequential

to the property damage; indeed in the *Blue Circle Industries* case, discussed above, the main component of the claim was for the loss of a prospective purchaser of the property who withdrew when the contamination became apparent.

It is for this kind of loss that the presence of threshold “damage to property” becomes important. It may be that the consequential economic loss is far greater than the value of the damage to property, but provided the loss is not too remote it is recoverable.²⁶ It does not become too remote merely by being worth more than the original value of the damage to property. The same applies to damages for loss of future profits. As long as the profits are not considered too speculative, any profits lost by the non-GM farmer losing his GM-free status should be recoverable as consequential economic loss. Even if such losses are considered too uncertain, it should be remembered that the plaintiff can recover the loss in the capital value of the property resulting from the cross-pollination. Although it is not done in any scientific way, reduction in value of the property may be seen as a form of capitalised loss-of-future profits figure so that in an indirect way the plaintiff receives some compensation for these losses if they cannot be specifically claimed.

There are a number of possible defences to an action in private nuisance for a landowner sued for damage to a neighbour’s non-GM crops, including:

- statutory authority – the defendant acted under a legislative or administrative authority. As discussed below, it is unlikely that this will be an effective defence in the absence of express words authorising the infliction of damage
- hypersensitivity. A defendant is not liable in nuisance if the interference to the plaintiff’s land is due to the sensitive use to which it is put by the plaintiff.²⁷

Organic sensitivities?

There have been some suggestions that the use of land to farm organically may be a hypersensitive use.²⁸ However, very few otherwise successful nuisance cases have been defeated on the ground that the plaintiff’s use of land was hypersensitive.²⁹

In any event, complaints may also be made by a non-organic farmer whose non-GM crops are affected. Such a plaintiff cannot be said to be using his land in a hypersensitive way.

Given that the interference can occur equally to both an organic and non-organic farmer, it is submitted that it would be an odd result to say that the damage was caused by the hypersensitivity of the plaintiff’s use in one case and the conduct of the defendant in the other.³⁰

Cross-pollination and Pure Economic Loss

Are there any remedies available in respect of cross-pollination if the loss to the non-GM producer is not classified as damage to property? Although they are more speculative than discussed above, the torts of private nuisance and negligence may also be of some assistance.

Liability in private nuisance may arise not only for material damage to property but also for 'loss of amenity'. This difficult term encompasses losses associated with the inability of the plaintiff to derive the enjoyment from the use of his land that he is entitled, by virtue of his occupation of that land, to expect. The model cases of loss of amenity involve interference with the enjoyment of land through excessive noise, smell, vibration and the like emanating from the defendant's land.

A parallel can be drawn with the GM farmer planting crops the seeds of which cross-pollinate crops on his neighbour's property. However, at first glance it appears that the traditional cases involve interference with amenity that affect personal comfort and pleasure. An interference that affected only the manner in which the land may be used could be seen as qualitatively different from those cases in which an action has been allowed. However, the English House of Lords in the case of *Hunter v Canary Wharf Ltd*³¹ stressed that the gist of any action in nuisance – be it for damage to property or loss of amenity – is an interference with an interest in *land*. Conduct of a landowner that limited the manner in which an adjoining neighbour could exploit his land should, in principle, constitute an interference with the amenity of the land.

However, there is no direct case authority stating that an interference with a landowner's ability to farm land in a particular way amounts to an interference with the amenity of the land. Further, there are limits on what interests in land can be protected through the law of private nuisance. No-one has a right to a view,³² and activities that reduce the profitability of the use of land without interfering with the land itself are not actionable.³³ These exceptions are not really analogous to the GM crop scenario discussed above, and in the absence of judicial decision it must surely be arguable that cross-pollination does amount to interference with amenity.

Assuming that the inability of the owner to grow GM-free crops is an interference with amenity, the remaining question is how such a loss might 'sound' in damages. In *Hunter v Canary Wharf Ltd*,³⁴ the House of Lords stressed that, in private nuisance, damages are only awarded for interference with an interest in land. Any other damage claimed for must be consequential to the damage to the interest in land to be recoverable. If this represents the law in Australia, there seems no reason why the economic losses associated with the inability to

farm land GM-free could not be recovered as consequential to the interference with the amenity of the land caused by cross-pollination.

However, unlike material damage to property, a finding of 'unreasonable user' against a neighbour due to interference with amenity involves a greater balancing exercise between the relative uses of the land of the plaintiff and the defendant than in the case of damage to property. In particular, the court would look to the locality in which the alleged nuisance is said to have taken place.³⁵ Put simply, if the use to which the defendant puts his land is common in the locality, any interference with the amenity of his neighbour's land is much less likely to be characterised as a nuisance.

It is very unlikely that a farmer who suddenly decided to grow non-GM crops, in an area in which the growing of GM crops was a common occurrence, could successfully argue that any interference with his ability to do so caused by his neighbour's use of land to grow GM crops amounted to a nuisance. Some jurisdictions in the United States have gone so far as to legislate for this result,³⁶ but it seems that at common law such conduct would not amount to a nuisance (assuming the interference is not characterised as damage to property).

A related issue relates to the role that regulatory consents play in determining what conduct gives rise to an action of nuisance. The classic model of the law of nuisance is based on a 19th century view of land use that, subject to the constraints of private law, a landowner can use his land for whatever purposes he wishes.

For most of the 20th century, and certainly the 21st century, this view of land use was, and is, outdated. For a start, the introduction of planning controls over the use of land has limited the uses to which land can be put.

Regulatory consents—can a 'nuisance' be approved?

The role of planning laws in regulating land use is well beyond the scope of this paper, but a planning issue that arises in the context of private nuisance is whether some kind of regulatory consent to use land for a specific purpose is a defence to an action of private nuisance arising out of that use.

Broadly, consents to engage in an activity may be given by express statutory authorisation or through administrative decisions made under planning legislation. On the former, permissive consents to use land in a particular way will only be able to be used as a defence to a nuisance action if the activity was carried out with no negligence and there was no possibility of carrying out the activity without creating a nuisance.³⁷

Thus where the authority is permissive as to where the activity may be carried out, it seems that the defendant would need to show that all reasonably available alternative sites for the activity would also have resulted in a nuisance if the activity was conducted on those sites.

In the context of GM crops, any statutory authority is likely to be permissive, so that the authority would only operate as a defence if it was found that there was no alternative site on which the growing of GM crops would not have resulted in a nuisance. This test will be very hard to satisfy. However, it should be recognised that the process of statutory authorisation under the Gene Technology Act 2000 (Commonwealth) involves an extensive risk assessment and consultation process. It is possible that a court would interpret this regulatory process as “covering the field” in relation to the possible impact of the deliberate release of GM crops. Once the authorisation has been granted there is simply no scope for private law actions arising out of the authorised conduct.

It is suggested that a court is unlikely to take this view. As noted above, the general rule for statutory authority is that it does not provide an immunity, so there would need to be something qualitatively different about statutory authorisation for GM crops to justify this result. Certainly the process of granting authorisation is complex but this is the case for other regulated activities. It would have been easy enough to exclude liability in tort if this had been intended, and in the absence of such an exclusion, the better view is that the planter of GM crops should remain potentially liable in tort.³⁸

If growing of commercial GM crops becomes a reality, it may be that the relevant authority to use the land for growing GM crops will come to be planning approval by local authorities. Although there has been no Australian case directly on point, English cases suggest that planning permission cannot authorise a nuisance, although, as far as interference with amenity is concerned, it may change the character of the neighbourhood in which the conduct of the defendant is to be judged.³⁹

Thus a GM farmer has no defence to a claim in private nuisance simply because he has planning permission for the activity. If, however, damage to the land is characterised as amenity damage, the planning consent may be relevant if its effect is to change the character of the neighbourhood so that growing GM crops in the area is not considered an unreasonable use of land. It is very unlikely that a single planning consent would have

this effect, but it is possible that a series of such consents, given as part of a wider plan for the use of land, might change the character of the neighbourhood.⁴⁰

Negligence and the Recovery of Pure Economic Loss

To any tort lawyer it is axiomatic that the recovery of damages for the negligent infliction of pure economic loss is a problem. Policy reasons for this are beyond the scope of this paper, but it may be noted that a major concern of the courts is that imposing liability might lead to liability for an indeterminate class for an indeterminate amount and for an indeterminate time.⁴¹ Thus a GM farmer who carelessly allows his GM crops to cross-pollinate his neighbours' lands would have no idea how many neighbours might be affected, what the losses of those neighbours might be, and when those losses might be incurred.

However, there are circumstances where a duty of care will be owed to one's legal neighbours to take care to ensure that those neighbours do not suffer pure economic loss. The leading Australian case is relevant not just because of its statements of principle but also because the setting is agricultural. In *Perre v Apand Pty Ltd*,⁴² the defendant (Apand) was a potato crisp manufacturer who supplied diseased seed to farmers. This seed was responsible for an outbreak of potato wilt, one consequence of which was that adjoining farmers – to whom the outbreak had not spread – and distributors, packers and the like suffered loss because they were not able to sell potatoes into the Western Australian market.

The High Court held that Apand owed a duty of care to most of the plaintiffs in respect of economic losses they suffered. The case is notorious for the diversity of judicial approach to the circumstances in which a duty of care to avoid the infliction of economic loss will be owed,⁴³ but it is possible to discern a number of factors that will be relevant in determining when such a duty will be held to exist:

- knowledge of the defendant that his conduct may cause economic loss to the plaintiff. In *Perre* the defendant had knowledge that an outbreak of bacterial wilt would cause loss to adjoining potato farmers by preventing sales to Western Australia
- control and vulnerability. Apand controlled the circumstances in which the economic loss would or would not occur. It determined which farmers would plant the seeds and what would be planted. Conversely, the plaintiffs were in no position to take steps to stop the loss from occurring. In that sense they were vulnerable and at the mercy of the defendants.

These factors were sufficient for a duty of care in favour of the plaintiffs (Perre and neighbours) to arise, although some members of the High Court limited the class of plaintiffs to whom the duty was owed on the indeterminacy grounds set out above.

How would this apply to the cross-pollination of non-GM crops? There seems little doubt that, in terms of vulnerability, the neighbouring farmer is in no better position than the plaintiffs in *Perre*. The farmer may not be in a position to take any practical steps to prevent cross-pollination. A more difficult problem arises in respect of knowledge by the GM farmer. There is currently considerable debate about the distance between GM and non-GM crops that it is necessary to maintain to prevent cross-pollination from occurring. Test sites used for trialling GM crops maintain what are considered to be “safe” distances between GM and non-GM crops. However, risk assessments suggest that the risk of cross-pollination can never be avoided completely, and there is evidence to suggest that cross-pollination can occur over a much larger distance than was previously envisaged. The implications of this are discussed in more detail below, but it seems likely that there will be circumstances where it would be reasonably foreseeable to a GM farmer that cross-pollination may occur.

But reasonable foreseeability is some distance from the “knowledge” of the defendant in *Perre*. It may be that, currently, the degree of foresight of the risk of cross-pollination that a GM farmer would have may be insufficient to ground a duty of care to avoid pure economic loss. Even if it was, the risk of cross-pollination may be so small that it was reasonable for the farmer to take no steps to avoid it (ie that the GM farmer was not careless in taking no steps to avoid that risk). Assuming, however, that commercial growing of GM crops is sanctioned, it seems more likely (than at present) that GM crops will be grown in circumstances where it is reasonably foreseeable that cross-pollination may occur, and then it seems at least arguable that a duty of care to avoid causing pure economic loss will be owed to neighbouring landowners.⁴⁴

Even if a duty of care is owed, however, a plaintiff in negligence must establish that the duty has been breached. As mentioned above, a defendant may be held to have acted carefully even if he does nothing if the risk created by his conduct has a very low probability of occurring.⁴⁵ The law of negligence does not require that all risks associated with one’s conduct be eliminated.

What is required is that reasonable steps are taken. In the cross-pollination scenario it is likely that, within the limits of the property on which the GM crop is planted, the farmer will have taken steps to limit the possibility of cross-pollination. This could include limiting the crop size or planting non-GM crop borders on the boundary of the property. If such steps are taken, it is very difficult to see how the planting of GM crops could be said to be

careless. It would require a court to find the carelessness in the planting of the crop itself, and this would mean the only way to avoid liability would be not to plant the crops in the first place.

It is suggested that, despite the contrary views of some experts, the risks associated with GM crops as currently understood are not such so as to render it careless to plant such GM crops. This will apply even more strongly once commercial GM food crops are licensed for use, as there will have been a significant risk assessment undertaken before authorisation is granted.

However, if a farmer grows GM crops under a licence which sets conditions on the planting of the crops, a failure to comply with those conditions will be strong evidence of carelessness. If, as is argued above, a duty of care may exist in relation to a neighbouring farmer's economic loss due to cross-pollination, it will be imperative for a farmer growing GM crops under licence to comply with the conditions of the licence to avoid potential liability in negligence.⁴⁶

Remedies in Nuisance and Negligence

The remedy available to a successful plaintiff in negligence is an 'award of damages'. However, a plaintiff in private nuisance has a choice of two remedies – damages in respect of loss caused by the defendant's use of land prior to the trial, and an injunction to prevent the conduct of the defendant responsible for the nuisance continuing in the future. The more interesting of the remedies available in this context is the injunction.⁴⁷

An injunction—Court orders a stop to cross-pollination

An injunction will only be granted if there is a state of affairs on the defendant's land which is still occurring at the date of the trial and which will continue to interfere with the plaintiff's use and enjoyment of his land post-trial. Accordingly, an injunction would be the preferred remedy of a non-GM neighbouring farmer where the presence of the GM crops continues, at the date of trial, to interfere with the ability of the farmer to produce non-GM produce. Although it has been possible for damages to be granted in lieu of an injunction for well over 100 years,⁴⁸ the circumstances are relatively rare,⁴⁹ and given the nature of the interference caused by cross-pollination it is very unlikely that an injunction would be refused and damages granted in lieu.

What sort of injunction would the plaintiff seek?

The ordinary injunction is prohibitory, it tells the defendant to stop engaging in the proscribed conduct. In the scenario above, however, it is likely that this kind of

injunction will be of little assistance. The objectionable conduct – the planting of the GM crops – has already taken place. At the time of the action the defendant is not “doing” anything that the injunction could prohibit. In fact, what the plaintiff is really seeking is a court order that requires the defendant to reduce or eliminate the interference to his land. In the cross-pollination scenario, what this would require will depend on the evidence. It may be that, once the cross-pollination has taken place, there is nothing that can be done by the defendant to stop the effects of the original cross-pollination. In this case the plaintiff will seek damages for the cost of reinstating his property to its former non-GM status, at least at far as works can achieve this.

A mandatory injunction?

It may also be that the continuing presence of GM crops, perhaps even the remnants of such crops in the soil of the defendant’s land, creates an increased risk of cross-pollination in the future. In this case the plaintiff might seek a mandatory injunction requiring the defendant to take action to prevent the continuation of the nuisance. Such injunctions are rarely granted but may be appropriate in this kind of case.

Mandatory injunctions will only be granted where the injunction can describe with sufficient certainty the conduct that must be carried out to comply with the injunction.⁵⁰ Thus an injunction that required the defendant to “reinstating the defendant’s land to a GM free state” would probably be too broad, but one that required specified actions – such as the removal of the GM crop – should be acceptable. A mandatory injunction may properly require the defendant to enter the plaintiff’s land, consent to such entry being found in the plaintiff’s request for the injunction in the first place.⁵¹

In the cross-pollination scenario this means that the defendant could be compelled to carry out decontamination works on the plaintiff’s soil.⁵²

A related question arises in respect of what might be called “historic” contamination. Assume that GM crops were planted at a time when it was thought it was not possible that cross-pollination could take place, but, contrary to expectations, cross-pollination occurred. The implications of this for actions where damages are sought is considered below, but an issue arising in respect of injunctions is whether a defendant should be subject to an injunction for the consequences of conduct that was not wrongful at the time it was carried out.

By the date of the trial the defendant cannot argue that it is unforeseeable that cross-pollination will occur because it has occurred. As an injunction looks to the future, the only question that is relevant is whether the state of the defendant's land amounts to a nuisance. If it does, is this enough to warrant the grant of an injunction requiring the defendant to take steps to prevent the nuisance from continuing?

There appears to be no Australian case authority on this issue, but the English House of Lords has held, in a different context, that a defendant should not be required to pay damages for the consequences of conduct which was not wrongful at the time it was carried out.⁵³

It is submitted that the same view should apply in respect of attempts by neighbouring owners to require remedial works to be carried out where the original planting and cross-pollination could not be described as wrongful. It is suggested that such issues are best left to the legislature.

Negligence, Nuisance, and Reasonable Foresight

Much of the above discussion is based on the premise that cross-pollination of non-GM crops by their GM neighbours is a reasonably foreseeable consequence of the planting of GM crops.

However, it should be acknowledged that the extent of, and manner in which, cross-pollination can occur is a matter of dispute.⁵⁴ One difficulty is in ascertaining what is a 'safe' distance between GM and non-GM crops so as to prevent cross-pollination. This is an important aspect of the risk assessment that is undertaken when government regulatory bodies decide on licence terms for the growing or trialling of GM crops. An example of this process can be seen in *R v Secretary of State for the Environment, Transport and the Regions ex parte Watson*,⁵⁵ a public law challenge in the UK to the granting of a licence to trial GM crops. In that case the distance between the GM and non-GM crops was to be two kilometres. The advice to the Department was that the risk of cross-pollination from the GM maize was, in the circumstances, about 1 GM hybrid kernel in every 40,000 at a distance of 200 metres. The Court of Appeal was able to accept that the risk of cross-pollination at a distance of two kilometres was minimal and that there were accordingly no grounds on which to grant leave to judicially review the decision to grant the licence.

What if, despite the risk assessment at the time, cross-pollination occurred at a more frequent rate than was thought? For the neighbouring non-GM farmer to succeed in

negligence, it would have to be shown that it was a reasonably foreseeable consequence of the planting that the crops of an adjoining neighbour would become contaminated.

If the defendant GM farmer could point to a risk assessment carried out at the time of the planting that suggested the risk of cross-pollination was minimal, it could be argued strongly that the damage was unforeseeable and that no duty of care was owed.⁵⁶ Even if a duty was held to exist, the risk may be classified as being so low that it was reasonable to take no steps to prevent its occurrence (ie it was not careless to run this small risk).

The same difficulty would face a potential plaintiff in private nuisance who is seeking damages. Although the position is not altogether clear, it seems that where the plaintiff seeks damages it must be shown that the activity of the defendant that forms the nuisance could foreseeably have caused the loss of which the plaintiff complains.⁵⁷ Again, if the defendant can produce evidence that the risk of the loss occurring as a result of the defendant's use of land was minimal, it is likely the loss would be deemed to be unforeseeable.

Of course, much will depend on the evidence that can be presented to the court. If the plaintiff can point to competing, *contemporaneous* scientific evidence that the risk of cross-pollination was greater than envisaged in the risk assessment this could undermine an argument that the risk was unforeseeable. This may be particularly important in an action for private nuisance, as all that must be shown is that the damage was foreseeable.⁵⁸

In negligence the presence of competing scientific evidence is likely to be less important. Even if, in light of the competing scientific evidence, the risk may be foreseeable, the GM farmer ought to be entitled to rely on any risk assessment carried out in respect of the award of the licence. In other words, the GM farmer is not careless if he relies on the risk assessment carried out in connection with the granting of any permission to grow GM crops.

It would be unreasonable to expect the farmer to conduct his own survey of the scientific material and make an independent assessment of the risk in his case. However, as the growing of GM crops becomes more common, it may be that individual risk assessments are not carried out.

In such cases, the question will be whether, in light of the general scientific information on the risk of cross-pollination, a farmer in the position of the defendant could reasonably foresee that planting GM crops could result in cross-pollination of his neighbour's crops.

The 'Innocent' GM Farmer

The above analysis has proceeded on the likely scenario of a farmer deliberately planting GM crops. However, it is worth considering briefly the position of the 'innocent' GM farmer.

'Innocent' is used here to describe a farmer who did not plant the GM crop but whose land is now the source of GM contamination to neighbouring properties. Within this category two different situations may be envisaged:

- a farmer who, although not planting the GM crop, occupies the land with full knowledge of the existence of the GM crop
- a farmer who enters onto land not knowing of the existence of a GM crop.

The general rule is that an occupier of land is liable only if he adopts or continues a nuisance created by another.⁵⁹ It seems that 'adopting' or 'continuing a nuisance' are merely ways of saying that an occupier is liable for failing to take steps to abate nuisances about which he or she knows or ought to know. In other words, the liability appears based in negligence rather than nuisance.⁶⁰

However, unlike an ordinary action in negligence, one factor that is taken into account in determining what was a reasonable response to the nuisance is the means of the occupier.⁶¹

In theory this suggests that all that might be required of an occupier with limited means would be to notify a wealthier neighbour of the existence of the GM crop and allow that neighbour access to the land to remove the crop.⁶² Accordingly, in the first scenario above, it is submitted that the occupier would be liable for the cross-pollination on the same grounds as he would be in negligence (subject to his means being taken into account in assessing whether he had exercised reasonable care). The occupier would know of the nuisance – the existence of the GM crops – and the question would be whether he had taken reasonable steps to prevent cross-pollination. This is so irrespective of whether the damage is classified as damage to property or amenity damage.⁶³ However, if the damage is considered as pure economic loss the *only* liability can be in negligence and will be difficult to establish given the more onerous requirements for establishing a duty of care.

The same principles will govern the liability of a farmer who takes over land not knowing of the existence of a GM crop. In this case, however, the question will be whether the farmer knew or ought to have known of the existence of the GM crop on his land. Actual

knowledge is a question of fact to be decided from evidence, but what the farmer ought to have known will depend on the view of the court, guided by expert evidence, of what a 'reasonable farmer' in the position of the defendant ought to have known.

Clearly, if the GM crop looks different from its non-GM alternative then it seems likely the farmer ought to have known about the existence of the GM crop on his land. If the crops cannot be distinguished by sight much will depend on the evidence as to what steps a reasonable farmer would take to ascertain the nature of the crop being grown on the land. For a commercial farmer it is very unlikely that enquiries would not have been made as to the current use of the land before purchase. It is possible that someone purchasing agricultural land as a hobby farm may not make such enquiries, although the likelihood of such a farm growing sufficient GM crops to cause contamination may be doubted.

Similar considerations will apply where the allegation relates to a failure to inspect land with the result that GM crops were present and caused contamination. In this case the allegation is not that the GM crops were present when the occupier commenced his occupation, but that at some later stage a GM crop sprouted. Unless the existence of the GM crop was obvious, it will be very rare for liability to be imposed on this basis.

Professional or hobby farmers alike should not be required to engage in costly inspections merely for the purpose of rooting out possible GM crops.

Again, much will depend on the evidence, and the position may be different where the occupier knowingly 'shuts his eyes' to evidence of GM crops appearing on his land. Apart from this situation, however, it is likely that the occupier is not required to undertake any specific inspections to ascertain whether GM crops have taken root on his land.

Conclusion

- There seems little doubt that public discussion over the possible benefits and risks associated with GMOs will continue for some time in the future. Views are clearly polarised, even within the farming community itself,⁶⁴ but there will undoubtedly be pressure for an increase in trialling and subsequent commercial approval where it is perceived there are profits to be made.
- This article has suggested a number of ways in which the growing of GM crops may give rise to liability to adjoining non-GM farmers. Much will depend on whether it is held that 'damage' has been caused to non-GM crops by cross-pollination. Such a categorisation will make it considerably easier to establish liability against the GM farmer.
- Even if cross-pollination is not characterised as damage, non-GM farmers may still be able to sue for the economic losses they incur. Whichever categorisation is adopted, however, it will be necessary to show that the damage was a foreseeable consequence of the negligence, and in practice this may be a difficult hurdle to overcome.
- Whilst this article has concentrated on the problems associated with the nature of the damage, it should be remembered that there are other factors that a potential plaintiff must overcome to have a successful claim. In particular, causation may be difficult to establish if the non-GM farmer is surrounded by several sources of GM contamination.⁶⁵
- One thing that *is* certain, however, is that agricultural science, and in particular gene technology, will play an increasingly important role in determining the boundaries of legal liability in this area.

Endnotes

- ¹ See studies referred to in Grossman, 2003, "Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability", 5 *Enviro LR* 86.
- ² "Agricultural Biotechnology: Potential for Use in Developing Countries", Report of the Australian Bureau of Agricultural and Research Economics (ABARE), October 2003.
- ³ See, for example, the responses in Australia to a UK research study on the extent of hybridisation between GM canola and wild weeds, *ABC Science Online*, 14 October 2003.
- ⁴ See generally "Modelling Possible Impacts of GM Crops on Australian Trade", Productivity Commission Staff Research Paper, 8 November 2002.
- ⁵ For discussions of the legal implications of the debate see Wilde, "The EC Commission's White Paper on Environmental Liability: Issues and Implications", 2001, 13 *Env Law* 21; Cardwell, 2002, "The Release of Genetically Modified Organisms into the Environment: Public Concerns and Regulatory Responses", 4 *Enviro LR* 156; Lee, 2002, "Tort, Regulation and Environmental Liability", 22 *LS* 33; Stallworthy, 2003, "Environmental Liability and the Impact of Statutory Authority", 15 *Env Law* 3.
- ⁶ GM canola produced by Aventis Crop Science (owned by Bayer AG) was approved in June 2003, and in October 2003 Roundup Ready canola, produced by Monsanto, was approved.
- ⁷ See *In Re Starlink Corn Products Liability Litigation*, 212 F. Supp 828 (N.D. Ill. 2002), and for comment see Grossman, "Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability", 2003, 5 *Enviro LR* 86; "Environment Matters – Another GM Pollen Study", 2002, 15 *Liability and Risk Insurance* 145.
- ⁸ See the discussion of Hoffman, *LB Hoffmann Farms Inc and Beaudoin v Monsanto Canada and Aventis Crop Science Canada Holding Inc*, 2002 Sask. QB no. 67, in Rodgers, 2003, "Liability for the Release of GMOs into the Environment: Exploring the Boundaries of Nuisance", *CLJ* 371.
- ⁹ For a list of such trial crops see the appendix to "Modelling Possible Impacts of GM Crops on Australian Trade", Productivity Commission Staff Research Paper, 8 November 2002.
- ¹⁰ The moratorium takes different forms, from the annual moratoriums reached by consensus in Victoria to the express statutory prohibition in New South Wales (Gene Technology (GM Crop Moratorium) Act 2003 (NSW)). Queensland is the only State not to have a moratorium, the State government accepting that the Gene Technology Regulator was the appropriate person to make the decision.
- ¹¹ See Gene Technology Act 2001 (Qld); Gene Technology Act 2001 (SA); Gene Technology Act 2001 (Vic); Gene Technology Act 2001 (Tas); Gene Technology (New South Wales) Act 2003. Similar legislation is currently before the Legislative Council of Western Australia.
- ¹² I have assumed that non-GM and GM crops are equally efficacious for the purposes of being burnt. I am happy to be corrected if this is not so. My general point remains – that for some purposes there will be no differences between GM and non-GM crops.
- ¹³ *Donoghue v Stevenson*, 1932, *AC* 562.

- ¹⁴ *Perre v Apand*, 1999, 198 CLR 180.
- ¹⁵ Cf. *Monsanto v Schmeiser*, 2001, 12 CPR (4th) 204 (upheld on appeal (2002) FCA 309) where a non-GM farmer whose crop was contaminated, was held to have breached Monsanto's patent for the GM crop when he collected and planted the following year seeds produced from the previous year's contaminated group. The case is no authority on who is the legal owner of the original contaminated crop. For discussion of *Schmeiser* see Lee and Burrell, 2002, "Liability for the Escape of GM Seeds: Pursuing the 'Victim'", 65 MLR 517.
- ¹⁶ Witting, "Physical Damage in Negligence", 2002, CLJ 189.
- ¹⁷ (1999) Ch 289.
- ¹⁸ Above, 300-301.
- ¹⁹ (1990) 2 QB 557.
- ²⁰ (1996) 2 WLR 348 (Court of Appeal). This point was not argued when the case was taken to the House of Lords.
- ²¹ *St Helens Smelting Co. v Tipping*, 1865, 11 HLC 642.
- ²² In *St Helens Smelting Co. v Tipping*, above, Lord Westbury thought the distinction lay in the fact that one form of damage resulted in "sensible injury to the value of property". However, it is clear that both forms of injury reduce the value of the property. The better view is that "material damage to property" means some tangible damage to the property.
- ²³ See Lee, 2003, "What is Private Nuisance?" 119 LQR 298.
- ²⁴ Rodgers, 2003, "Liability for the Release of GMOs into the Environment: Exploring the Boundaries of Nuisance", CLJ 371.
- ²⁵ The general rule is that costs of reinstatement are recoverable only if they are no greater than the reduction in the capital value of the land caused by the nuisance, otherwise the plaintiff's damages are limited to the reduction in capital value – see *Butterworths Law of Torts*, Butterworths, London, 2002, para. 22.100. Care must be taken to avoid double recovery: if the plaintiff claims clean-up costs and this restores the capital value of the land to its pre-contamination figure there can be no additional claim for loss of capital value. However, if, as was the situation in the *Blue Circle Industries* case, the capital value of the land did not revert to the pre-contamination figure despite restorative work being carried out, then damages may be recovered both for the cost of restorative work and the loss in capital value after the restorative work has been carried out.
- ²⁶ Witting, 2002, "Physical Damage in Negligence", CLJ 189, argues that the potential disparity between the value of the damage to property, and the consequential losses to which this damage is a threshold requirement, suggests that the courts are actually compensating something other than damage to property, and that the courts are "socially constructing" damage to property so as to allow recovery for the underlying economic loss.
- ²⁷ *Robinson v Kilvert*, 1889, 41 Ch D 88.
- ²⁸ *R v Secretary of State for the Environment, Transport and the Regions ex parte Watson*, *The Times*, 31 August, 1998 (Court of Appeal Civil Division, UK).
- ²⁹ In *McKinnon Industries Ltd v Walker* (1951) 3 DLR 577 the Privy Council allowed recovery for damage to rare orchids. However, the decision seems to have rested on

the fact that the conduct of the defendant would have damaged 'ordinary' flowers, and the question of whether growing orchids was a hyper-sensitive use of land was left open.

³⁰ Lee and Burrell, 2002, "Liability for the Escape of GM Seeds: Pursuing the 'Victim'", 65 MLR 517; Rodgers, 2003, "Liability for the Release of GMOs into the Environment: Exploring the Boundaries of Nuisance", CLJ 371.

³¹ (1997) AC 655.

³² Above. See also *Newcastle City Council v Shortland Management Services*, 2003, NSWCA 156.

³³ *Victoria Park Racing v Recreation Grounds Co. Ltd*, 1937, 58 CLR 479 (broadcast of races on the defendant's land by plaintiff, viewing the races from adjoining land, not actionable in nuisance).

³⁴ (1997) AC 655.

³⁵ Trindade and Cane, 1999, *The Law of Torts in Australia*, Oxford University Press, Melbourne, 3rd ed., pp. 631-32.

³⁶ See Grossman, 2003, "Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability", 5 *Enviro LR* 86.

³⁷ Trindade & Cane, 1999, *The Law of Torts in Australia*, Oxford University Press, Melbourne, 3rd ed., pp. 641-44.

³⁸ Stallworthy, 2003, "Environmental Liability and the Impact of Statutory Authority", 15 *Env Law* 3.

³⁹ *Gillingham Borough Council v Medway (Chatham) Dock Co Ltd*, 1993, QB 343; *Wheeler v JJ Saunders*, 1996, Ch 19; *Hunter v Canary Wharf Ltd*, 1996, 2 WLR 348.

⁴⁰ This seems to be the situation envisaged in the English cases where the issue has been discussed. Such was the case in *Gillingham Borough Council v Medway (Chatham) Dock Co Ltd* (redevelopment of old Chatham naval dockyards), and *Hunter v Canary Wharf Ltd* (redevelopment of London's docklands).

⁴¹ *Ultramares Corporation v Touche*, 1931, 174 NE 441 at 444 per Cardozo CJ. See generally Trindade and Cane, 1999, *The Law of Torts in Australia*, Oxford University Press, Melbourne, 3rd ed., pp. 371-2.

⁴² (1999) 198 CLR 180.

⁴³ "I wish ... to emphasise the present disgraceful uncertainty in the law dealing with claims for pure economic loss in negligence ... With the greatest of respect, there is nothing there [in *Perre v Apand*] in terms of agreement on basic guiding principles to assist with resolution of claims such as the present", Bailey J in *Metal Roofing & Cladding Pty Ltd v Eire Pty Ltd*, 1999, 9 NTLR 82, cited in Luntz and Hambly, 2002, *Torts: Cases and Commentary*, Butterworths, Sydney, 5th ed., p. 883.

⁴⁴ In the United States claims against a GM seed producer have been dismissed on a motion for summary judgment by the defendant on the grounds that plaintiff farmers did not allege any damage to property and that pure economic loss was not recoverable in negligence (*Sample v Monsanto Co*, United States District Court for the Eastern District of Missouri, Eastern Division, 2003 U.S. Dist. LEXIS 16697). Given the different rules for establishing a duty of care, it is unlikely that the same reasoning would apply in Australia (although a similar result could be reached).

- ⁴⁵ The leading example is *Bolton v Stone*, 1951, AC 850, where a cricket club was held not to be negligent for failing to take steps to eliminate the small risk of someone outside the ground being hit by a ball struck from inside the ground.
- ⁴⁶ Grossman, 2003, "Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability", 5 *Enviro LR* 86.
- ⁴⁷ Although it is not a remedy available to a private litigant, it is worth noting that a failure to comply with the conditions of a licence issued under the relevant Gene Technology Act allows the enforcing body to seek an injunction to prevent the continuance of conduct that contravenes the licence – see Gene Technology Act 2000 (Commonwealth) s147; Gene Technology Act 2001 (Qld) s147; Gene Technology Act 2001 (SA) s147; Gene Technology Act 2001 (Vic) s147; Gene Technology Act 2001 (Tas) s112; Gene Technology (New South Wales) Act 2003 s11.
- ⁴⁸ See now, for example, Supreme Court Act 1970 (NSW) s68.
- ⁴⁹ In *Shelfer v City of London Electric Lighting Co.*, 1895, 1 Ch 287, AL Smith set out a "good working rule" as to when damages could be granted in lieu of an injunction. If (1) the injury to the plaintiff's legal rights is small; (2) and is one capable of being estimated in money; (3) and is one that can be adequately compensated by a small money payment; and (4) the case is one in which it would be oppressive to the defendant to grant an injunction, then damages in substitution for an injunction could be awarded. This case remains authoritative in Australia (see, for example, *Doe v Cogente Pty Ltd*, 1997, NSW LEXIS 230).
- ⁵⁰ *Butterworths Law of Torts*, 2002, Butterworths, London, para. 8.25.
- ⁵¹ Above, para. 8.27.
- ⁵² As argued above, it seems likely that the plaintiff could recover the cost of reinstating his land to a GM-free state as damages if the work was carried out at the plaintiff's expense.
- ⁵³ *Cambridge Water Co v Eastern Counties Leather plc*, 1994, 2 AC 264. In this case the defendant tannery had used a chemical (PCE) as part of the tanning process. Some of the chemical was spilt as part of its normal use, and it seeped through the soil. Unbeknown to the defendant, the PCE collected in a chalk aquifer and was transported to the plaintiff's borehole. The defendant had stopped using the chemical some years before the date of the trial. As a result of a change in European Union law, the amount of PCE that could be contained in drinking water was reduced with the result that the plaintiff could no longer use the borehole. Liability under the rule in *Rylands v Fletcher* was rejected by the House of Lords on the basis that the damage caused by the escape of the chemical was unforeseeable. One argument that the plaintiff raised in light of this finding was that, although it was unforeseeable at the time of the escape, it was now foreseeable and damage was still occurring because the PCE was still (at the date of the trial) making its way into the plaintiff's borehole. The House of Lords refused to hold the defendant liable in damages on this basis. Lord Goff stated (at 306-7): "To impose strict liability on ECL in these circumstances, either as the creator of a nuisance or under the rule in *Rylands v Fletcher*, on the ground that it has subsequently become reasonably foreseeable that the PCE may, if it escapes, cause damage, appears to me to go beyond the

scope of the regimes imposed under either of these two related heads of liability. This is because when ECL created the conditions which have ultimately led to the present state of affairs – whether by bringing the PCE in question onto its land, or by retaining it there, or by using it in its tanning process – it could not possibly have foreseen that damage of the type now complained of might be caused thereby. Indeed, long before the relevant legislation came into force, the PCE had become irretrievably lost in the ground below.”

⁵⁴ An example, although controversial, is the alleged cross-pollination that occurred in the 2000 corn harvest in Mexico – see the authorities referred to in Grossman, 2003, “Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability”, 5 *Enviro LR* 86, fns 35 and 36, although this appears to have been a case of intermixing of non-GM and GM seed.

⁵⁵ *The Times*, 31 August, 1998 (Court of Appeal Civil Division, UK).

⁵⁶ Rodgers, 2003, “Liability for the Release of GMOs into the Environment: Exploring the Boundaries of Nuisance”, *CLJ* 371.

⁵⁷ Trindade & Cane, 1999, *The Law of Torts in Australia*, Oxford University Press, Melbourne, 3rd ed., pp. 651-654.

⁵⁸ Trindade and Cane, above, argue that negligence is necessary to succeed in a claim for damages in private nuisance. It is submitted that the law has not yet reached this position, at least as regards nuisances created by the defendant. What is necessary is that the conduct of the defendant amount to an unreasonable user of land. In many cases a finding of unreasonable user of land may subsume a finding of carelessness but not always. A good example is *St Helen’s Smelting Co. v Tipping*, cited above, where the defendant was held liable in private nuisance for damages even though there was no evidence of carelessness. It has also been stated recently that the taking of all reasonable care may not exonerate a defendant in private nuisance (see *Cambridge Water Co v Eastern Counties Leather plc*, 1994, 2 AC 264 at 299 per Lord Goff). The position awaits definitive judicial pronouncement in Australia.

⁵⁹ Trindade and Cane, 1999, *The Law of Torts in Australia*, Oxford University Press, Melbourne, 3rd ed., p. 639.

⁶⁰ Above.

⁶¹ *Goldman v Hargrave*, 1967, 1 AC 645.

⁶² See generally *Leakey v National Trust*, 1980, QB 485, *Holbeck Hall Hotel Ltd v Scarborough Borough Council*, 2000, QB 836. In practice, however, it is rare to find liability turning on this point; cf *Yared v Glenhurst Gardens*, 2002, NSWSC 11, *Stockwell v State of Victoria*, 2001, VSC 497.

⁶³ In the case of amenity damage, however, the action would need to be in nuisance and not negligence, because amenity damage is not recoverable in negligence.

⁶⁴ Thus the NSW Farmers’ Association welcomed the NSW Government’s three-year moratorium on the commercial release of GM food crops whilst supporting the continuation of GM crop trials – NSW Farmers’ Association News Release, 15 May 2003.

⁶⁵ Grossman, 2003, “Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability”, 5 *Enviro LR* 86.

