Legal consequences of autonomous farming

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ABSTRACT

With the increasing world population placing greater and greater pressure on food production, the issue of food security is high on the world agenda. In the search for strategies to address this looming crisis, attention is being drawn to the power of new digital and autonomous technologies to increase agricultural productivity: “the next leg of food production growth will come from greater precision in agriculture, with advances in hardware, software and computing power converging with technologies like self-driving tractors and drones to help farmers feed humanity’s next century. (Revich, 2015)

Along with the growth in precision farming, there has been the increasing automation of processes and farm machinery. Goldman Sachs said it sees a $240-billion market for automation on the farm and the predicted $45-billion market for small driverless tractors alone is evidence of this. (Revich, 2015)

The potential economic impact that these new autonomous technologies will have in Australian agriculture has not gone unnoticed (Perrett, 2017) however to date there has been little attention paid to the potential legal consequences of autonomous farming.

The aim of this paper is to do just that: to highlight the potential legal consequences of the introduction of autonomous machines and technologies into Australian agriculture. As autonomous and robotic equipment use increases so too will the rate of incidents or accidents involving such autonomous and robotic equipment.

We will focus on the potential legal issues that may arise where an autonomous farming machinery causes an incident or accident that results in legal action for compensation for personal injury and/or property damage and discuss how the current laws in Australia are likely to respond. Legal issues relating to potential criminal liability; workers compensation and specifically the CASA regulations around the use of drones claims are beyond the scope of this paper. While more transparency and equity in the contractual provisions that are governing liabilities for these new technologies will improve understanding in the sector of the legal consequences, we conclude by suggesting that in some cases the strength of the Australia’s consumer laws may give some confidence of compensation to those who suffer harm caused
by autonomous farming equipment. However, as is happening in other
countries, we argue it is time for a review of the current schemes of
compensation available for loss or injuries caused by autonomous farm
machinery, keeping in mind those who are using these technologies are
ultimately contributing to a food secure future.

**Introduction**

When thinking about robotic or autonomous farm equipment, such as
driverless tractors, drones, robotic dairies, the discussion usually focuses on
the decreased need for humans to interface with machines. As has been
observed, “with more and more robots swinging, flying and rolling around
farmers’ fields, what will happen to farmers and farm workers? Ever since the
original Agricultural Revolution and then the Industrial Revolution, introducing
automation at the workplace has raised concerns about displacing human
labor. (Hornyalk T 2018) The time and labour saving costs are undeniable
when machines can do the work of humans workers. There are obviously a
myriad of concerns in relation to the economic impact of automation that is
happening in agriculture (Fraser, 2018).

From the perspective of Government regulators, for the most part, as long as
autonomous machinery stays off public roads and remains on the farm and in
the field, there are few regulations that regulate these new
technologies. Interestingly, however, it is arguable that there may be many
more obstacles on a farm than on a normal road. As Janzen observes, ‘in
automated farming, there are concerns with people or objects being in fields
where they would normally not be, such as children playing in a field while
watching a tractor work, or cattle getting lose in a hay field that is in the
process of being cut. Would an autonomous machine stop for an unseen
obstacle?” (Janzen, 2016). California, the largest agricultural state in the US
has recognised the potential concerns around autonomous machinery by
introducing”regulations prohibiting driverless machinery unless a person
remains at the wheel”. *California’s Occupational Safety and Health
Administration* (OSHA) regulations now require all "self-propelled equipment"
to have an operator "stationed at the vehicular controls" whenever the
machine is in motion “which is somewhat defeating the point”. (Janzen,
2017) Similarly, the EU has recognised that steps need to be taken to revise
the current EU framework for liability rules for connected and autonomous
vehicles in the near future. While accelerating the adoption curve of driverless
or autonomous vehicles by five years has the economic potential to generate
added value in the EU worth approximately €148 billion (Devlaux, 2018), it is
well accepted, that legal consequences, including the laws governing liability
and insurance, must also be reviewed and updated.
Where there is a void of regulatory regimes, contract law and tort law often fill that void by regulating the relationships between the manufacturer, retailer and user. This is very much the case as was shown in relation to the collection of data from farms, while there are currently no specific laws dealing with the collection, ownership and sharing of agricultural data, the data aggregators’ terms of use are the means by the collection, aggregation, use and sharing of farm data is governed. (Wiseman and Sanderson, 2017)

**Autonomous Farm Vehicles**

In January 2014 The Society of Automotive Engineers (SAE) issued Standard J-3016 that provides a common taxonomy and definitions for automated driving (Figure 1). There are six levels of driving automation, ranging from no automation to full automation. A key distinction is between level 2 (partial automation), where the human driver performs part of the dynamic driving task, and level 3 (conditional automation), where the automated driving system performs the entire dynamic driving task, but there is an expectation that the human driver will respond appropriately to a request to intervene. (SAE, 2014)

<table>
<thead>
<tr>
<th>SAE level</th>
<th>Name</th>
<th>Narrative Definition</th>
<th>Execution of Steering and Acceleration/Deceleration</th>
<th>Monitoring of Driving Environment</th>
<th>Fallback Performance of Dynamic Driving Task</th>
<th>System Capability (Driving Modes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Automation</td>
<td>the full-time performance by the human driver of all aspects of the dynamic driving task, even when enhanced by warning or intervention systems</td>
<td>Human driver</td>
<td>Human driver</td>
<td>Human driver</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>Driver Assistance</td>
<td>the driving mode-specific execution by a driver assistance system of either steering or acceleration/braking using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task</td>
<td>Human driver and system</td>
<td>Human driver</td>
<td>Human driver</td>
<td>Some driving modes</td>
</tr>
<tr>
<td>2</td>
<td>Partial Automation</td>
<td>the driving mode-specific execution by one or more driver assistance systems of both steering and acceleration/braking using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task</td>
<td>System</td>
<td>Human driver</td>
<td>Human driver</td>
<td>Some driving modes</td>
</tr>
<tr>
<td>3</td>
<td>Conditional Automation</td>
<td>the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene</td>
<td>System</td>
<td>System</td>
<td>Human driver</td>
<td>Some driving modes</td>
</tr>
<tr>
<td>4</td>
<td>High Automation</td>
<td>the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene</td>
<td>System</td>
<td>System</td>
<td>System</td>
<td>Some driving modes</td>
</tr>
<tr>
<td>5</td>
<td>Full Automation</td>
<td>the full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions that can be managed by a human driver</td>
<td>System</td>
<td>System</td>
<td>System</td>
<td>All driving modes</td>
</tr>
</tbody>
</table>

Figure 1: Standard J3016


In the context of autonomous farming, the focus is on levels 3 to 5, where an automated driving system monitors the driving environment. For example,
the Case IH Autonomous Concept Tractor can travel from its parking spot to
the field and back independently and be monitored remotely (via a desktop
computer or tablet) by an operator as it follows pre-set paths for planting,
harvesting or other farming tasks. It is equipped with an onboard system
which automatically accounts for implement widths and plots the most efficient
paths taking into account the terrain, obstructions and other machines in use
in the same field. (Bedford, 2016) This is but one example of the numerous
models and makes of autonomous tractors used on farm.

Legal consequences of autonomous vehicles

Several accidents involving autonomous cars operating on autopilot are
already testing how the application of the legal liability rules to determine the
legal consequences of these incidents. These cases may provide some
guidance in the event of the occurrence of incidents involving autonomous
farm machinery.

In May 2016, a Florida man, Joshua Brown, died in a collision between a
Tesla Model S with the autopilot system activated and a truck. (Hawkins,
2018) The National Transport Safety Board (NTSB) determined, in September
2017, that the truck driver’s failure to give way, together with Brown’s
inattention due to overreliance on vehicle automation were the probable
causes of the crash. (NTSB, 2017) The NTSB also determined that the
operational design of the Tesla’s vehicle automation permitted Brown’s
overreliance on the automation, noting that its design allowed prolonged
disengagement from the driving task and enabled the driver to use it in ways
inconsistent with manufacturer guidance and warnings. (NTSB, 2017) As
Brown’s family subsequently issued a statement which said they did not hold
Tesla responsible for the fatal crash, while criticizing media reports which
suggested excessive speeding and careless behavior (Estrada, 2017), it is not
clear whether any legal action has been commenced.

More recently in March 2018, Walter Huang died in California when his Tesla
Model X, which was on autopilot, crashed into a highway median barrier that
was missing its crash guard. Huang’s family said that he had made several
complaints to Tesla’s service department about Autopilot steering his car on
multiple occasions toward the barrier he eventually crashed into. (Hawkins,
2018) The crash is currently being investigated by the NTSB. After recovering
the logs and reviewing them, Tesla has acknowledged that Autopilot was on,
with the adaptive cruise control follow distance set to a minimum. (Tesla,
2018) Tesla has also stated that the driver did not have his hands on the
steering wheel and had not responded to several visual and one audible
warnings to re-take control. (Tesla, 2018) Huang’s family have hired a San
Francisco-based law firm, whose preliminary review “indicates that the
navigation system of the Tesla may have misread the lane lines on the roadway, failed to detect the concrete median, failed to brake the car, and drove the car into the median," (Minami Tamaki, 2018) The Huang family has said that they intend to file a wrongful death lawsuit against Tesla and, possibly, its subcontractors involved in the design and construction of the Autopilot system, and possibly also the California Department of Transportation for dangerous condition of public property. (Minami Tamaki, 2018) Tesla has issued a statement which purports to attribute fault to Huang, alleging that he was aware that autopilot was not perfect, and especially that it was not reliable at the crash location, did not follow directions to remain alert and have hands on the wheel while autopilot is engaged, and did not follow warnings to do so. (Crum, 2018)

These Tesla driverless car incidents provide useful examples of how the legal issues are played out in the event of a collision occurring when the driverless cars are operating in driverless or auto-pilot mode. The legal dispute ultimately is one that generally plays out between the manufacturer of the car and the owner/driver of the vehicle. Although as shown by the Brown and Huang cases, claims may also be brought against other parties such as the designers/manufacturers of the automated systems, drivers of any other vehicles involved in the collision and road authorities. The owners (or relatives in the event of a fatality) tend to argue that it was a software malfunction that caused the incident hence the liability rests with the manufacturers, while the manufacturers may argue that the owner/driver contributed to the accident by not remaining alert and not responding appropriately when requested. These examples also illustrate the complexity of assigning fault and apportioning liability between the various parties. As shown by the recent Huang case, automated driving systems have functionality in the events data recorder - black box - to accurately record events leading up to an incident and to identify whether the human driver or the system was in control of the vehicle, which may provide reliable evidence for the allocation of responsibility. Accordingly access to the events data recorder by third parties, primarily insurers, to event data recorder in a format that enables the third-party to interpret the data to identify and agree fault may facilitate the fast and cost-effective resolution of legal claims. (NTC, 2016)

**Legal consequences of autonomous farming**

In the context of autonomous farm machinery, it is not difficult to imagine a scenario in which personal injury to farm workers and/or property damage to crops, animals or buildings occurs when a tractor operating on autopilot mode guided by GPS, with no human driver monitoring the vehicle, suffers a hardware and/or software fault. In such cases, like in the Tesla examples,
difficult questions may arise in relation to the identification of defendants and the determination of fault, and allocation of responsibility, including the extent to which the farmer should be liable for failing to intervene. An obvious risk management response for manufacturers is to install seat sensors which prevent the tractor operating unless there is the weight of an adult in the driver’s seat. Thus, while many autonomous farm machines can technically operate without human intervention, the human may be kept in the equation for fear of legal liability.

This paper argues that the legal issues arising from accidents or incidents occurring due to defects/errors in autonomous farm machinery can be broadly categorized as:

- a) Claims under compulsory third-party motor accident schemes (CTP schemes);
- b) Negligence claims;
- c) Product liability/Australian consumer law claims; and
- d) Contractual claims.

Where a person is injured by autonomous farming equipment and the injured person is an employee injured in the course of employment, compensation for personal injury may be payable under the relevant workers compensation schemes, as with all workplace accidents. Given the detail and complexities of these schemes, this discussion is beyond the scope of this paper.

**a) Claims under compulsory third party motor accident schemes (CTP schemes)**

State based statutory CTP schemes generally provide access to compensation where a person suffers personal injury as a result of a motor vehicle accident and the motor vehicle is driven by a negligent human driver. The statutory definition of motor vehicle in New South Wales, Queensland, South Australia, Western Australia, Tasmania, the Australian Capital Territory and the Northern Territory includes “a vehicle propelled by a motor that forms part of a vehicle”. This is arguably broad enough to extend to autonomous farm vehicles. However, in Victoria the definition of motor car and motor vehicles also includes a requirement that the vehicle is ‘used or intended to be used on a highway.” It would therefore seem that in Victoria if a person suffers personal injury in accidents caused by autonomous farming vehicles, they may not be eligible for compensation under the Victorian CTP scheme.

It has also been argued that where an injury is suffered as a result of an automated motor vehicle, because there may be no human driver at fault (but instead some fault in the operation of the vehicle’s automated systems or the infrastructure supporting those systems), there is a need for reform of the
CTP legislation to ensure that access to CTP schemes is maintained for those injured in accidents involving levels 3, 4 and 5 vehicles. (Brady et al, 2017)

Although beyond the scope of this paper, it should be noted similar concerns have been raised in relation to access to lifetime care for catastrophic autonomous motor vehicle accident injuries under National Injury Insurance Schemes (NIIS schemes).

b) Negligence Claims

To successfully make out a claim in negligence for compensation for damage as a result of an accident, it is necessary for the person making the claim (the plaintiff) establish that the wrongdoer (the defendant):

1. owed them a duty to take reasonable care not to cause harm;
2. breached that duty by failing to meet the standard of reasonable care;
3. the breach of duty caused harm (damage recognized by the law); and
4. that the harm is within the scope of the defendant’s duty (that it is appropriate for the defendant’s legal liability to extend to that harm).

Certain relationships are always found to give rise to a duty of care, such as the relationship between occupiers/owners of land and entrants; employers and employees; road users and other road users; manufacturers of goods and consumers. (Stickley, 2016) A duty of care may therefore be owed by drivers and manufacturers of autonomous farm vehicles to those injured in an autonomous farming machine accident. However, as the level of automation increases it becomes increasingly challenging to assign liability in negligence on the basis of fault. (Brady et al, 2017)

For example, when a vehicle is operating at level 3 (conditional automation), the human driver may be found to be at fault where it was not reasonable to rely on the automated system or fail to resume control. Where the human occupant is the injured party, it might be determined that they contributed to their own harm such that any monetary compensation awarded is reduced.

Alternatively, the owner may be held liable for not properly maintaining the vehicle (for example by failing to install software updates as required) or the manufacturer may be liable on the basis that the automated driving system did not perform as it was designed or expected to do. Where a claim is made against the manufacturers, a claim may also be made against suppliers of software supporting the automated driving system, connectivity infrastructure providers (for system failures as a result of Connected Intelligent Transport Systems C-ITS) or road authorities (Brady et al, 2017) Where the vehicle is operating at level 5 (fully automated), it is unlikely that any human occupants or owners will be held liable in negligence unless they knowingly commenced
operation of a malfunctioning vehicle or impeded the operation of the automated system in some way, or perhaps if they failed to install software updates as required or failed to maintain the vehicle. (Brady et al, 2017) In cases where the manufacturer is primarily liable in relation to incidents involving level 5 autonomous vehicles, as discussed above, claims for contribution to the cost of any damages awarded may potentially still arise against others such as software suppliers.

Given the potential for a range of potential defendants to be found to have contributed to various extents to an incident, the outcome of a negligence claim for compensation for personal injury and property damage arising from autonomous farm machinery incidents may be difficult to predict. In view of this uncertainty, negligence claims may therefore be difficult, time consuming and expensive to prove and defend. It is therefore likely that other types of legal claims may also be pursued, particularly when the CTP and/or NIIS schemes cannot be accessed to secure compensation.

c) Product Liability/Australian Consumer Law

As has been predicted, “Autonomous farming potentially shifts the liability for farm equipment accidents from the farmer to the equipment manufacturer. John Deere is not liable today when one of its tractors runs into an intersection because its operator fell asleep. But if the same accident occurred because the software malfunctioned and the machine failed to stop, liability would shift to John Deere. Legislation could alter or limit this liability. however there has not been any clear proposals to do so at this time. It is foreseeable that accidents will result in the blame-game between equipment manufacturers and their customers. Manufacturers will blame the farmer for not calibrating or setting up the equipment properly, and the farmer will blame the manufacturer for a design flaw. Equipment manufacturers don’t want or need this problem”. (Janzen, 2015)

As a general rule, where goods sold are defective and injury to property or person is suffered, legal remedies are available under Australian legislation. For example, States and territories have legislation (such as Sales of Goods Acts) that will provide a remedy to the buyer where goods sold are defective or not fit for their purpose. Of broader application, is the Australian Consumer Law (ACL). This is a national set of laws providing rights and obligations when engaging in consumer transactions. These laws apply to both the sale or supply of good and services. Manufacturers and suppliers should be particularly aware of the “consumer guarantees” provided under the ACL and whether a manufacturer or supplier has the ultimate responsibility for a breach of a particular consumer guarantee. For example, manufacturers are liable to consumers for harm suffered to persons or property because of a defective
product and one of the ways in which goods can be defective is if their safety is not as expected. So, in terms of autonomous farming machinery, if injury or damage is caused due to a defect, then there is potentially a claim that can be made.

In contrast to negligence, the consumer guarantees implied into contracts of sale of autonomous farm machinery under the Australian Consumer Law impose ‘strict liability’ in that there is no need to prove fault. Instead, consumers need to show that the goods are not fit for purpose or of acceptable quality in the circumstances. In summary, there is a need to show that loss or damage has been suffered, that the machine is defective or unsafe, and that the loss or damage was caused by the manufacturer’s conduct.

The question of whether the ACL consumer guarantees will apply to the sale or the provision of autonomous farm machinery will depend on a number of factors, including the particular autonomous farm machinery in question. For example, consumer guarantees only apply to ‘consumers’ and this is defined by the ACL as ‘a person who buys: any type of goods or services costing up to $40,000 or goods or services costing more than $40,000, which are normally used for personal, domestic or household purposes or a vehicle or trailer used mainly to transport goods on public roads irrespective of how much it cost’.

The issue is whether autonomous farm machinery would be considered to goods ‘of a kind ordinarily acquired for personal, domestic or household use or consumption’. It has already been decided by the courts that goods such as a large tractor and an air-seeder were not considered to be ‘consumer’ goods despite the fact they could be used domestically. So while some autonomous farm machines sales may fall within the consumer guarantees (i.e. autonomous machines e.g. drones under $40,000), whether the consumer guarantees would apply would depend on the particular machine and its use. Similarly, with the provision of services, services costing more than $40,000, which are for commercial use—for example, installation of farm irrigation systems or machinery repairs would not fall under the ACL. So while there are avenues under current Australian and State laws for potential actions for loss occurred by incidents caused by defective autonomous machinery, it will very much depend on the particular value and purpose of the machine or equipment or services supplied.

d) Contractual Claims

A contract of sale (or terms of use) of autonomous farm machinery or technology sets out the terms of the sale (or use) of the goods or services. There are many terms that govern these contractual relationships, ranging
from the obligations of the seller/supplier in relation to the quality and performance of the equipment to who has the right to repair the equipment and so on. In addition to the express terms stated in the contracts, the Sale of Goods legislation and in some cases, the Australian Consumer law will also imply terms of merchantability and fitness for the purpose into contracts of sale. These terms ensure that where goods and services are provided to consumers that they are done so without defects and with reasonable care. However, in almost all cases, in contracts for the sale or supply of goods, there will be terms set by the seller/supplier that attempt to limit their liability to the customer in certain circumstances. The issue of who is at fault and who bears the liability when an incident or injury results from equipment is certainly something that would normally be addressed in the contract of sale (or use) of the machinery.

Not unlike many other digital transactions on farm, such as the adoption of farm management software systems or digital solutions that are downloaded by a ‘click’ of the ‘I agree’ button to indicate assent to the terms of the agreement, many farmers are not aware of the terms of the contracts that they agree to when purchasing or using new precision agricultural technologies or machinery. (Wiseman and Sanderson, 2017). It is important to highlight at this point, that it would not be unusual for contracts where new digital technologies or equipment (whether it is autonomous or not) are being sold or supplied to farmers contain a term along the lines of the example below:

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LIABILITY

To the fullest extent permitted by law, any liability of the Seller to the Purchaser including but not limited to the liability for special, consequential or incidental damages or for breach of any term, condition, warranty, undertaking, inducement, guarantee or representation whether express, implied, statutory or otherwise relating to this Contract or to the Goods and Spare Parts will be limited at the Seller's option, to any one or more of the following:

(i) the replacement of Goods or Spare Parts or the supply of equivalent Goods or Spare Parts;

(ii) the repair of the Goods or Spare Parts;

(iii) the payment of the cost of replacing the Goods or Spare Parts or acquiring equivalent Goods or Spare Parts; or

(iv) the payment of the cost of having the Goods or Spare Parts repaired,

To the fullest extent permitted by law and subject to clause above, the Seller will under no circumstances be liable to the Purchaser for any loss, damage or expense, sustained or incurred by the Purchaser or any other party, whether direct or indirect, special, consequential, incidental or punitive losses or damages whether in contract, tort (including without limitation negligence), equity, under statute or on any other basis, and whether or not such loss or damage was foreseeable. The term “consequential damages” will include, but not be limited to, economic loss including actual or anticipated profits, business interruption, loss of use, revenue, reputation and/or data, costs incurred, and loss or damage to property.
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or equipment.

Upon reading this clause, it is clear that when the contract is concluded between the farmer and the manufacturer/retailer that this term is intended to clarify the issue of who will be liable where an incident occurs. In terms of open and transparent principles contract negotiation, exclusion clauses such as this would ideally be brought to the attention of the buyer of the equipment prior to entry into the contract. In fact the introduction of the Small Business (Unfair Terms) Act 2016 (Cth) was aimed at redressing the imbalance in the bargaining position between large businesses that rely upon standard term contracts when dealing with small business enterprises, such as those we see in agriculture, and the small businesses themselves. The Australian Consumer Law was amended to introduce and expand the unfair contracts term legislation to ‘small businesses’ that employ fewer than 20 persons. While there are some notable exceptions, many primary producers operate businesses that would fall under this definition of a ‘small business’.

Under the changes to the ACL, a contract term may be declared void and unenforceable if three criteria are met:

1. the contract is a standard-form contract for the supply of goods and services,
2. where the upfront price payable under the contract does not exceed $300,000 for contracts shorter than one year (or $1,000,000 for contracts longer than 12 months), and
3. the term is ‘unfair’.

When considering these criteria in light of the adoption of precision agricultural technologies and autonomous machinery, it appears that, as many agricultural technology providers use standard-form contracts for the supply of their goods and services, this criterion would easily be satisfied in many cases.

The second requirement of the unfair terms legislation is in relation to the ‘upfront price’ of less than $300,000 for contracts shorter than one year (or $1,000,000 for contracts longer than 12 months). As many digital licence agreements for new precision machinery are either annual licences (or agreements that are in place for the life of the machinery/technology), this criterion would also appear to be satisfied by many of the agricultural data licences.

The third requirement for the unfair terms provisions to operate is that the term is ‘unfair’. Terms are ‘unfair’ where they could cause:

- a significant imbalance in the parties’ rights and obligations; and
• it is not reasonable necessary to protect the legitimate interest of the party relying upon the term; and
• the term would cause detriment (financial or otherwise).

When determining whether the term is unfair, the extent to which the term is ‘transparent’ and how it relates to the contract is considered.

Put simply, ‘transparency’ means whether the term can be understood in reasonably plain language, is presented clearly, and is readily available to any party affected by the term.

This reform to the Australian unfair terms regime does indicate that the practice of using standard-form contracts comes with a responsibility on the part of the larger businesses to ensure that their contractual terms are transparent and fair in the sense that they do not go beyond what is legitimate to protect their legitimate interest and that they do not create a significant imbalance in the parties’ rights and obligations. (Wiseman and Sanderson 2017)

While exclusion clauses such as this, attempt to limit the liability of the manufacturer or supplier of the machines or technologies, it is also made clear in the clause itself that not all legislative protections can be contracted out of. For example, s 64 of the ACL, expressly prohibits the contracting out of the consumer guarantees.

**Conclusion**

While Australia has a generous consumer protection scheme with the ACL as well as the various Sales of Goods legislation, it is not a simple exercise to determine whether these provisions would provide farmers who suffer injury or property damages as a result of an incident caused by defective autonomous farming machinery. This, in conjunction with the fact that the contracts of sale or use of autonomous farm machinery attempt to exclude manufacturers and suppliers of autonomous machines and technologies of all liabilities in the event of a incident highlights the need for further examination of the myriad of potential legal consequences of autonomous farm machinery. The potential legal consequences go well beyond the issue being raised by autonomous vehicles on roads. As one US farmer wryly observed: “It isn’t just about covering the machine itself or the liability it presents if it goes haywire and crosses a populated road” … “It’s also about whether or not we want to cover the seed/crop if the autonomous vehicle malfunctions in the field.” (Bedford, 2017)
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*Road Transport (General) Act 1999* (ACT)

*Transport Accident Act 1986* (Vic), s 3(1)

*Treasury Legislation Amendment (Small Business and Unfair Contract Terms) Act 2015* (Cth) referred to as the *Small Business (Unfair Terms) Act 2016* (Cth))

California’s Occupational Safety and Health Administration (OSHA) regulations, available at http://www.dir.ca.gov/title8/3441.html