CHAPTER 12
Managing Vehicles

Overview

Vehicles, tractors, trailers, harvesters and other equipment used to transport produce should be well-maintained and kept free of physical, chemical (including allergen) and microbiological hazards. Preventive maintenance and regular cleaning should be implemented to minimise contamination risk. Food contact surfaces on harvest vehicles should be hygienically designed to allow effective cleaning and sanitisation.

12.1 Hazards and sources of contamination

The risk of produce becoming contaminated while on vehicles, machines or trailers depends on:

- the type of produce
- how the produce is contained and protected/covered
- the type and condition of roadways (e.g. sealed or unsealed)
- type, age, and maintenance of the vehicles, machines or trailers
- how the vehicles, machines or trailers are stored and cleaned
- other tasks the vehicles, machines or trailers are used for.

Potential sources of contamination are listed in Table C12:1 [refer Chapter 3].

Table C12:1 | Potential sources of contamination from vehicles used to transport harvested produce.

Food safety hazard	Source of contamination
Physical	Metal shavings, bolts, nuts, glass, plastic fragments and other foreign objects from damage or unacceptable maintenance. Foreign objects from damaged crates or bins.
Chemical	Accidental spills of pesticides, fuel, oil or other chemicals. Overspray or spray drift from surrounding operations. Exhaust splatters and particulates.
Allergen	Cross contact contamination from shared transport of inputs such as soil improvers and produce. Ineffective cleaning and sanitising between different loads. Lubricants and greases used for vehicle maintenance may contain contact allergens.
Microbiological	Faeces of resident birds, insects or rodents. Animal faeces, soil or other organic matter carried over from previous tasks. Soil or mud attached to tyres, which may flick onto produce or contaminate the floor of processing facilities. Dust generated during transport that can settle on produce. Contaminated water used in cleaning. Build-up of organic material on or in harvesting equipment.

Image C12:1 | Vehicles and trailers used to transport harvested produce should be maintained and cleaned regularly.

Image C12:2 | Vehicles tyres entering holding, packing and processing facilities should be free of dust, dirt and mud to reduce the risk of transferring pathogens such as *Listeria monocytogenes* into the facility. When complete prevention is not possible, floor cleaning frequencies should be increased.

Where possible, avoid using vehicles, machines and trailers used to transport produce for transporting potential contaminants such as fertilisers, chemicals and soil amendments. Where this is not possible, a plan to verify cleanliness and prevent cross-contamination should be implemented. Table C12:2 gives some examples of how vehicles may be cleaned between loads. A risk assessment should be conducted to determine the type and frequency of cleaning between loads [refer Appendix 1].

Table C12:2 | Examples of approaches to cleaning based on goods transported.

Transportation use	Cleaning schedule
Produce only	General clean down of organic material after each load. Cleaning and sanitising weekly.
Produce, harvest bins, containers and packaging	Cleaning and sanitising after each load.
Produce and hazardous inputs (e.g. fertilisers, chemicals and soil amendments)	Cleaning and sanitising after each load and immediately after transporting hazardous inputs with no time delay.

Some pesticides and fertilisers containing ammonium nitrate are considered 'Dangerous Goods' and are required to be transported in accordance with government regulations (Australian Code for the Transport of Dangerous Goods by Road and Rail (2014); NZ Land Transport Rule: Dangerous Goods (2010)). Regulations require dangerous goods to be packaged, secured and segregated in a manner that prevents spillage and contamination.

Note:

Fresh produce and hazardous inputs should never be transported in the same load.

12.2 Product integrity during transport

Produce may require temperature control during transport to ensure that quality and safety are maintained. The need for refrigerated transport will vary. For example, produce undergoing short transit times, such as from the field to an on-farm packing shed after early morning harvest, is less likely to need temperature-controlled conditions. However, even in these circumstances, priority should be given to transferring produce to the appropriate storage temperature as soon as possible.

All fresh produce requires refrigerated transport for long transit times, recognising that the appropriate temperature for maintaining quality of different produce items varies are transported at 13°C for control of quality, whereas leafy vegetables are transported between 1 to 5°C to maintain quality and reduce microbial risk (e.g. cucumbers).

Transport temperatures should be controlled either by using refrigerated food vehicles or for smaller loads, insulated food carrier boxes with temperature regulators. Product temperature throughout the journey should be verified using monitoring equipment such as data loggers.

12.3 Good practice for managing vehicles

Table C12:3 | Summary of good practices for managing vehicles.

Management area	Good practices
Design	Vehicles, machines and trailers are designed to enable regular cleaning, sanitising and maintenance. Vehicles, machines and trailers are designed in a way that minimises the potential for contamination.
Storage	Vehicles, machines and trailers are stored in designated locations where contamination risks are controlled and minimised (e.g. pests controlled, covers used).
Use	Potential contaminants such as fertilisers, chemicals and soil amendments are not transported in or on vehicles, machines and trailers used to transport produce. Dust creation is considered when transporting produce on unsealed roadways. Vehicles with dirty tyres should remain outside storage and processing facilities; vehicles with clean tyres are used to move produce within. Refrigerated transport is used when appropriate and the temperature is monitored and verified.
Maintenance	A documented plan for preventive maintenance is followed. This plan describes the details and frequency of maintenance and the team member responsible for ensuring it is completed.

Management area	Good practices
Cleaning and sanitising	A documented plan for cleaning vehicles, machines and trailers is followed. The plan describes: • areas and items to be cleaned • cleaning and sanitising products and methods • frequency of cleaning and sanitising between loads, after exposure to hazards or severe weather • name of the team member responsible for ensuring cleaning and sanitising is completed. Dedicated vehicle-cleaning chemicals and equipment are used. Records of cleaning and sanitising maintained, between loads, after exposure to hazards or to severe weather. Label instructions are followed and chemicals are stored safely to minimise the risk of contaminating produce. Greases, degreasers and oils should be food grade where potential contamination of produce exists.

Resources

National Transport Commission (NTC) (2014). *Australian Code for the Transport of Dangerous Goods by Road and Rail*. 7th ed.

NZ Transport Agency (2010). *Land Transport Rule: Dangerous Goods 2005 – Rule 45001/1*.