



Organic Farming: Risk Management Planning for Contamination Risks

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Introduction

In many ways, primary production is an exercise in risk management. One objective in managing a production system is to minimise the negative impacts that markets, finances, weather conditions, pests, diseases and other factors may have on the viability of that system.

A risk that certified organic producers need to manage is that of contamination of their land or crops with prohibited chemicals or genetically-modified organisms (GMO's).

This Agnote provides a brief overview of risk management planning for contamination issues and an example plan that can be modified to suit a producer's specific situation.



Contamination from spray drift is a potential and high-profile issue for organic growers.

Contamination risks

In some situations, the risk of contamination from activities on adjacent land may be minimal. In others, such as intensive horticultural production or areas where aerial spraying occurs, there can be a significant risk of contamination from spray drift. Treatments applied by government authorities to control noxious weeds and pests can also pose a risk to organic properties. For many producers, there may be a risk of contamination associated with the import of compost, mulch or other materials onto the organic property.

Historically, the risk to organic properties has related to contamination with pesticides not permitted under organic standards. The possibility of contamination with GMO's poses a new potential risk to organic producers as GMO

crops are introduced to agriculture. Examples of potential contamination sources for organic properties are listed in Table 2.

Consequences of contamination

Contamination of a certified organic property with substances or materials that are not permitted under the certification standards, can result in suspension of the certification and withdrawal of any affected produce from the marketplace. This has implications for the integrity and viability of organic enterprises, many of which depend on their organic certification for improved market access.

Most organic producers are therefore likely to benefit from some analysis of the contamination risks facing their enterprise and the development of at least a basic plan to minimise and manage those risks.

Risk management planning

Risk management planning can be applied to any type of risk and any type of enterprise. It involves a series of steps through which risks to the enterprise are identified, analysed and treated, then monitored to determine the effectiveness of the treatment.

Developing a contamination risk management plan should not be difficult for most producers, and will provide some peace of mind that potential risks to the organic enterprise have been addressed appropriately.

The steps to risk management planning are outlined briefly below. For a more detailed description of how to work through each step, using real-life examples, visit the web site listed under 'Useful information sources'.

The planning steps

Identify all the risks

- what are the contamination risks, in terms of the types of contamination and the likely sources? See the 'Risk' column of Table 2 for examples of contamination risks for organic properties.

Analyse each risk

- what is the likelihood of the risk occurring?
- what would be the consequences if it occurred?

The likelihood and consequence of a risk combine to give an overall risk ranking. Suggested rankings for use in typical risk management planning are shown in Table 1.

In reality, contamination of an organic property or product with prohibited substances will usually have major consequences, e.g. withdrawal of the property and product from organic certification. Because of this, the ranking of individual risks is not really useful. All contamination risks are automatically ranked highly and so need to be addressed.

If a certain risk has no likelihood of occurring in a particular situation, it can still be included in the plan to show that it has at least been considered.



Physical buffers are one approach to managing the risk that spray drift poses for organic properties.

Table 1. Typical risk rankings.

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	High	High	Extreme	Extreme	Extreme
Likely	Moderate	High	High	Extreme	Extreme
Moderate	Low	Moderate	High	Extreme	Extreme
Unlikely	Low	Low	Moderate	High	Extreme
Rare	Low	Low	Moderate	High	High

Evaluate each risk

Once the contamination risks have been listed, they are evaluated as to which ones require special treatment, and which ones can be controlled easily through day-to-day management. A spray drift risk would warrant careful planning and control to avoid any potential impact on the organic farming enterprise.

Treat the risks

Risks can be treated in one of the following ways (see Table 2 for more examples):

- *Avoid the risk*
e.g. avoid unwanted residues of conventional fertilisers by using fertiliser spreaders that are dedicated to organic production.
- *Control the risk*
e.g. supervise harvest to ensure produce from non-certified land is not mixed with certified produce.
- *Transfer the risk to someone else*
e.g. obtain insurance against contamination if possible or use only certified organic inputs (transfer the risk to the insurer or input manufacturer respectively).
- *Retain the risk* if it cannot be avoided, controlled or transferred cost-effectively - e.g. keep purchasing compost ingredients from non-organic sources, but be prepared to dispose of any (and suffer the cost) if they are found to be unacceptably contaminated.

Monitor and review the treatments

The last column of Table 2 shows examples of how risks and their treatments can be monitored to determine whether the risk is in fact occurring and whether the treatment is addressing the risk effectively. If a treatment is not effective, it needs to be reviewed then modified or replaced so that the risk is managed appropriately.

Communication

Communication and good relations with neighbours, councils and authorities are valuable components of a contamination risk management plan. Those people need to be informed about the basic requirements of organic production and the possible consequences of their actions.

Useful information sources

- Organic Federation of Australia (OFA)
Australia's peak organic industry organisation.
P.O.Box 369, Bellingen NSW 2454
Tel: 1300 657435
Email: info@ofa.org.au Internet: www.ofa.org.au
- A very useful description of risk management and blank planning forms are available from the following Queensland Government web site:
<http://www.riskmanagement.qld.gov.au/>
- The National Environmental Defenders Office (EDO) has offices in each state and is a useful source of legal information regarding spray drift and other environmental contamination events. For details, visit the EDO website or contact the Canberra office on:
Phone: (02) 6247 9420 Fax: (02) 6247 9582
Email: edoact@edo.org.au
Internet: <http://www.edo.org.au/>
- Also see Agriculture Note AG0860 'Using vegetation as a barrier to reduce spray drift' by the Chemical Standards Branch, DPI Victoria.

This Agriculture can be accessed through the DPI web site: <http://www.dpi.vic.gov.au/notes>
For general inquiries, contact the DPI Call Centre:
Phone 136186 or Email: customer.service@dpi.vic.gov.au

Table 2. Examples of sources, treatments and monitoring for contamination of organic land and crops.

Source of contamination risk		Possible treatments to minimise the risk	Monitoring techniques to determine risk occurrence and effectiveness of treatments
Production phase			
Water	Irrigation (e.g. contamination of supply channel with pesticides)	Negotiate with water authority re: enforcement of restrictions on chemical use near channels; water analysis	Water analysis
	Fertigation (if used on non-organic blocks of a mixed enterprise)	Separate supply system, main line flushing before irrigation or water analysis during irrigation	Document fertigation and irrigation events
	Surface runoff from adjacent land	Water diversion or absorption buffer zone on upper borders	Inspect for surface flow after irrigation or rain
Soil	Windblown dust from adjacent land	Shelterbelts	Note weather conditions; inspect for dust contamination of crop
	Old dip or chemical storage area within the property	Remove contaminated soil or quarantine the area and maintain permanent ground cover to prevent dust	Residue tests of soil from suspect sites
	Soil carried on machinery	Clean machinery before use	Inspect machinery before use
Air	Spray drift from adjacent land	Spray drift barrier/buffer zone; drift avoidance measures negotiated with neighbours and authorities like council or water authority (e.g. grower responsible for roadside weed management; no spraying under certain wind conditions)	Note weather conditions; observation of drift; notification of spray activity by neighbours and authorities; residue test of crop
	Dust drift from fertiliser spreading on adjacent land	As above	As above
	Pollen from GMO crops	Avoid crops, cover crops and green manures related to locally-grown GMO species (e.g. canola) as recommended by organic certification bodies.	Ascertain local GMO crop status and choose crops accordingly; monitor and control related weeds
Mulch & compost ingredients	Residues of pesticides on plant material; drenches etc. in animal manures; GMO plant material	Source clean, non-GMO materials	Check details of source before purchase; obtain documentation from supplier
Fertilisers & soil amendments	Prohibited ingredients or heavy metal contamination	Confirm acceptability of nutrient products with certifier	As above
Seeds	Crop/covercrop/green manure seeds pelletised with prohibited pesticides and/or nutrients	Source non-treated seed or seed with acceptable treatment	As above

	Genetically-modified seed	Source non-GMO seed	As above
Machinery	Pesticide residues in spray equipment	Equipment dedicated to organically-acceptable materials	Confirm equipment history
	Fertiliser residues in spreading equipment	Equipment dedicated to organically-acceptable materials; approved cleaning procedure (check with certifier)	Confirm equipment use or clean-down history
Pest/weed control by authorities (e.g. fruitfly)	Herbicides on roadsides or water channels; Sprays for fruitfly or locusts; termite treatments for timber power poles	Negotiate alternative approaches, e.g. cultivation or flaming for weed control; bait spraying in non-certified border areas of property; alternative termite treatment or sealing of treated poles	Maintain good relations and communication with the relevant government department

Harvest & post-harvest phase

Soil	Windblown dust from adjacent land	Spray drift barrier/shelterbelt; buffer zone; minimise time between harvest and pick-up; use bin covers	Note weather conditions; inspect for dust contamination of produce
Air	Spray drift from adjacent land	Spray drift barrier; buffer zone; drift avoidance measures negotiated with neighbours/authorities (e.g. council or water authority); no spraying under certain wind conditions; grower responsible for roadside weed management)	Note weather conditions; observe drift; notification of spray activity by neighbours and authorities; residue test of produce
	Dust drift from fertiliser spreading on adjacent land	As above; minimise time between harvest and pick-up; bin covers	As above
Produce	Parallel production: same or similar varieties are produced under organic and non-organic management, or under different levels of organic certification	Very clear documentation and labelling of bins; harvest of organic/non-organic blocks on different days	Supervise harvest activity
Machinery	Residues of non-organic produce in harvester	Approved clean-down procedure; inspection by grower	Inspect harvester
	Residues of non-organic produce in product storage bins, silos, transport vehicles etc.	Dedicated bins; approved clean-down procedure; inspection by grower; plastic bin liners; certified transporters	Inspect bins; confirm clean-down and/or certification status of transporter

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