

Dangers in feeding waste material to livestock

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Animal Biosecurity and Welfare, NSW DPI

Introduction

Using plant-processing wastes, reject fruit and vegetables and other food wastes as livestock feed may seem to be a practical and economic way of using or disposing of such materials.

However, people producing stock or animal products intended for human consumption should be aware that feeding any material that has not been produced specifically for use as stock feed can cause unacceptable chemical residues in animal products.

Quality control systems are essential to ensure that any materials fed to stock, and the final livestock products, meet stringent residue standards. Generally, there are no specific systems in place to prevent the occurrence of unacceptable chemical residues in these waste materials.

There are also legal restrictions on the materials that may be fed to certain livestock, including any ruminant animal (cattle, sheep, goats, etc.), and to pigs. These laws aim to prevent the development and/or spread of several serious animal diseases.

Residue risks

Livestock producers are responsible for ensuring that the animals and products that they market do not contain unacceptable chemical residues. The penalties for failure can be significant:

- affected livestock are legally restricted from moving to stop them entering the food chain, and
- affected animal products can be condemned without payment to the producer.

Some chemicals concentrate in wastes, increasing the stock residue risks. Materials such as citrus pulp, fruit pomace, grape marc, and vegetable skins and outer leaves often have higher residues than the commodity from which they are derived.

Some chemicals registered for use on fibre crops and on fruit and vegetables are not registered for use on stock feeds or livestock. Consequently, there may be no maximum residue limits (MRLs) set for the chemical in animal products. If a chemical has no animal product MRLs then any detectable level of that chemical in these products breaches food standards.

As an added safeguard against unacceptable residues in animal products, label directions for some agricultural chemicals prohibit the grazing of treated crops and/or feeding of crop stubbles, by-products or wastes to livestock.

Organochlorine (OC) residues have occurred in stock that were fed waste plant material, particularly root vegetables (potatoes, carrots, etc.) and cucurbits (pumpkin, squash, zucchini, marrows, etc.) that had been grown on OC contaminated land. When fed as a major part of the diet and/or for prolonged periods, trace levels of OCs in the attached soil or on the vegetable's skin build up in the animal's body fat. OC residues in stock have also come from the feeding of wastes, such as sugar cane tops, harvested from OC contaminated land and from materials stored in OC-treated silos, bins, etc.

OC chemicals, such as dieldrin and DDT, have a half-life of 4 to 6 months in cattle. Stock with OC residues may require many months on residue-free feed before they meet market standards.

Chemical residue risk assessments

General principles

To avoid residue risks, it is recommended that only conventional stock feeds be fed to stock producing food for human consumption. These feeds should be certified as being suitable for that purpose by an accompanying stock feed commodity vendor declaration (CVD). Where this is not possible the following suggestions indicate some approaches that producers may use to protect themselves and their industry from potential loss.

To ensure the quality of meat and milk products, livestock producers must assess the chemical residue status of any stock feed, including processing wastes and by-products, before feeding them to their stock.

Generic risk assessments

Generic residue risk assessments have been done on a number of plant by-products that are sometimes fed to stock, including apple pomace, citrus pulp, cotton trash, grape marc, sugarcane, sugarcane tops and waste vegetables.

These generic risk assessments considered all of the chemicals that were registered for use on the crops from which these by-products are derived. The likely type and level of residues in both the by-product and in stock fed those by-products were identified. The time taken for residues to deplete from the stock was also considered along with the Australian and international MRLs for the chemicals in question.

These assessments generally indicated that, after spending 60 days on 'clean' feed, stock previously fed these by-products should meet domestic and export residue standards for the registered chemicals considered in the assessments.

Cattle fed by-product stock feeds in the 60 days prior to slaughter can be identified through the answer to Question 4 on the National Vendor Declaration for Cattle (see below).

These assessments also noted that some by-product stockfeeds, such as cotton trash, sugarcane, sugarcane tops and vegetable wastes, could contain OC residues if the parent crops were grown on OC-contaminated land. Such materials should not be fed to stock unless they are first tested to ensure that livestock diets will not exceed the MRLs set for OC residues in stockfeeds.

To find out more regarding industry protocols requirements on feeding cotton trash in NSW click **here**: <https://www.mla.com.au/meat-safety-and-traceability/red-meat-integrity-system/about-the-livestock-production-assurance-program/lpa-alternative-feedstuffs/>

Limitations of generic risk assessments

The limitations of these generic risk assessments must be appreciated.

- For a small number of chemicals, there was insufficient information to fully assess the likely residues in the by-products and/or in stock that were fed those by-products and/or to estimate the time taken for residues in stock to fall below detectable levels.
- The assessments assumed that all chemical treatments were done in accordance with label directions, using only chemicals registered for use on the crops in question and that all relevant withholding periods were observed.
- The assessments only considered chemicals that were registered for use on the parent crop or commodity when the assessments were done.
- The possibility of OC contamination was considered for some by-products where the parent crop may have been grown on OC-treated land (cane tops, cotton trash and waste vegetables).
- Other possible chemical exposures, from spray drift or during processing, transport or storage, were not considered.

Specific risk assessments

A comprehensive residue assessment is only practical where the full chemical treatment and exposure history of the proposed stock feed is known.

Such assessment should first determine if:

- all chemical treatments were done in accordance with label directions;
- the label directions for any chemicals used prohibit the feeding of wastes from treated crops;
- all chemicals used on the parent crop or on the stored commodity or waste have grazing/ fodder withholding periods;
- those withholding periods were observed before harvesting or processing the commodity.

Further inquiries may be needed to determine whether the material was exposed to other chemicals at any time - such as from spray drift or during storage or transport.

If the assessment indicates that the material may contain unacceptable residues of particular chemicals then specific residue tests should be done to determine if it is suitable for use as stock feed. The possibility of OC contamination from soil or storage areas should be taken into account when deciding what tests are needed.

The assessment and laboratory testing results must be interpreted to determine:

- whether residues are likely to occur in stock fed the material;
- if so, the type and level of residues;
- whether any such residues could exceed Australian and/or overseas MRLs for animal products;
- whether a pre-slaughter period is needed, between last feeding the material and harvesting animal products for human consumption, to ensure that the animal products meet relevant MRLs.

If a pre-slaughter period is required, stock fed the material need to be identified and feeding records kept. Records must be checked to confirm that particular stock have met the required post-feeding period and are thus eligible for slaughter or milking.

Marketing implications of feeding wastes

Irrespective of any residue risk assessment done before deciding to feed waste materials, buyers may discriminate against stock that are fed such materials in the 60 days prior to sale.

The National Vendor Declaration (NVD) asks if cattle were fed any 'by-product stock feeds' in the 60 days prior to sale. By-product stock feeds include 'any plant material not produced primarily for livestock consumption, such as waste fruit, vegetables and fibre crops, including peel, pulp, pressings, stem and leaf material'.

A 'yes' answer is appropriate if the stock in question have been fed such materials within 60 days prior to sale.

Both the sheep and cattle NVDs ask if, in the 60 days prior to sale, stock have grazed or been fed any pasture, crops, stubble or fodder that was sprayed with an agricultural chemical in the 60 days prior to grazing or harvesting and:

- the grazing/fodder withholding period was not observed, or
- the chemical had no such withholding period on the label.

A 'yes' answer is appropriate if materials with an unknown chemical treatment history were fed within the 60 days prior to sale. For many chemicals, a period of 60 days without further intake of that chemical will allow its residues in contaminated animals to deplete to acceptable levels.

Vendors who give false or misleading answers to NVD questions may face prosecution or civil action or both. Producers should always read the questions and the explanatory notes carefully before completing any vendor declaration. If in doubt about the proper completion of NVDs, contact Meat and Livestock Australia's help line on 1800 683 111.

Livestock feeds - prohibited and restricted substances

Anyone intending to feed waste materials to ruminant animals (cattle, sheep, goats, deer, etc.) or to pigs must ensure that it is free of 'prohibited or restricted substances'.

The *Biosecurity Act 2015* and Biosecurity Regulations 2017 restrict the feeding of some materials, to livestock. Part 2, Division 9 of the Regulation says that: a person must not feed a prohibited substance to stock or cause or permit stock to feed on a prohibited substance.

The maximum penalty is 100 penalty units (currently \$11,000).

Prohibited substances in ruminant feeds

For ruminant animals, the prohibited substances are defined as 'restricted animal material' by Clause 34 of the Biosecurity Regulation. They include tissue, blood or feathers derived from the carcase of an animal and any substance produced from or containing any such tissue, blood or feathers. This definition covers almost all materials derived from vertebrate animals, including feather and fish meals. Only milk products, tallow and gelatine are exempted. For further details on ruminant feeding see Primefact 313 *Feed controls - stopping BSE (Mad Cow Disease)*.

Prohibited substances in pig feeds

For pigs, the prohibited substances include any product from a mammal (including tissue or blood) except if authorised. They are defined by Clause 37 of the Biosecurity Regulation 2017. The feeding of household or commercial garbage or waste that contains the meat, tissue or blood of mammals is also prohibited. These prohibited substances are often referred to as 'swill'. For further details on feeding pigs, contact your [Local Land Services](#) District Veterinarian.

For updates go to www.dpi.nsw.gov.au/factsheets

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