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Chapter 7 - Disposal of Meat Production Waste

7.1 Introduction

The production of meat across the farm to fork continuum produces not just meat for human consumption, but also waste. The nature and quantity of the waste varies at each stage, but includes the carcasses of dead animals, parts of animals which are treated as inedible, bones, hides and blood.¹ Animals die for a variety of reasons and their carcasses are a normal by-product of farm production.²

The quantity of meat production waste is staggering. Humans consume only a portion of a food animal. A significant portion of food animals become waste. Approximately 50-54% of each cow, 52% of each sheep or goat, 60-62% of each pig, 68-72% of each chicken and 78% of each turkey end up as meat consumed by humans with the remainder becoming waste after processing.³ Based on mortality rates and livestock statistics in Ontario, it has been estimated that the annual mass of deadstock alone is greater than 86,000 tonnes. The meat waste from federal and provincial abattoirs in Ontario is believed to be 333,000 tonnes each year. This does not take into account other waste from meat processing which is also substantial.

The enormous volume of the waste makes the issue of the meat safety risks associated with its disposal an immediate, ongoing and serious one. In this chapter, I discuss the disposal of waste created in meat production and suggest improvements for the system.

7.2 Food Safety Issues

The primary food safety risk associated with disposal of meat production waste is the potential for pathogen and chemical contaminants being transferred to humans directly or through other animals. Scavengers including wild animals and vermin can feed on diseased waste and transmit

¹ The waste is sometimes referred to as “animal by-products”.

² Animals die from disease, accidents, heat distress, competition or essentially, old age. Dead animals are referred to as “deadstock” or “livestock mortalities”. I will use the term deadstock.

³ *The Animal By-Products (Scotland) Regulations 2003*, Training Seminar materials (Edinburgh, 4 November 2003); EU, *Questions and Answers on Animal By-Products* (Brussels, 6 May 2004), available from http://europa.eu.int/comm/dgs/health_consumer/library/press/press152_en.pdf [accessed 16 June 2004].

the pathogens to pets and humans. Contaminated waste can also find its way into the food chain through the rendering process. Other risks include the potential for pollution of air, soil, surface water and ground water. I will not deal with the environmental issues except to the extent that they may impact meat safety and public confidence in the meat safety system.⁴

Some pathogens and chemical contaminants in meat production waste pose greater challenges to safe disposal than others. The best example are prions - the agents believed to cause transmissible spongiform encephalopathy diseases (TSEs) such as bovine spongiform encephalopathy (BSE) in cattle and variant Creutzfeldt-Jakob disease (vCJD) in humans. Prions do not appear to be destroyed or inactivated by most disposal methods that kill or inactivate other pathogens such as dry heat, disinfectants, boiling, cooking and irradiation and they can likely survive for extended periods of time in soil.⁵ Although negligible, there is some risk of prions in certain waste from cattle. There are measures which can be taken to ensure that any prions in waste cannot transmit disease, but they are expensive and go far beyond what is normally done to minimize the risks from contaminants in waste.⁶

It is important that meat production waste containing or potentially containing prions and other pathogens or chemical contaminants be disposed of in a manner which will guard against the risks associated with them.

7.3 Existing Meat Production Waste Disposal Regime in Ontario

7.3.1 Legislation

Currently, there are several pieces of legislation that govern the disposal of waste from meat production in Ontario.

The primary statute governing disposal of meat production waste is the

⁴ Ontario, *Report of the Walkerton Inquiry: A Strategy for Safe Drinking Water*, (Toronto: Queens Printer for Ontario, 2002), Part 2.

⁵ See Chapter 3.

⁶ High temperature incineration and mixing the ash with cement. High temperature, high-pressure alkaline hydrolysis for over six hours under strict conditions. European Commission, Scientific Steering Committee, *Final Opinion and Report on a Treatment of Animal Waste by Means of High Temperature (150°C, 3 Hours) and High Pressure Alkaline Hydrolysis*, adopted 10-11 April 2003; European Commission, Scientific Steering Committee, *Opinion on Six Alternative Methods for Safe Disposal of Animal By-Products*, adopted 10-11 April 2003.

*Dead Animal Disposal Act (DADA)*⁷ which regulates the disposal of deadstock which died for reasons other than slaughter. The *DADA* came into effect in 1960 and there have been few amendments to it.⁸ This Act is designed to ensure that deadstock is segregated from both livestock and meat intended for human consumption to ensure that meat from deadstock is kept out of the food chain. The processing of any deadstock for sale for human consumption is specifically prohibited.⁹ Meat from deadstock that is sold by brokers, receiving plants or rendering plants must first be cut into portions, denatured¹⁰ and packaged with a marking of “not for human consumption.”¹¹ The *DADA* and its regulation require that the owner of a dead animal dispose of the carcass within 48 hours of its death by using one of the following methods:

- burial, with a covering of at least 2 feet of earth;
- having the deadstock picked up by a licensed collector;
- delivering the deadstock in a vehicle belonging to the owner to a laboratory for examination, investigation or loss adjustment; or
- composting the deadstock on-farm and immediately covering it with at least 60 centimetres of sawdust or biodegradable material that is high in carbon content.¹²

The *DADA* only applies to horses, sheep, goats, swine and cattle. Poultry, farmed deer, ratites, bison and other types of livestock are not listed. This is probably a result of the legislation failing to keep pace with the changing face of the meat industry and should be remedied.

The Ministry of Agriculture and Food (OMAF) is responsible for administering and ensuring compliance with the *DADA* as well as the *Meat Inspection Act (Ontario) (MIA)*.¹³

⁷ *Dead Animal Disposal Act*, R.S.O. 1990, c. D-3.

⁸ *Ibid.*

⁹ *Ibid.*, s.4(4).

¹⁰ Denaturing is a process of colouring the meat such as by applying charcoal to clearly indicate it is not for human consumption.

¹¹ R.R.O. 1990, Reg. 263, amended to O. Reg. 525/96, s.20.

¹² *Ibid.* and R.R.O. 1990, Reg. 263, amended to O. Reg. 525/96.

¹³ *Meat Inspection Act*, R.S.O. 1990, c. M-5.

The *MIA* governs the disposal of waste by abattoirs from slaughter and processing activities. The waste includes full carcasses or portions thereof which were condemned, animals found dead on arrival, animals euthanized due to health problems, portions of the carcass deemed inedible and blood. Under the *MIA* and its regulation, the waste must be disposed of:

- by delivery in a vehicle for which a marker has been issued under the *DADA* to a rendering plant;
- by burying it with a covering of at least 60 centimetres of earth;
- by incineration; or
- by any other method agreed to by the regional veterinarian.

The use and disposal of blood from animals is not regulated under the *DADA*, but there are provisions regulating its disposal under the *MIA* for abattoirs unless it is harvested in a safe manner in accordance with the *MIA* regulation for use.¹⁴

The permissible disposal methods for deadstock vary depending on the location of the animal at death. A producer cannot incinerate deadstock on-farm, but abattoirs may. Producers are allowed to compost deadstock, while abattoirs cannot unless they receive approval from a regional veterinarian.¹⁵

The *Environmental Protection Act (EPA)*, administered by the Ministry of Environment (MOE), also affects the disposal of meat production waste.¹⁶ Causing adverse effects on the environment by disposal of wastes and the discharge of contaminants in excess of prescribed limits is prohibited and approvals are required for waste disposal under the *EPA*.¹⁷ However, animal wastes disposed of in accordance with normal farming practices and regulations under the *Nutrient Management Act, 2002 (NMA)* and waste disposal systems for certain meat production wastes are exempt from those

¹⁴ *Meat Inspection Act* (Ontario), O. Reg. 632/92 s. 32.

¹⁵ However, abattoirs that have been composting in the last three years have always had final written approval to do so.

¹⁶ *Environmental Protection Act*, R.S.O. 1990, c. E.19.

¹⁷ Adverse effects include injury or impairment of the safety of any person or rendering any property unfit for human use. *Ibid.*, s. 1.

requirements.¹⁸ Notwithstanding these exemptions, if disposal of meat production waste causes or is likely to cause injury, endangerment or damage, the MOE can take steps to require alternative means of disposal.¹⁹

Medical officers of health and public health inspectors have authority under the *Health Protection and Promotion Act (HPPA)* to issue orders to ameliorate or eliminate hazards to human health.²⁰ Meat processors inspected by public health inspectors are required to remove waste from the premises at least twice weekly and store the wastes in a manner which maintains the premises in a sanitary condition. Liquid waste is required to be disposed of in a sanitary way, but the disposal of meat waste is not regulated under the *HPPA*.²¹

The requirements for meat processors that are separate from abattoirs and those within abattoirs are inconsistent. There are limited disposal options available to the latter, but no restrictions on methods of disposal for the former even though there appears to be no reason to make any distinction.

Municipalities may accept or limit deadstock in their landfill sites and some have enacted by-laws regulating the disposal of meat production waste from businesses within their jurisdiction.

The Canadian Food Inspection Agency (CFIA) has authority under federal legislation to protect the national livestock herd and, in the event of an animal disease outbreak, may enter farms to take steps to dispose of carcasses which are or are suspected to be diseased or contaminated.²²

7.3.2 Licensing

There are four types of licences that can be issued under the *DADA*: broker, collector, receiving plant, or rendering plant. The Director of the Food

¹⁸ Wastes resulting from farm operations including condemned animals, animal parts from provincially or federally inspected abattoirs and deadstock governed by the *DADA* need not obtain the approval normally required for waste disposal sites or systems. *General – Waste Management*, R.R.O. 1990, 347, amended to O. Reg. 326/03, ss. 1, 3(1) and *Nutrient Management Act*, 2002, S.O. 2002, c-4.

¹⁹ *EPA*, *supra* note 16, ss. 1, 6, 14, 17 & 18.

²⁰ *Health Protection and Promotion Act*, R.S.O. 1990, c. H.7, ss. 1 & 13.

²¹ *Ibid.*, s. 57.

²² *Health of Animals Act*, S.C. 1990, c.21, ss. 38-49.

Inspection Branch of OMAF issues licences if the licensees apply, pay the annual fee,²³ and meet the regulatory requirements. Licences issued are subject to suspension or cancellation for breach of any of the provisions of the *DADA* or its regulation, with hearings and appeal rights similar to those for abattoirs. Several licensees hold more than one category of licence and are involved in several areas of the deadstock and waste disposal industry.

Deadstock collectors pick-up and collect deadstock from farms, livestock sales barns and abattoirs. Deadstock collectors are limited to giving, selling or delivering deadstock to receiving or rendering plants. A receiving plant is a facility to which deadstock can be delivered for the purpose of obtaining and selling the hide, skin, fats, meat or other product of the deadstock and then, burying the remains of the carcasses or delivering them to a rendering plant. At rendering plants, deadstock and other meat production waste is buried or processed into protein and fat products. Both the federal and provincial governments license rendering plants in Ontario.²⁴

A broker is permitted to purchase and resell meat obtained from deadstock in an uncooked form, not for human food. There were only three brokers engaged in the deadstock meat industry as of April 2004. As will be discussed later, the market for deadstock meat is limited at present. There are provisions in the *DADA* requiring the denaturing and labelling of deadstock meat to ensure that it is not used for human consumption. These provisions should be carried into any future legislation replacing the *DADA* in case the market for deadstock meat recovers and to continue regulation of the limited amount of deadstock meat that is still being produced and sold.

In Ontario, relationships between businesses in the deadstock and meat waste industry licensed under the *DADA* and businesses that slaughter animals, process meat, or sell meat for human consumption are prohibited.²⁵ The operator of an abattoir, meat processor or meat retail premises cannot, for example, hold a licence under the *DADA*.

²³ The annual licence fees for *DADA* licence holders are \$10 for collectors, \$100 for brokers, \$50 for rendering plants and \$50 for receiving plants.

²⁴ *Health of Animals Regulations*, SOR / 91-525, as amended, s.165, under the *Health of Animals Act*, S.C. 1990, c-21.

²⁵ *DADA*, *supra* note 7, s. 13.

The number of licences issued under the *DADA* from 1998 to 2004 is summarized in the chart below.²⁶

	Number of Licensed Operators	Number of Broker Licences	Number of Collector Licences	Number of Receiving Plant Licences	Number of Rendering Plant Licences
Dec. 1998	45	7	40	26	5
Dec. 1999	40	7	35	23	5
Dec. 2000	40	4	33	23	4
Dec. 2001	38	5	31	25	4
Dec. 2002	34	4	30	21	4
Dec. 2003	34	4	29	21	4
Mar. 2004	31	3	27	21	4

7.3.3 Inspection and Audit

There is a dual inspection system in place to ensure that deadstock and meat waste are properly disposed of in Ontario. The inspection of meat waste processing plants, abattoirs and meat processors provides multiple barrier protection of the human food chain.

Inspectors appointed under the *DADA* have the authority to enter and inspect any building or vehicle used in collecting, transporting or processing of deadstock or meat from deadstock, require production of records and seize, remove and detain any deadstock or meat from deadstock.²⁷ But *DADA* inspectors do not have any power to stop a *DADA* licensee from operating, issue orders, issue tickets, or lay charges for violations of the *DADA* or its regulation.

The inspection of *DADA* licensees is conducted by the deadstock advisor, a full-time position created at OMAF about three years ago. The advisor inspects licensed operations on a frequency based on the advisor's risk assessment of the operation,²⁸ reviews inspection reports from CFIA inspections of the rendering plants, inspects vehicles used by deadstock collectors, and responds to complaints regarding the disposal of deadstock and abattoir waste. In the past few years, a number of meat inspectors

²⁶ A number of separate operations are operated by the same or related persons or companies.

²⁷ *DADA*, *supra* note 7, s. 15.

²⁸ Monthly or quarterly for high risk, semi-annually for medium risk and annually for low-risk.

across the province have also been trained and appointed under the *DADA* to respond to complaints regarding deadstock disposal.²⁹ The number of complaints handled has substantially increased over the years – 25 in 2001, 63 in 2002, 162 in 2003 and on pace for over 200 in 2004.³⁰

There is no formal audit of operations licensed under the *DADA*, however, the deadstock advisor's plant attendances are conducted in a manner similar to an audit. The advisor determines whether the licensees are meeting the standards of compliance developed from the requirements set out in the *DADA* and its regulation; provides a copy of the advisor's report to the operators; sets dates by which the non-compliance must be corrected; and, returns to verify that corrective action has been taken.

Unlike meat inspectors who record inspection information and auditors who record annual audits of abattoirs on a computer system known as the Food Safety Decision Support System (FSDSS), the inspections and audits of *DADA* licensees is primarily recorded on paper. This does not permit the information to be easily searched, accessed by others, or analyzed. The FSDSS should be modified to permit the entry of *DADA* licensee inspections, corrective action dates, audits and actions taken to respond to disposal complaints.

In addition to deadstock inspectors, meat inspectors and auditors of abattoirs are expected to review and inspect the disposal procedures followed by abattoirs to monitor compliance with the *MIA* regulation. Public health inspectors are directed to review waste disposal during their routine inspections of food premises³¹ and monitor compliance with the sanitation requirement of the *Food Premises* regulation.

7.3.4 HACCP, Training, Biosecurity and Traceability

There is no mandatory or voluntary HACCP-based program for licensees under the *DADA*. The HACCP Advantage Program was developed for a

²⁹ In addition, where there are not sufficient meat inspectors, some agricultural staff of OMAF in the northern areas of the province were also trained and appointed under the *DADA*.

³⁰ The prediction of 200 or more complaints in 2004 is based on 90 cases in the first 4 months.

³¹ The MOHLTC Food Premises Inspection Report – Establishment Sanitation, Design and Maintenance Items form used by public health inspectors lists waste disposal as an item to address in the inspection of a food premises.

broad spectrum of operations that process food for human consumption, not operations processing waste that must not go into the human food chain. However, the rendering plants which process most of the Ontario waste have adopted HACCP-based programs.³²

There is no specific training for deadstock and disposal industry employees, managers or operators. However, most of the existing licensees have been in the business for many years and I did not hear any concerns regarding training within this industry.

The transportation of deadstock and other meat production waste raises biosecurity concerns. Vehicles used to transport waste travel to many locations including farms, sales barns, meat processing plants, receiving plants and rendering plants. Vehicles may unwittingly transfer disease-causing agents. Without biosecurity protocols in place, there is a risk of disease transmission. Further to my earlier biosecurity recommendation, OMAF should develop a biosecurity plan which includes the meat production waste industry. In addition, the regulation of transportation should include stringent requirements for cleansing and disinfecting all vehicles and equipment used to transport deadstock and meat production waste as well as disinfection and hygiene requirements for the clothing of persons involved in such transportation.

Record keeping requirements for the disposal of meat production waste are uneven. Abattoirs are required to keep limited records and *DADA* licensees are required to keep detailed records,³³ but there is no requirement for food premises to keep any records. Further to my earlier recommendation, the traceability system should include the meat production waste disposal industry as part of that system. The traceability system should be designed to ensure that sufficient information is collected and retained about the

³² As required by the CFIA. In addition, the three largest rendering plants which render materials from Ontario have been audited by a third party auditing company and found to be meeting the conditions for proper implementation of the U.S. ruminant to ruminant feed ban - Rothsay Dundas, Rothsay Moorefield and Lomex, Inc. Montreal, http://www.animalprotein.org/news_articles/audit.htm [accessed 20 May 2004].

³³ Under the *DADA*, collectors, operators of receiving plants and operators of rendering plants are required to make and keep records of the deadstock received and the methods of disposal for at least 12 months. A broker is required to keep records of all received meat from deadstock and of the disposal thereof for 12 months. *DADA*, *supra* note 7, s. 14.

disposal of waste to permit thorough and effective responses to food emergencies.

7.3.5 Disease Surveillance of Deadstock

It is very important that there be access to deadstock to test for diseases in the animal population in Ontario to determine the level of disease and potential risks to human health. Without such knowledge, the food safety system cannot address the potential risks. If animals that died from disease are buried or composted without any determination of the disease, then the authorities may remain unaware of diseases spreading in the animal population and be unable to address their risk. Centralized disposal options provide a significant benefit by permitting access to carcasses for testing. In addition, education of producers and legislative authority to permit testing are necessary for any effective surveillance program.

7.4 Existing Methods for Disposal of Meat Production Waste

7.4.1 Introduction

Each of the disposal methods used in Ontario has advantages and disadvantages. The use of any of the disposal methods can be problematic due to the “not in my backyard” attitude (NIMBY) held by many people³⁴ and the use of on-farm disposal methods may make it difficult to insure or sell the land.³⁵

No one knows the methods used or the location of all disposed deadstock and meat production waste in Ontario because farmers, feedlots and meat processors do not require approvals and do not keep records.

³⁴ Few people would be happy to have deadstock or other meat production waste disposal next to their property and many will oppose it.

³⁵ Some insurance companies may refuse farm property coverage if deadstock is buried on the land allegedly due to a fear of liability from potential water contamination.

The following table summarizes advantages and disadvantages of the disposal options permissible under the *DADA* and *MIA*:

DISPOSAL METHOD		ADVANTAGES	DISADVANTAGES
P R O D U C E R	Burial	<ul style="list-style-type: none"> - Inexpensive, if suitable land available 	<ul style="list-style-type: none"> - Risk of disease transmission and pollution - It does not destroy prions or pathogens - It may reduce value of land - It requires substantial land and earth moving equipment for larger animals
	Compost	<ul style="list-style-type: none"> - It may destroy some pathogens (partial sterilization) - It is usually cheaper than rendering or incineration - It makes use of nutrients if compost is used as fertilizer 	<ul style="list-style-type: none"> - Risk of disease transmission and pollution - It does not destroy prions and some pathogens - It requires significant land, earth moving equipment and material high in carbon (ex. saw dust, wood chips) - It may reduce value of land - The compost must be disposed of and may include portions of bones
	Rendering	<ul style="list-style-type: none"> - It destroys most pathogens - Significantly reduces volume - It can recycle the waste 	<ul style="list-style-type: none"> - It does not destroy prions (BSE) - It is costly unless costs are covered by income from products - It requires collection and storage of waste
A B A T T O I R	Burial	<ul style="list-style-type: none"> - Same as above 	<ul style="list-style-type: none"> - Same as above
	Incineration	<ul style="list-style-type: none"> - Destroys most pathogens (sterilizes the waste) - At high temperatures (1000°C) inactivates prions - Significantly reduces volume - Some of the heat created may be able to be recycled 	<ul style="list-style-type: none"> - If not done properly, may pollute the air - The equipment, operation and the maintenance of incinerators is expensive - The ash has to be disposed of after the incineration process - The nutrients are wasted
	Rendering	<ul style="list-style-type: none"> - Same as above 	<ul style="list-style-type: none"> - Same as above

7.4.2 Burial

The only restriction on burial is the requirement for two feet of earth cover. This method is used for deadstock and other meat production waste by producers, abattoirs and deadstock collectors. The effects on water and soil and the risks of pathogen transmission have not been fully studied.

7.4.3 Composting

Many farmers and an estimated 15 to 20 abattoirs are currently composting waste. The cost to compost has been estimated to be approximately one-third the cost of rendering.³⁶ However, the composting process for full carcasses or significant quantities of waste takes several years, is labour intensive and may be ineffective in disposing of hides and bones. The permissible uses of the final product – the compost – are still uncertain and may depend on the nature of the compost.³⁷ OMAF is presently undertaking a study to determine whether this method is safe and practical for farmers and has studied an 18 month project conducted by a deadstock collector. Initial results from the studies show that the compost process is effective to break down the waste, kill some pathogens and produce final compost which is relatively safe.

7.4.4 Incineration

Currently, incineration is not widely used in Ontario and where used, only smaller quantities of waste are involved as there are no large or centralized units in operation. OMAF is presently undertaking a study to determine whether this method is safe and practical for farmers. Initial results from tests of small incineration units show significant destruction of pathogens and emissions within the permissible air quality standards, however, this method requires substantial capital and operating costs.

7.4.5 Rendering

Rendering is a process which is applied to materials derived from slaughter, packing, processing, food preparation and deadstock, involving cooking, removing the moisture and separating the materials into sterile animal protein meals and fat products such as tallow, meat and bone meal (MBM), meat meal,³⁸ blood meal and feather meal. The muscle, fat, bones and other

³⁶ For a deadstock collector, not including any potential use or sale of the finished compost.

³⁷ Certificates of approval or approved nutrient management plans may be necessary to apply any of the final compost to land and the application to land may be restricted to land which is not used for crops of human foods. Ontario Ministry of Environment and Energy, *Interim Guidelines for the Production and Use of Aerobic Compost in Ontario*, (Queen's Printer for Ontario, 1991), reprinted in Environmental Choice Program Guideline ECP-23-90 for Compost (August 1995). Central composting facilities require EPA and *Ontario Water Resources Act* approval unless exempt. The composted material must meet Ontario compost guidelines if it is to be used on an unrestricted basis.

³⁸ Meat meal is less than 4% phosphorous and MBM is more than 4% phosphorous.

animal tissues are changed into a protein rich substance which looks like sand or soil - a much safer, more easily stored and less objectionable form.

Unlike raw waste materials, the products derived from rendering can be stored for long periods of time. The temperature and length of the rendering process kills or inactivates traditional disease causing organisms and for years was viewed as a stage at which the disease transmission cycle could be disrupted.³⁹ In the past, protein and fat products were seen as sterile, although subject to new contamination if not properly stored or handled.

Traditionally, rendering has produced valuable and marketable protein and fat products from meat production waste, including deadstock. Rendering has recycled what would otherwise have been substantial amounts of waste.

7.4.5.1 The Rendering Industry

By one estimate, 50,000 tonnes of materials are picked up each year for rendering in Canada.⁴⁰ The rendering industry in North America recycles over 20.8 million tonnes of perishable material generated by livestock and poultry meat/poultry processing, food processing, grocery and restaurant industries each year.⁴¹ One of the rendering companies in Ontario estimates that it recycles 6,800 tonnes per week of meat scraps and cooking oils from restaurants, butcher shops, supermarkets and abattoirs which is equivalent to approximately 17,500 tractor trailer loads each year.⁴² Many of the abattoirs have rendering companies pick-up waste either by leaving a truck at the premises or on an arranged schedule. The rendering companies also pick-up waste from deadstock receiving plants, meat processing plants and butcher shops.

³⁹ Fats and Proteins Research Foundation, Inc., *Industry Profile* (2001), available from <http://www.fprf.org/profile/index.htm> [accessed 8 June 2004]; Food Safety Network, *Rendering fact Sheet*, (University of Guelph, 4 September 2003).

⁴⁰ Alberta Agriculture, Food and Rural Development, *Rendering Fact Sheet* (23 May 2003).

⁴¹ National Renderers Association, *North American Rendering: A Source of Essential, High-Quality Products*, available from <http://www.renderers.org/links/> [accessed 8 June 2004].

⁴² Rothsay, *About Rothsay*, available from <http://www.rothsay.ca/dundas.html> [accessed 20 May 2004].

7.4.5.2 Markets for Rendering Plant Products

In the past, the largest market for animal fats and protein has been animal feeds. While it typically constitutes less than 5% of the ingredients in feed. MBM, is a source of protein and other key nutrients whereas the feed additive competitor, vegetable protein⁴³ usually contains few critical nutrients other than protein. Blood meal, obtained from processing clean, fresh animal blood and poultry and feather meal are also protein feed additives. Other markets for meals include fuel for incinerators and additives in concrete mixes.⁴⁴

Rendered animal fats have a variety of uses.⁴⁵ They have been used in oil lamps, candles and in the manufacturing of soap for an estimated 2,000 years. By-products from tallow are used in a wide variety of modern products⁴⁶ and recently fats have been utilized in the production of biofuels.

Biofuels include biodiesel for use in vehicles and direct combustion fuels for use as liquid burner fuel in heaters. Tallow, grease and poultry fats can all be used as liquid burner fuels.⁴⁷ Biodiesel can be made from animal fats or recycled restaurant greases. Studies have shown that biodiesel made from animal fats has high lubricant qualities, requires few, if any, engine modifications, reduces air pollution, improves energy efficiency and reduces engine maintenance.⁴⁸ Consumption in Europe is about one billion litres per year whereas in the United States (U.S.) less than 75 million litres per year

⁴³ Nutrients such as phosphorous and calcium are in MBM.

⁴⁴ The ash after meal is incinerated can be combined with cement to make structural concrete.

⁴⁵ The uses depend on the category and quality of fat such as bleachable fancy tallow, choice white grease, edible tallow, feed grade animal fat, poultry fat, tallow and yellow grease A or B.

⁴⁶ The by-products include oleic acid, stearic acid, glycerine and linoleic acid. Oleic acid is used in cleansing creams, cosmetics, lubricants, textiles and shampoo. Stearic acid is used in rubber, tires and lubricants. Glycerine is used in adhesives, anti-freeze, cosmetics, explosives, leather tanning, metal processing and resins. Linoleic acid is used in paints and lubricants. Alkyd resins provide versatile low cost paints and varnishes. U.K., *The Inquiry into BSE and variant CJD in the United* (1 September 2000), Vol. 16, Ch. 4 & Vol. 7, Ch. 2; S. Woodward, *One Cow, Hundreds of Uses*, Newhouse News Services (2004), available from <http://www.newhousenews.com/archive/woodward011204.html> [accessed 10 June 2004].

⁴⁷ G. Pearl, Fats and Proteins Research Foundation, Inc., *Non-Feed and Bioenergy Uses for Rendered Products*, presentation at 7th International Symposium Australian Renderers Association (October 2003), p. 6.

⁴⁸ In a study involving biodiesel as a blend with petrodiesel in city buses in Montreal, animal fat and recycled restaurant grease provided biodiesel of superior or equal quality to soybean oil in almost all categories and significantly reduced emissions.

are used.⁴⁹ In Canada, some companies and public agencies are running diesel trucks or buses on a blend of biodiesel.⁵⁰ The biodiesel industry is still in its infancy in North America due, in part, to the high cost of production. The only biodiesel plant in this part of Canada is operated by a rendering company in Montreal.

7.4.5.3 Recent Events Affecting the Rendering Industry

The discovery of BSE in cattle across the world and in North America has had a considerable impact on the rendering industry. It is believed that BSE can spread among cattle when they consume prions from carcasses of other cattle found in the MBM in their feed.⁵¹ There is evidence that prions are not inactivated or killed by the rendering process. Prior to BSE, the products from rendering were thought to be free from pathogen contamination, but no longer. Notwithstanding the extremely low risk of such products containing prions in North America, the impact of reduced public confidence and protective regulatory measures have significantly affected the rendering industry.⁵²

As a preventative measure, MBM containing any materials from ruminants was banned as an ingredient in ruminant feed in the U.S. and Canada in 1997.⁵³ This ban eliminated a large portion of the market for MBM. On May 20, 2003, after the discovery of BSE in one cow in Alberta, the U.S. closed the border to ruminant products from Canada, including rendering

⁴⁹ G. Pearl, Fats and Proteins Research Foundation, Inc., *Non-Feed and Bioenergy Uses for Rendered Products*, *supra* note 47, p. 5.

⁵⁰ Biodiesel does not stay in the requisite liquefied state at low outdoor temperatures, as experienced in much of the North American climate and, as a result is usually blended with petroleum diesel. See http://www.torontohydro.com/corporate/initiatives/green_fleet/index.cfm, <http://www.greenincubator.com/aboutbiodiesel/SudburyStar7-18-03.PDF>, <http://www.thesoydailyclub.com/thesoydailybackissues/brampton7112002.asp>, <http://www.cbc.ca/consumers/market/files/cars/biodiesel/facts.html> [accessed 20 May 2004].

⁵¹ Ruminant as defined in the U.S. legislation and *Health of Animals Regulation* includes animals with multiple chambered stomachs such as cattle, buffalo, sheep, goats, deer, elk, llamas, camels and antelopes.

⁵² There have been three cases of BSE diagnosed in cattle in North America in comparison to over 182,000 cases in cattle in the U.K..

⁵³ In 1997, amendments to the U.S. and Canadian legislative schemes implement an indigenous mammalian-to-ruminant feed ban. The ban includes protein that originated from a mammal, other than a porcine or an equine, but does not include milk, blood, gelatine, rendered animal fat or their products, see *Health of Animals Regulations*, C.R.C., c. 296, s.162 and regulation *Animal Proteins Prohibited from Ruminant Feed*, 21 CFR §589.2000.

products such as MBM and tallows made from ruminant waste.⁵⁴ This further ban eliminated an export market for MBM and tallow, which by one estimate, amounted to 40% of MBM and 80% of tallow produced by Canadian rendering companies. There has since been some discussion of whether MBM should be banned from all animal feeds.

The rendering industry has modified its business practices to maintain its revenue streams based on both the current and potential bans. They are no longer paying operators for waste. Instead, renderers commonly charge fees for removal of waste. The fees for abattoirs and deadstock collectors have been considerable.⁵⁵ Revenue from fees does not replace the income from lost markets and rendering companies may not be viable unless new markets for their products are discovered or former markets restored. To increase the marketability of their products, the rendering companies have refused to accept waste which may give rise to a perception that the products are not sterile or safe.⁵⁶ In addition, they are segregating types of waste for processing - bovine/deadstock at one plant and porcine/poultry at another. Poultry meal does not give rise to the same concerns about the transmission of BSE and may still be considered as sterile and safe.

7.4.6 Deadstock Collection, Transportation and Receiving

Without the collection of deadstock, the centralized methods of disposal such as rendering cannot be used. In some jurisdictions, deadstock collectors are the rendering or related companies. However, in Ontario, most deadstock collectors are not related to a rendering company.

7.4.6.1 Deadstock Collectors and Receivers

Only licensed deadstock collectors may engage in the business of collecting deadstock. The *DADA* regulation prohibits the transporting of deadstock except in a vehicle for which the Director of OMAF's Food Inspection

⁵⁴ The prohibition included MBM, meat meal, bone meal, blood meal, protein meal, regardless of species of origin, pet food (unless it was non-mammalian origin), ruminant offal, ruminant glands and processed ruminant fat, processed fats and oils and tallow (except for tallow derivatives), but not ruminant hides. See http://www.aphis.usda.gov/1pa/issues/bse/bse-canada_memo.html.

⁵⁵ \$24,000 per year for average to busy abattoirs and \$200,000 per year for busy collectors.

⁵⁶ Including refusing carcasses and waste containing certain drug residues, road kill and hunted wild game which have unknown disease risks and portions of animal carcasses which are at higher risk of containing prions of any TSE diseases.

Branch has issued a “marker.”⁵⁷ Vehicles are required to meet certain construction and maintenance standards.

While declining in recent years, deadstock collectors in Ontario in the past, have collected substantial quantities of deadstock from farms, livestock community sales and abattoirs. Many have been in the business for decades.

The following table lists the number of deadstock picked up by collectors in 1998 and 2002.⁵⁸

ANIMAL SPECIES/TYPE	DEADSTOCK COLLECTED	
	1998	2002
Cattle	35,565	31,533
Calves	75,375	56,439
Swine	200,750	185,569
Small Ruminants	368	124
Horses	2,499	2,712

In March 2004, there were 11 deadstock collectors operating in Ontario. Collectors in the western area of the province pick-up approximately 89% of all deadstock collected in Ontario.⁵⁹ There are no licensed collectors in northern Ontario.

7.4.6.2 Markets for Receiving Plant Products

Several of the deadstock collectors also operate receiving plants. At those locations, deadstock is stripped of their hides, meat is taken from the carcasses and then, the remainder of the carcasses are usually sent to rendering plants. The three products marketed by deadstock receivers are hides, rendering materials and meat. Revenue derived from the products sold by receiving plants has traditionally covered the costs of the collection of the deadstock.

⁵⁷ R.R.O. 1990, Reg. 263, amended to 535/96, s.1.

⁵⁸ Ontario Animal Health Surveillance Network, OMAF, *Report of the Ontario Animal Health Surveillance Network*, 2002 & 2003.

⁵⁹ The operating costs for eastern Ontario collectors are higher than for western Ontario collectors due to lower livestock densities, a larger area to cover and inconsistent product. In the industry, collectors east of approximately Highway 400 are referred to as “eastern collectors.”

7.4.6.3 Recent Events Affecting the Deadstock Industry

Historically in the deadstock industry, there have been cycles of declines and growth. However, recently, markets have almost disappeared and there is little hope of much growth in the foreseeable future.

In the last ten years, deadstock collectors and receiving plants have gone from earning approximately one-tenth of their income from the sale of rendering materials to paying as much as one-fifth of their income in rendering fees.

Until May 2003, meat from the deadstock was sold by the deadstock industry for pet or zoo animal food. Revenue from meat sales accounted for about one-quarter of the revenue of some collectors. The pet food market had substantially decreased over the last two decades and by early 2003, only one major pet food purchaser of deadstock meat remained. The final blow to this market occurred on May 20, 2003 when the U.S. closed its border to deadstock meat and thereby, to the last major pet food purchaser. The market for meat from deadstock has been almost eliminated and presently there is little hope for recovery.

In the past, the sale of cattle hides amounted to more than half of some collector's revenues. The value of hides has fluctuated over the last decade, however, since the discovery of BSE in Alberta in May 2003, the market has been in decline. There are less than a handful of hide buyers and Europe has recently threatened to close its market to Canadian cattle hides.

The amount of deadstock accepted by rendering companies has substantially decreased in the past 5 years for a number of reasons. The rendering industry in Ontario banned deadstock containing a popular antibiotic medication from their facilities in 2001 and expanded the ban to several related antibiotic medications in 2002.⁶⁰ These bans reduced the number of cattle and calves picked up and delivered to rendering plants by as much as 20 percent. In mid-2001, the rendering industry banned wastes from certain types of animals that are susceptible to diseases similar to BSE or have

⁶⁰ The chemical residues of the medications are not eliminated or reduced by the rendering process. The levels in the MBM and tallow after processing were higher than permitted.

unknown disease histories.⁶¹ Rendering operations also refuse to accept carcasses which have been tested for BSE before the results are known. It has been estimated that 9,000 tonnes of deadstock and abattoir waste are diverted from rendering to other disposal options each year in Ontario.

The deadstock collection and receiving businesses have struggled to stay in business by reducing costs and seeking funding to replace the revenue they used to earn from their products. To contain expenses, some of the businesses have limited the areas they service while others have stopped deboning deadstock except to reduce rendering material volume. Collectors have sought funding from both the users of their service and the government.

Some collectors introduced user fees as a source of income approximately six years ago.⁶² Unfortunately, user fees constitute additional costs to producers who are already suffering from lower livestock returns. The experience of many deadstock collectors has been that the volume of animals collected decreases considerably if any fee is charged at the time of pick-up. User fees have only replaced around one-quarter of the collectors' previous revenue.

In addition to charging for their service, the collectors and receivers have asked government for funding, with limited success:

- a group of six of the collectors in eastern Ontario formed the Eastern Ontario Farm Recycling Association (EOFRA) and approached the provincial government for short-term emergency funding or a loan guarantee, but the request was denied;
- one deadstock collector asked municipalities in which deadstock was collected to contribute funds, but the request was denied;
- in 2001, provincial funding was provided, primarily for purchases of equipment, under the Livestock Mortality Recycling Project. In 2003, the funding was expanded to include a percentage of

⁶¹ Including deer, elk, sheep lamb and goats, mink, pets, zoo animals and, road kill.

⁶² Each collector charges different user fees, but typically it is a fixed amount per animal collected. Most of the collectors in western Ontario did not introduce user fees until 2003.

rendering costs and \$50 per invoice for pick-up fees charged to users. The funds from this program were exhausted by mid-January 2004. Even with these funds and user fees, some collectors were unable to meet expenses;⁶³

- in April 2004, the Ontario Cattlemen's Association and the Dairy Farmers of Ontario agreed to provide funding for 80 percent of the user pick-up fee charged for bovine pick up only.⁶⁴ This program is scheduled to last until October 2004, but some collectors expressed doubts that the funding would last to the end of June. The program will not assist collectors for the pick-up of non-bovines;

None of these measures have been successful to ensure the continued existence of a network of deadstock collectors across Ontario. Several collectors and receiving plants have been losing money over the last 6 years even with the assistance to date and have no current hope of becoming profitable. Unless the markets change unexpectedly and drastically, deadstock collection and receiving plants will remain, as they have become, a waste removal service and not a self-sufficient industry. Sources of replacement revenue and assistance to date have been deficient. Two collector and receiving plants ceased operations recently. Some stakeholders predict that all collectors and receivers who are not associated with rendering companies will fail by October 2004 unless remedial steps are taken immediately.

If nothing is done to rescue the deadstock collection industry, then the consequences will likely include piles of abandoned carcasses. Health risks, a loss of public confidence and long-term harm to the environment will, in

⁶³ The support programs have treated all collectors equally, however the eastern collectors started being charged rendering fees over three years before the western collectors, the eastern collectors have a lower volume and the eastern collectors have larger areas to cover. The funding initially ran out by August or September 2003, but additional funding was provided on two occasions. The program officially ended in March 2004, however the collectors received funding for the months only up to mid-January 2004. Some of the funding received was retroactive and so, was not received for upwards of two months. The percentage of rendering fees covered was as low as 15 percent in some cases.

⁶⁴ The new program, Bovine Mortality Recycling Assistance Program is funded with \$1.3 million out of \$3 million in funds given to OCA from OMAF to support steps to address issues resulting from the discovery of BSE in one cow in Alberta. The program will cover fees going back to March 1, 2004 which means that the collectors will not have received any support for half of January and the month of February.

that event, follow. There is a public benefit to the collection of deadstock similar to the benefit from the collection of household garbage. In addition, without deadstock collectors, there is no means by which to implement centralized disposal methods and given the grim state of the business, the prospect of attracting others to the industry is unlikely.

I adopt the recommendation of the Expert Advisory Panel and recommend that the provincial government provide interim financial support to the deadstock collectors and receiving plants to see them through the present crisis and ensure collection of deadstock continues in the future.

The funding should recognize the regional differences between the collectors and should be designed to ensure that the collectors and receiving plants are able to realize a reasonable return on their business investment.

7.4.6.4 Producer Transport

In 2000, OMAF agreed to permit producers to transport their own deadstock in eastern Ontario⁶⁵ as a pilot project, even though such transportation is in direct contravention of the *DADA* and its regulation. The pilot project was limited to the delivery of deadstock to licensed receiving plants with a tag listing the owner's name and telephone number to permit tracing. OMAF advised producers that their vehicles were required to have a barrier to prevent leakage of liquids, construction that facilitated effective cleaning and sanitation, and a cover over the deadstock. OMAF further required that no food for human consumption or live animals be transported in the same vehicle and that delivery be made as soon as possible after death of the animal(s) with a limit on the number of animals per trip.⁶⁶ The "pilot project" continues!

Transport of deadstock by producers is controversial because there are a number of concerns and health risks associated with the practice. Some

⁶⁵ The pilot project was not offered to producers in western Ontario, however I was told during the course of the Review that producers in western Ontario have also been transporting their own deadstock.

⁶⁶ OMAF, *Managing On Farm Mortalities* (1 June 2001), available from http://www.gov.on.ca/OMAFRA/english/livestock/swine/facts/info_pm_mortal.htm [accessed 31 May 2004].

producers have dropped deadstock off at receiving plants after hours, without tags and without paying and many producers do not comply with the required transport procedures. Enforcement is problematic because the requirements communicated by OMAF to producers have no legislative force and the powers under the *DADA* are limited.⁶⁷

I recommend that the Ministry of Agriculture and Food discontinue the pilot project which permits producer transport of deadstock and any illegal deadstock transportation be treated as such until appropriate legislative amendments are made to regulate the transport of deadstock by producers to receiving plants and resources are in place to enforce the regulatory standards.

7.4.7 Other Disposal Methods

In addition to the legislative disposal methods outlined earlier, some producers and abattoirs are using “dumping” or landfills for disposal.

“Dumping” is also called “au naturel” and refers to disposal by leaving waste in fields, on unused acreage, or in waterways.⁶⁸ I was told by several stakeholders that this method is used in Ontario, especially in northern areas of the province which are not presently serviced by the deadstock industry. There have been a number of serious dumping incidents reported in the media in the past year. For example, in May 2003, it was reported that up to 10,000 dead pigs were found in various stages of decomposition in multiple locations throughout southwestern Ontario.⁶⁹

Although landfills have been used for the disposal of deadstock and meat waste, this is not common as most landfills are reluctant to take meat

⁶⁷ Inspectors can enter and inspect a vehicle used in the transporting of deadstock, but they do not have authority to stop vehicles and cannot issue orders, tickets or lay charges to immediately address any problems identified. *DADA*, *supra* note 7, s. 16(3).

⁶⁸ Some use the term dumping to refer to instances of people leaving waste on other people's property without permission. The term is used here to refer to any disposal of meat production waste above ground or in watercourses.

⁶⁹ Ontario Society for the Prevention of Cruelty to Animals, News Release, *77 Criminal Charges Laid in 'Animal Welfare Disaster'* (14 October 2003); S. Morse, *77 Charges of Cruelty After Thousands of Pigs Found Dead*, Farm Animal News (21 October 2003); K. Pedro & R. Richmond, *Investigators blocked for month as pigs die*, London Free Press (16 October 2003); K. Pedro, *Pigs Found Dead, Dying, 7 Men Have Been Charged Over the Grim Discovery Involving 10,000 Animals*, London Free Press (15 October 2003).

production waste.⁷⁰ Disposal in landfills has been treated as equivalent to “burial”, but it is not and should not be treated in that fashion as the burial requirement for two feet of earth within 48 hours would not likely be met. The use of landfills carries similar risks to those of dumping, but to a lesser degree as landfills are subject to environmental regulation. Landfills can be useful to dispose of substantial quantities in emergencies.

7.5 Emergency Disposal

7.5.1 Introduction

No matter how strong the system, unexpected events will still occur. Emergencies can occur at any point in the meat production continuum, but frequently involve disposal issues. One such emergency is an animal disease outbreak which usually requires the mass disposal of infected or potentially infected animals. Other circumstances which may give rise to mass disposal of livestock include natural disasters such as fire, flood, and extreme weather.

Animal disease outbreaks have tested the emergency response preparedness of many jurisdictions. During outbreaks, decisions must be made quickly about where and how to dispose of carcasses to limit the spread of the disease and prevent danger to the public or the environment. For example, in 2001, over 250,000 animals were destroyed and disposed of in the Netherlands and over 4 million in the United Kingdom (U.K) due to a foot and mouth disease outbreak; since 1986, over 6 million cattle have been disposed of in the U.K. due to BSE; and 19 million birds were recently disposed of in British Columbia as a result of an avian flu influenza outbreak.

The effects of an emergency can be reduced by a coordinated, measured, immediate response and ongoing follow up. To ensure that the food production system in Ontario can provide safe meat at all times the provincial food safety system must be prepared for and able to respond to emergencies.

⁷⁰ The approval for some landfills would prohibit accepting deadstock.

7.5.2 Emergency Authority and Planning

In Ontario, the province and municipalities have the legislative authority to declare emergencies, develop emergency management plans and participate in a response to an emergency.⁷¹ OMAF has been assigned the responsibility for agriculture and food emergencies. MOHLTC has been assigned large-scale human health emergencies and epidemics. Both OMAF and MOHLTC have prepared emergency plans dealing with their area of responsibility which is an important first step. The plans do not, however, deal specifically with certain issues such as mass carcass disposal in the event of an animal disease outbreak.

The federal government has jurisdiction and authority over emergencies which affect more than one province and emergencies affecting the entire nation.⁷² It has developed a Food and Agriculture Emergency Response System (FAERS)⁷³ designed to respond to abnormal situations requiring prompt action in order to prevent injury to people, livestock, property or the environment. FAERS involves a series of plans and procedures to link existing structures in the federal government, provincial governments and private sector to provide a coordinated response to emergencies which would have a scope beyond existing structures. Within FAERS, the CFIA has responsibility for the preparation of a foreign animal disease eradication contingency plan. Under that plan, each CFIA area office is required to maintain a foreign animal disease emergency support agreement with each of the provinces in the area (a FADES agreement). A FADES agreement between Ontario and the CFIA is still under negotiation.

7.5.3 Mass Carcass Disposal

Fortunately, we have not had to respond to a test of the emergency preparedness of the food safety system in Ontario on the same scale as

⁷¹ *Emergency Management Act*, R.S.O. 1990, c. E.9.

⁷² If there is a "national emergency," the federal government can temporarily exercise exceptional powers in consultation with provincial governments and with the consent of parliament under the *Emergencies Act*. The four types of "national emergencies" include public welfare emergencies, public order emergencies (terrorism), international emergencies or war emergencies. A number of agencies of the federal government may assist the CFIA to respond to emergencies pursuant to the *Emergency Preparedness Act*, R.S.C. 1985, c. 6 (4th Supp.). Also see the *Emergencies Act*, R.S.C. 1985, c. 22 (4th Supp.).

⁷³ CFIA, *Food and Agriculture Emergency Response System (FAERS) Manual* (19 January 1999).

experienced in other jurisdictions. However, this also means that Ontario's level of preparedness has not been tested.

Disease outbreak simulations can be helpful to identify potential shortcomings in emergency plans. For instance, from simulations conducted in the last six years,⁷⁴ the CFIA determined that the disposal of large numbers of animals could not be accomplished as fast as required and carcass disposal plans needed to be developed with all provinces.⁷⁵

The government of Alberta has entered into an agreement with the CFIA and developed a plan for mass disposition of livestock carcasses which defines the roles and responsibilities of the various levels of government and livestock producers.⁷⁶

There are no emergency disposal plans identifying pre-arranged disposal methods in Ontario and there are no agreements with the deadstock industry or landfill operations to ensure that there will be options and assistance if mass carcass disposal is necessary. The deadstock advisor has already had to arrange or coordinate, *ad hoc*, the disposal of substantial numbers of deadstock on several occasions including thousands of pigs that were found in southwestern Ontario and a building full of deadstock left by a deadstock receiving plant operator who had walked away from the business.

I recommend that the provincial government enter into a foreign animal disease plan agreement with the Canadian Food Inspection Agency and develop its own comprehensive mass carcass disposal contingency plan in consultation with industry.

⁷⁴ In November 1998, the CFIA conducted a foreign animal disease outbreak simulation in which the postulated disease entered a feedlot operation of 35,000 head of cattle and in November 2000; the CFIA participated in a food and mouth disease outbreak simulation involving the U.S. and Mexico.

⁷⁵ N. Willis, CFIA, *International Workshop on Animal Disposal Alternatives (IWADA) – Discoveries and Outcomes*, National Institute for Animal Agriculture (NIAA) Annual Meeting 2002 and T. Steele, CFIA, *Report on the Western Canadian Area Response*, Tripartite Exercise, 2000, presentation to National Institute for Animal Agriculture Annual Meeting 2001.

⁷⁶ Livestock producers are responsible for disposal including to pre-select an environmentally suitable disposal site or sites large enough to accommodate the entire herd or flock. Land chosen for disposal must meet the regulatory requirements designed to protect human health, livestock health and the environment. The Alberta government suggests that agreements may be made with neighbours who have suitable land if the producer does not have suitable land. *Destruction and Disposal of Dead Animals Regulation*, Alta. Reg. 229/2000.

7.6 Meat Production Disposal Systems in Other Jurisdictions

7.6.1 Other Provinces

Disposal systems and permissible methods vary across the country. The level of disposal regulation in Saskatchewan and Manitoba is similar to Ontario. There are no regulations specific to deadstock or other meat production waste disposal in British Columbia, New Brunswick or Newfoundland and Labrador. In Saskatchewan, deadstock can be refrigerated pending disposal by rendering, burial, incineration or composting.⁷⁷ In Manitoba, deadstock must be disposed of, refrigerated or frozen within 48 hours and disposal options include rendering, burial, composting or incineration.⁷⁸

There is greater integration and regulation in Alberta and Quebec. In Alberta, there are specific requirements set out in the legislation for each of the permissible disposal options. For example, the requirements for burial in Alberta include restrictions on volume, depth and location of the burial from homes, highways and waterways.⁷⁹ In Québec, the main collection company is related to the main rendering company. The Québec government encourages the use of centralized disposal systems and strictly controls on-farm methods. If a customer of the deadstock collection service stops using the service, the government initiates an investigation to determine what alternative methods are being used.

Three provinces provide some funding for deadstock collection – Manitoba, Prince Edward Island (PEI) and Nova Scotia. In April 2004, the Manitoba government announced that it had agreed to pay a rendering company up to \$400,000 to pick-up dead cattle, horses or bison carcasses as part of a “spring cleanup.”⁸⁰ In PEI and Nova Scotia, producer organizations and the provincial governments fund the collection of deadstock. In PEI, the carcass

⁷⁷ Under the intensive livestock provisions of the *Agricultural Operations Act*, S.S. 1995, c. A-12.1, certain classes of intensive livestock operations require an approved waste management plan including plans for the disposal of deadstock.

⁷⁸ *Livestock Manure and Mortalities Management Regulation*, Reg. 42/98 under the *Environment Act*, C.C.S.M., c. E125, s.15.

⁷⁹ *Destruction and Disposal of Deadstock Regulation*, Reg. 229/2000 under the *Livestock Diseases Act*, R.S.A. 2000, c. L-15.

⁸⁰ A number of carcasses remained above ground after the spring thaw and with the sudden warm weather they needed to be removed as fast as possible. Keystone Agricultural Producers, News Release, *Livestock Removal Program Good News* (8 April 2004).

removal service is free to all beef and dairy producers and takes all carcasses to a rendering plant.

7.6.2 Other Countries

Internationally, there is a broad range of disposal methods and systems. Jurisdictions which have experienced substantial animal disease outbreaks tend to have stricter systems and controls on disposal methods.

In the U.S., the situation is similar to Canada. The methods of disposal available to producers, meat processors and others in the food continuum vary depending on the area, but include composting, burial, incineration, new technologies and rendering.

In the European Union (E.U.), strict rules were put in place as of May 1, 2003 regulating the disposal of waste with different options for different categories of waste.⁸¹ Waste in the E.U. is categorized depending on the risk associated with the type of waste; primarily the risk of the spread of BSE related diseases. The types of disposal options permissible in Ontario are only permitted for the lowest risk category under the E.U. system. Burial is not permitted except in remote areas, in emergencies and for pet animals. The E.U. deals with approximately 16.1 million tonnes of animal waste each year.⁸²

Prior to the new rules in Europe, most waste was disposed of by way of rendering and co-incineration. Other methods used were composting, incineration, rendering for feeds or pet food, landfill, burial or new

⁸¹ The highest risk category of waste are those wastes which contain prohibited substances, SRM, blood, pet animals, experimental animals, zoo animals, circus animals and animals suspected or confirmed as having a TSE disease. The disposal options for the highest risk category are limited to incineration, rendering followed by incineration, or high temperature rendering and then, landfill. The medium risk level options expand to include bio-gas or composting plants, fertilizers and limited use of tallow derivatives. For the lowest risk category, the waste can be used in pet food, feed (after rendering) and specified technical products. European Communities, *Regulation (EC) No 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules concerning animal by-products not intended for human consumption*, [2002] O.J.L. 273/1; *The Animal By-Products Regulations 2003*, S.I. 2003/1482; and U.K., Department for Environment, Food and Rural Affairs, *Application of the EU Animal By-Products Regulations – Annex III*, available from <http://www.defra.gov.uk/corporate/consult/euanimabyprod/annex3.htm> [accessed 21 March 2004].

⁸² *The Animal By-Products (Scotland) Regulations 2003*, Training Seminar materials, *supra* note 3.

technologies. The amount of government involvement in deadstock collection varies considerably in Europe, however, a large majority of governments provided some funding to deadstock collection.⁸³ In France, the cost to dispose of deadstock is borne by the consumers of meat through a tax levied on retail meat sales.

The governments of both Ireland and England have incurred substantial costs to slaughter or euthanize millions of animals as a result of outbreaks of BSE and foot and mouth disease. Due to a lack of capacity for disposal of waste which may have prions from BSE-infected cattle, the U.K. paid to have that material rendered into MBM and stored until safe disposal methods could be developed and sufficient capacity built. The amount of MBM has been as high as 250,000 tonnes with storage costs as much as £21 million for 12 months. To reduce harm to health from improper disposal methods, the U.K. government is planning to start a coordinated deadstock removal service in the fall of 2004 that will be funded by the government and annual fees paid by the users. The collection service will be required to adhere to strict biosecurity protocols and pick up any deadstock within 48 hours of notification.

7.7 The Future of Meat Production Waste Disposal in Ontario

7.7.1 Jurisdiction over Regulation and Enforcement

There is a protocol for OMAF and the MOE outlining how they will respond to issues of improper disposal of deadstock. However, the protocol is over 15 years old and is based on a 1976 code of practice. The protocol sets out which Ministry takes the lead, depending on whether the owner can be identified and the deadstock provisions under the *DADA* enforced (OMAF lead) or whether reaction time is critical to prevent contamination or other hazards (MOE lead).

There is no written agreement which sets out the procedure to be followed when other meat production waste disposal issues arise which are arguably within the jurisdiction of both ministries, such as wastewater from abattoirs

⁸³ 5 countries were reported to fund the entire cost of deadstock collection. 5 countries were reported to support deadstock collection by 50-100%. 2 countries had varying levels of support depending on the area and 2 countries did not provide any government support.

and the disposal of abattoir waste. If both Ministries become involved with different responses or neither Ministry agrees to respond to an issue, it could cause serious difficulties. An agreement should be developed and entered into by the Ministries to update the existing protocol and address those situations where their jurisdictions overlap.

I recommend that the Ministry of Agriculture and Food and the Ministry of Environment enter into an agreement regarding their respective roles and responsibilities in the disposal of meat production waste and the manner in which they will respond to situations involving overlapping authority.

The current plan of the provincial government is to divide the jurisdiction over the disposal of deadstock and waste from meat production. This will be accomplished by regulating “on-farm” disposal under the *NMA*⁸⁴ and “abattoir” wastes under the *FSQA*.⁸⁵ Both regulations are to be introduced at the same time. The MOE and OMAF will share jurisdiction under the *NMA* regulation and OMAF will administer the *FSQA* regulation alone.

The proposed regulations under the *NMA* and *FSQA* have not yet been promulgated. The plan announced in 2002 provided for three sets of regulations being implemented after at least three stages of consultations with the third to address deadstock disposal. Only the first stage of the process appears to be complete with the proposed deadstock and meat waste disposal regulations still many months, if not over a year, away.⁸⁶

In 2002, the plan was to have the MOE provide enforcement and OMAF provide education and compliance for the *NMA* on-farm disposal regulation. However, the plan was changed in November 2003 so that the MOE would handle both the compliance and enforcement activities. The realignment of

⁸⁴ *Nutrient Management Act, 2002*, S.O. 2002, c. 4. The *NMA* has a broad definition of farm animal which includes livestock, cultured fish, deer, elk, game animals and birds. The *NMA* specifically authorizes regulations to be made to govern the disposal, storage and transportation of dead farm animals. *NMA*, s.7.

⁸⁵ The regulation would replace the *DADA* and its regulation.

⁸⁶ MOE, News Release, *Consultations on draft Regulations Under Nutrient Management Act* (20 August 2002). Media Backgrounder, MOE, August 20, 2002, *Consultations On Draft Regulations Under Nutrient Management Act*. The first regulation under the *NMA* is O.Reg. 267/03.

responsibility was reportedly done to respond to a recommendation in the Report of the Walkerton Inquiry that the MOE take the lead role in regulating the impact of farm activities on sources of drinking water.⁸⁷ The current plan for the jurisdiction over on-farm disposal is as follows:

OMAF lead	Joint	MOE lead
Support to Farmers/Producers	Policy and Standards	Enforcement
<i>NMA</i> plan reviews and approvals	Regulation	<i>EPA</i> approvals
Training, certification and licensing	Research	Monitoring / Compliance

I have concerns about the division of jurisdiction over deadstock and other meat production waste disposal between the two ministries. As much as I understand the reasons for the MOE policing all sources of potential water pollution, including manure production, its assumption of jurisdiction over compliance and enforcement of on-farm deadstock disposal is, in my opinion, not appropriate. Although water safety issues can arise if deadstock disposal is poorly managed, the issues associated with deadstock are much more closely related to food safety.

In my view, OMAF is better situated to take the lead on this issue given its responsibility for addressing all aspects of deadstock and meat waste disposal off-farm. I do not see that this would in any way dilute the mandate of the MOE as the guardian of our water supply. It would, however, represent a more efficient deployment of government resources since OMAF has the experience, expertise and infrastructure to address all the safety issues that arise with respect to deadstock. The MOE would not be excluded from the process since its jurisdiction already permits it to intervene when there is the likelihood of any harm to the environment. Systems should also be in place to keep the MOE informed with respect to any on-farm threats to the water supply but day-to-day monitoring and enforcement of deadstock disposal issues fall more logically within the purview of OMAF. The ultimate goal should be the integration of food inspection services from the farm forward, not further fragmentation.

⁸⁷ MOE, News Release, *Status of Government's Actions on O'Connor Recommendations* (20 December 2002); OMAF, News Release, *McGuilty Government Implements Walkerton Recommendation* (26 November 2003).

I recommend that the disposal of meat production waste, including deadstock, from the farm to processing, continue to be administered by the Ministry of Agriculture and Food. I recommend that the regulatory standards and permissible methods for the disposal of meat production waste be consistent irrespective of the source or location.

7.7.2 Future Disposal Methods

In order to protect the health of Ontarians, our economy and our natural environment, we need a regulated animal waste disposal system which is sensible, and properly enforced.

Many of the current challenges in deadstock disposal have resulted from the discovery of BSE in cattle and the market adjustments that have followed. The current system cannot handle the glut of deadstock and waste from production. There is no simple answer to the deadstock and disposal problem. It is a complicated issue involving market forces, farm management practice, health and environmental concerns, and the application of both traditional practices and emerging technologies. It requires our attention. Although new strategies must be explored in searching for a long-term solution, there is a crisis at hand in this sector of the meat industry which must be addressed.

7.7.2.1 Disposal Methods On-Farm and at Abattoir

OMAF is currently studying composting and incineration. Those studies should be completed and more undertaken to determine the impact and viability of other current or proposed methods such as burial and landfills. In addition to testing the effectiveness of these systems in degrading the waste, OMAF should study the actual application of the methods to determine if there are any problems with their implementation. For example, if the testing of incineration units for producers continues to be positive, their actual use by producers should be studied to ensure those units will perform as expected in the field.

If disposal in landfills is permitted, it should only occur where controls, including biosecurity protocols, are implemented to protect against the transmission of disease. Except in cases of emergencies, the waste disposed

of in landfills or by burial and composting should be low risk waste or waste that has already been treated to destroy any pathogens.

Dumping is currently illegal, but I was advised that there has been some discussion about permitting this method of disposal in the future. Those in favour argue that in warmer weather the carcasses degrade rapidly or are taken by scavengers. This, of course, is what happens with most dead wildlife. In the north during the winter, it provides an option when burial and composting are not possible. However, dumping provides no safeguards against risks to human health or the environment and is unlikely to foster public confidence in the management of meat production. It should not be permitted.

7.7.2.2 Centralized Disposal Methods

It will always be challenging to regulate disposal methods such as burial or composting on-farm due to the number of livestock farms. It is easier to regulate and gather data from centralized disposal sites. The only centralized disposal method presently available in Ontario is rendering. The benefits of centralized disposal methods include access to carcasses for surveillance purposes and convenience in regulating and monitoring the disposal. With collectors spread across Ontario, there is equipment available for transporting, storing and disposing of large quantities of meat waste.

The provincial government should encourage and support a system of centralized disposal methods, with particular attention to those methods, such as rendering, which recycle waste as opposed to discarding it.

To use centralized disposal methods, there needs to be collection of deadstock and meat production waste. The existing centralized deadstock collection systems can only survive if they are funded. However, the rendering industry will only fund the collection system if it has markets and user fees at the time of pick-up are not effective. User funding such as the annual fees charged in the U.K. is an alternative, as is the collection of a levy for each live animal sold similar to the check-off system used to fund inspection services at sales barns. The government could also fund or subsidize the cost through existing tax revenue or, as in France, introduce a tax on meat products.

In more remote areas of Ontario, the provincial government should permit the storage of deadstock and waste in a frozen state until it can be collected. This would permit receiving plants to operate “transfer stations” with deadstock held in a frozen state until sufficient quantities had been collected for transport to rendering or other centralized disposal facilities in southern Ontario.

I recommend that the provincial government amend the *Dead Animal Disposal Act* and *Meat Inspection Act* regulations to require deadstock and other meat production waste to be disposed of within 48 hours unless frozen and stored in accordance with standards to be set out in the regulations.

The future disposal system should include options and protocols for the safe disposal of meat production waste which may contain dangerous chemical or biological contaminants. The current system in Ontario does not have such capacity.

There are several disposal methods which are not in use in Ontario, but are used elsewhere in the world, which can safely dispose of such materials including centralized incineration or co-incineration, alkaline hydrolysis, high-pressure hydrolysis biogas processing and the Brookes gasification process. Most, if not all, of these methods have been evaluated in recent years by scientific panels for the European Commission in ongoing efforts to determine safe methods for the disposal of wastes which contain prions.

I recommend that the provincial government, in collaboration with the industry, undertake in-depth study and coordinate their planning and resourcing for long-term environmentally sound disposal capacity involving alternative recycling options. The provincial government should provide the appropriate Director of OMAF with the legislative or regulatory authority to approve a method of disposal at a specific location for the purposes of study and research.

7.7.3 Future Inspection and Compliance

The provincial government should continue to license and inspect those involved in deadstock and other meat production waste collection, receiving

and rendering or other centralized disposal processes. The deadstock advisor and the inspectors who deal with the industry on a regular basis represent a valuable, experienced resource. However, their numbers are small and their capacity for responding to complaints limited. Current policy has them offering advice to first time offenders rather than laying charges under the *DADA*. Proceedings are taken against repeat offenders, however, the existing computer information system at OMAF does not record deadstock disposal complaints. As a result, the deadstock advisor is left to rely on his memory in determining which course of action should be pursued.

Occasionally, people refuse to properly dispose of deadstock and OMAF has to make arrangements for the disposal. In some cases, the government absorbs the cost. The governing legislation should be amended to include provisions for the government to recover costs incurred. Several statutes give the government authority to commence litigation to recover costs or a judicial officer authority to order payment of costs in addition to fines, however, the most efficient method of cost recovery appears to be in the *HPPA* which allows the government to add the costs it incurs to the offender's property taxes.⁸⁸

I recommend that the Ministry of Agriculture and Food enhance its Food Safety Decision Support System to permit information on deadstock disposal complaints and responses to be recorded, searched and analyzed.

The Ministry of Natural Resources enforcement personnel have not been able to respond to serious deadstock disposal complaints in a timely manner. It is crucial that such complaints be responded to as soon as possible, preferably within 48 hours, as the waste must be disposed of quickly and properly to avoid risks to human health, the environment or public confidence.

I recommend that the deadstock inspectors be given additional regulatory authority to issue orders requiring compliance with

⁸⁸ *HPPA*, *supra* note 20, s.15(2).

regulations. The orders should stay in place pending compliance or until overturned on appeal.

7.7.4 Conclusion

The disposal of meat production waste is an important stage of the meat production continuum and properly part of the inspection and regulatory regime for the food safety system in Ontario.

I recommend that the regulations governing the disposal of deadstock be extended to include all species.⁸⁹

I recommend that the provincial government ensure that the disposal of meat production waste is appropriately regulated at all stages in the continuum. The *Food Premises* regulation should require the safe disposal of meat production waste and limit the methods of disposal to those permitted for abattoirs and processors where the risks are similar due to the nature and volume of the waste. The provincial government should promulgate a regulation under the *Food Safety and Quality Act, 2001* prescribing the safe disposal of meat production waste at all stages from production through processing.

The provincial government should ensure that the future system for the disposal of meat production waste in Ontario is strictly regulated with protocols to protect human health and the environment. The system should have sufficient capacity to handle deadstock and other meat production waste efficiently and safely, even in mass disposal situations.

⁸⁹ In this recommendation, all species refer to the species currently included and poultry, ratites, wild ruminants, mink, domestic pets, raccoons, possums, domestic deer, elk, bison, lamas, sheep, goats, mink, and zoo animals.