Storage and Application of Digestate on Agricultural Land Directive

This Directive is made in conjunction with the Memorandum of Understanding (MOU) among Alberta Agriculture and Irrigation (AGI), Alberta Environment and Protected Areas (EPA), and the Natural Resources Conservation Board (NRCB) dated June 26, 2023, regarding the storage and application of digestate on agricultural land.

Purpose

The purpose of this Directive is to establish the parameters that allow digestate to be regulated as manure under the *Agricultural Operation Practices Act* (AOPA). This directive outlines the minimum manure content and the allowable feedstocks that can be used in combination with the manure. Digestate produced in compliance with this directive can be stored in manure storage facilities regulated under AOPA and land applied as manure under AOPA and in accordance with any permit conditions under the regulatory authority of the NRCB.

EPA in coordination with the NRCB regulate digestate that is created using manure as the primary feedstock. Digestate shall be considered "manure" as defined in section 1(c.2) of AOPA, whenever both of the following conditions are met:

a)   manure comprises at least 50% by wet weight of the feedstock on an annual basis; and

b)   the remainder of the feedstock consists entirely of one or more of the feedstocks listed in the Types of Feedstock tables below.

Any person planning to meet these conditions must contact EPA and the NRCB to determine the applicable authorizations or permit(s) required.

The *Storage and Application of Digestate on Agricultural Land Directive* supports the Memorandum of Understanding, as well as authorization(s)/permit(s) issued by Alberta Environment and Protected Areas (EPA) and the Natural Resources Conservation Board (NRCB).

Types of Feedstock

A. ORGANIC FOOD RESOURCES

A.1 Fats, Oils and Greases (FOG)		
Feedstock	**Description**	**Example Sources**
Dissolved Air Flotation slurry (DAF), Centrifuged Dissolved Air Flotation slurry (CDAF)	Fats & proteins skimmed from wash water	slaughterhouses meat packing operations
Grease trap fat Food interceptor solids	Fats, oils & greases captured in grease traps & food interceptors	food processors grocery stores restaurants cafeterias
Used vegetable oil	Vegetable oil used for deep frying	food processors grocery stores restaurants cafeterias

Mixed processed meat & fish wastes	Cooked & uncooked meat & fish residues	food processors meat packers canneries

A.2 Food Processing Residues

Feedstock	Description	Example Sources
Oil seed processing residues	Residues from extracting oils from seed including canola cake, canola oil, bleaching clay	oil seed processors
Feed mill residues	Dust & wet grain residues	farm operations feed mills
Cereal, grain & spice processing residues	Grain dust, husks, hulls	elevators cereal processors grain processors flour mills
Fruit & vegetable residues	Pomace, peelings, rinds, juices	juice processors vegetable processors canneries wineries
Corn processing residues	Effluent from corn wet milling, stillage, distillers grain, silage, squeeze	distillers breweries ethanol plants food processors starch producers
Beet processing residues	Beets, beet tops, trash, tailings, molasses	sugar producers
Potato processing residues	Potato sludge, peelings, chips	potato processing plants
Dairy processing residues	Whey, milk, ice cream, proteins, wash water & other residues	dairy processors cheese factories
Paunch content	Partially digested material taken from an animal at the time of slaughter	meat plants
Aerobic sludge	Aerobic sludge from non-municipal wastewater treatment	food processors
(Anaerobic sludge)	Anaerobic sludge from non-municipal wastewater treatment	food processors
Pet food residues	Pet food	pet food processors
Process water	Liquid residues, wash water	food processors

A.3 Kitchen and Market Residues		
Feedstock	**Description**	**Example Sources**
Bakery and Bread Residues	Dough, flour, yeast and crumbs	bakeries pizza parlours restaurants cafeterias
Confectionary residues	Candies & cookies	food processors
Mixed food/kitchen residues	Cooked & treated vegetables, fruits & grains, frozen food	food processors grocery stores cafeterias/restaurants universities hospitals

B. OTHER

Feedstock	**Description**	**Example Sources**
Glycerin/glycerol	Alcohol by-product	industrial biodiesel production
Fusel oil	Fusel alcohol	distilleries
Horticultural residues	Residues from plants & flowers	greenhouses garden centers flower shops
Green (garden) residues	Grass	municipalities households
Energy crops	Silage (corn, grain, grass)	farm operations
Damaged/rejected crops	Crops which have been damaged and/or are unable to be marketed.	farm operations
Crop residues	Residues from the crop harvesting	farm operations
Pulp & paper residues	Sludge	paper mills
On-site domestic wastewater	Domestic wastewater from biogas facility	biogas facility washroom(s)

C. ANIMAL BY-PRODUCTS[*]

Feedstock	**Description**	**Example Sources**
Animal carcasses & animal parts	Deadstock (cattle, hog, poultry, horse, bison), roadkill (deer, elk, moose)	livestock operations slaughterhouses meat plants
Animal entrails	Stomach & intestines from slaughtered animals	slaughterhouses meat plants
Animal blood	Blood from slaughtered animals	slaughterhouses meat plants

[*]Animal by-products that are legally classified as Specified Risk Material (SRM) shall be pre-treated with thermal hydrolysis as required by the Canadian Food Inspection Agency (CFIA).