

FARM PRACTICES

PRODUCT PROCESSING

Description

Processing is defined as any activity that maintains or raises the quality or alters the physical or chemical characteristics of a material or object, or adds to it in any way whatsoever. Processing can be as simple and quick as washing vegetables or it can be as long and complicated as making cheese or wine. Cooking, canning, smoking and drying are among some of the processing methods used.

Many farm products must be processed before they can be used as intended. For example, most fruits and vegetables are cleaned, graded and stored or processed before they are eaten. Likewise, many livestock rations are cleaned, dried, ground and mixed before they are fed.

Many agricultural products are perishable and only available for a short period of time. Processing extends the season for which they are available. For example, converting berries and fruit into jam, jelly and juice means consumers can enjoy these products year round.

On-farm processing is done to prepare products for sale, make value-added products to sell, and prepare livestock feed. The term on-farm processing also includes the preparation of growing media for greenhouse and mushroom production and for composting of farm wastes.

Processing operations may be carried out continuously or intermittently.

Wastes generated during the processing process are not considered to be agricultural waste but industrial, and the discharge of these wastes must meet the *Waste Management Act*.

Activities and Operations

Equipment Operation

On-farm processing equipment may be operated 24 hours a day. All on-farm processing equipment, machinery or other devices should be kept in good working condition and operated according to manufacturers' recommendations.

See Farm Practice: [Stationary Equipment](#)
[Mobile Equipment](#)
[Composting](#)

On Farm Processing

Farmers may import products onto their farm for processing providing that at least 50% of the product that is processed comes from their farm.

Product Processing

Material Handling

Cleaning – Cleaning can be accomplished by soaking, water sprays, rotary drums, brush washers or shaker washers or any combination thereof.

Washing – The *Canada Agricultural Products Act* – Fresh Fruits and Vegetables Products Regulation requires that products be prepared in a sanitary manner. This requires that fluming or wash water used for processing on farm is not stagnant or polluted; only potable water is used in the final rinsing of the produce to remove any surface contamination before packing; the final rinse water if reused is used only in the initial washing or fluming of the produce; and the produce is handled with equipment that is cleaned regularly.

Sorting – Fruits and vegetables are sorted according to color, size and quality using screens, diverging belts, roller sorters and weight sorters. Grains, nuts and seeds are cleaned and sorted by size, shape, specific gravity and surface characteristics using screens, blowers, specific gravity separators, centrifuges, cyclones and other similar equipment.

Separating – Cream separators, cyclone and gravity separators are used.

Grading – Farm products may be graded according to color, quality, shape and size.

Packing – Farm products may be packaged individually, in groups, or in bulk.

Conveying and transporting equipment - Conveyors, elevators, lift trucks and other methods are used to move goods.

Size Reduction

Cutting – Fruit and vegetables are cut in preparation for processing (freezing or canning).

Chopping or shearing – Fodders such as corn and silage are sometimes chopped to reduce their size.

Shredding – Some products are shredded to assist with drying or mixing.

Crushing – Some produce is crushed to extract its juice or oil or to expedite drying.

Grinding – Grain is ground to make livestock feed.

Milling – Flour is milled. This term also applies to the separation of fibers such as flax.

Mixing

Feed – Batch and continuous mixers use augers or paddles.

Fruits and vegetables – Drums, paddles in kettles and egg beaters are used.

Fertilizers and soils – Batch or continuous mixing is done using augers, drums or paddles.

Composting – Front end loaders, side mounted or self propelled windrow turners, and in-vessel compost turners are used.

Drying

Grain – Batch, bin, and continuous gravity flow dryers are used.

Hay – Natural air or heated air may be used to dry hay.

Fruits and vegetables and their wastes – Vacuum ovens, rotary, tray or tunnel dryers, and freeze dryers are used.

Powders – Spray dryers are used.

Heat Treatments

Heat is used to pasteurize milk and juice, boil fruits and vegetables for vacuum or freeze packing, steam or thermal sterilize canning equipment, and can, fry and bake many products. Conduction, convection and radiation methods are used.

Cold Treatments

Many products are cooled to prolong their shelf life. Ice coolers, mechanical refrigeration units and freezing units including dairy coolers, cold storages, freezers and controlled atmosphere storage structures are used.

Chemical Treatments

Seed may be treated with fungicides and/or insecticides to improve its resistance.

Various substances may be added to processed fruit, vegetable, meat and dairy products to improve their shelf life and appeal.

Biological Treatments

Aeration or oxygenation may be used.

Fermentation may be used to produce the product for marketing.

Retail Activities

The Agricultural Land Commission's farm retail sales order specifies which retail activities may be carried out on a farm within the agriculture land reserve. Restrictions on retail of products grown off the farm and the size of the retail area that can be used for off-farm products are specified.

Related Farm Practices

Other farm practices that pertain to product processing practices include, but are not limited to, the following:

[Farmstead Refuse](#)

Refuse should be handled as outlined in this farm practice.

[Storage of Farm Supplies and Products](#)

Storage of containers and product is often at product processing sites.

[Transportation](#)

Inputs and finished products are transported to and from the facility.

Legislation

Information on federal and provincial legislation can be found in Appendices B and C. Acts, regulations and bylaws that regulate farm product processing may include, but are not limited to, the following:

Federal

[Canada Agricultural Products Act](#) – provides for national standards and grades of agricultural products

[Processed Products Regulations](#) – specifies requirements for processing

[Consumer Packaging and Labelling Act](#) – establish basic labeling requirements for a broad range of prepackaged consumer products

[Food and Drugs Act](#) – covers the sales and marketing of food

Provincial

Agricultural Land Commission Act – regulates amount of processing that may occur on the farm

Agricultural Produce Grading Act – provides framework for quality control standards

British Columbia Wine Act – standards for wines manufactured from grapes grown in BC

Food Products Standards Act – establish compositional and quality standards for processed foods

Meat Inspection Act – regulates animal slaughter and the sale of meat and meat byproducts in BC

Natural Products Marketing (BC) Act – controls the production, transportation, packing, storage and marketing of natural products in the province

Waste Management Act – protects environment (soil, water & air) from pollution

Local Government

Applicable *Zoning Bylaws* where in place

Publications

Publications that provide information on farm product processing include, but are not limited to the following (refer to Appendix D for details):

Direct Marketing: A Handbook for Producers

British Columbia Environmental Farm Plan Reference Guide

On-Farm Processing: A Handbook for Producers

Microbial Food Safety Checklist – Field Production of Vegetables and Berries

Microbial Food Safety Checklist – On-Farm Packing of Field Vegetable and Berries