

FARM PRACTICE

CROP RESIDUE MANAGEMENT

Description

Crop residue is defined as the vegetative crop material left on a field after a crop is harvested, pruned or processed. Farmers are encouraged as much as possible to work crop residues back into the soil or to compost them for use as a soil amendment. Recycling crop residues helps control pests, prevent erosion and preserve or improve soil quality.

Nuisance Concerns

The three main disturbances mentioned in the *Farm Practices Protection (Right to Farm) Act* are odour, noise and dust. Of particular concern to practices surrounding crop residue management are nuisance disturbances associated with odour and dust.

Odour

Farmers engage in a variety of activities that produce odours. Many crop residues which are left to decompose in fields can release some odours. The degree to which individuals perceive an odour to be a nuisance will depend on the frequency, intensity, duration and offensiveness of the odour. Other factors that come into play include a person's sensitivities and personal previous experiences.

See also Nuisance Reference: [Odour](#)

Dust

Dust is defined as fine-grained suspended particulate in air. Farmers who work the soil engage in a variety of activities that require the use of equipment or practices that create dust. The degree to which individuals perceive dust to be a nuisance will depend on the frequency, intensity and duration of a dust-generating event. Many field or land clearing operations require the use of equipment or practices that will create dust. Dust may also be generated as fugitive dust when fine particulates are lifted from fields, roads, buildings and yards via air turbulence.

See also Nuisance Reference: [Dust](#)

Activities and Operations

Generally, crop residues should be applied to land in the same manner as are other organic amendments used for crop production. They should be chopped and spread throughout the field or incorporated into the soil – not piled on top – so that wastes decompose quickly and thoroughly. In some instances, crop

residues can and should be composted to improve their quality as a soil amendment or to aid in pest or disease control.

Grains, Oil Seeds and Grasses

Where possible, crop residues should be left on the soil surface over the winter to protect the soil from erosion. They can be incorporated into the soil the following spring during regular cultivation operations or – in the case of no-till management practice – left on the surface.

Chopping, flailing and spreading straw or chaff will improve decomposition rates of the crop residue and will improve uniformity of distribution over the field. Dust may be generated during harvest or during the management of grain, oil seed and grass crop residue. Burning of windrowed grass or grain straw may be done after harvest to manage pests and large quantities of residue if no other suitable practices are available.

See also Farm Practice: [Burning](#)
[Cultivation](#)

Vegetables

Residues should be incorporated into the soil soon after harvest is complete to allow a cover crop to be seeded. This practice reduces weeds, insects and disease; minimizes erosion; captures excess nutrients; and reduces the potential for odour. If the harvest is late and there is not enough time for a cover crop to establish itself, crop residues should be left as and where they are. Plowing under the residue under such circumstances would expose the soil to unwanted winter erosion. Piling of residue from brassica crops is not recommended; these materials should either be spread or incorporated into the soil where soil conditions permit field access. For very late crops, no attempt should be made to incorporate residue, as doing so will cause serious structural damage to the soil. Standing vegetable crop residue can provide excellent soil protection from wind and water erosion.

Prunings

Berry, grape, tree fruits and other prunings from orchards and vineyards are usually mulched. Many orchardists use flail mowers to accomplish this. If mulched, prunings should be spread evenly over the ground and, where possible, incorporated into the soil. Whenever possible, mulching, chipping, grinding or composting should be considered a superior option to burning.

In some circumstances, it may be more prudent to burn prunings than to mulch them if plant material is suspected of harbouring disease. They may be piled and burned in accordance with condition outlined in the *Open Burning and Smoke Control Regulation* and its *Code of Practice*. In such cases, best burning practices should be followed and burn duration and smoke production should be minimized.

See also Farm Practice: [Burning](#)

Related Farm Practices

Other farm practices that pertain to crop residue management include, but are not limited to, the following.

Cultivation

Cultivation is used to break up and bury crop residue to initiate and enhance the decomposition process or control pests that maybe harboured in the residue. In some instances, cultivation may or may not be used to alter the nature of the soil and crop residue condition in order to improve soil erosion control.

See also Farm Practice: [Cultivation](#)

Mobile Equipment

Harvesting of grains, oil seeds and grasses requires the use of mobile equipment that must be operated at optimum moisture conditions. Dust is, however, often generated from moulds, dirt and finely-broken crop residue during the process of separating the harvested portion of the crop from the crop residue left in the field. The generation of such dust can be attributed to the design of the mobile equipment itself or crop residue management attachments on the equipment. The dust may be created intermittently and may move across the field as the equipment moves through the crop.

See also Farm Practice: [Mobile Equipment](#)

Stationary Equipment

Chipping or grinding of woody materials such as are used in nurseries or orchards may entail the use of stationary equipment.

See also Farm Practice: [Stationary Equipment](#)

Legislation

Information on federal and provincial legislation can be found in Appendices B and C. Acts, regulations and bylaws that regulate or may affect crop residue management practices include, but are not limited to, the following.

Provincial Legislation

The *Environmental Management Act* protects the soil, water and air environment from pollution. Included under this Act is the *Agricultural Waste Control Regulation* which allows farmers to operate without a waste permit when managing crop residue according to the *Code of Agricultural Practice for Waste Management*.

Local Government Legislation

Various local government bylaws applicable to noise and air emissions restrictions may apply in given regional districts or municipalities.

Publications

Publications that provide further information on crop residue management include, but are not limited to, the following. Refer to Appendix D for details.

British Columbia Agricultural Composting Handbook
Canada–British Columbia Environmental Farm Plan Reference Guide
A Guide to the Open Burning Smoke Control Regulation