

FARM PRACTICE

CULTIVATION

Description

Cultivation, tillage or stirring of the soil is one of the oldest agronomic practices. It is common to the great variety of field cropping systems used on farms in British Columbia. There are two classes of cultivation related to intensity: primary and secondary.

Primary cultivation involves operations which cut and shatter the soil with relatively deep implement tools that penetrate to depths ranging from 15–75 centimetres, leaving a rough surface. Plows, listers, bedders and rotary tillers are the main implements used for primary cultivation. Deep cultivation may also be carried out using subsoilers or rippers to break hard or compacted layers.

Secondary cultivation involves operations which pulverize, level and firm the top 5–15 centimetres of soil. Disk harrows, cultivators and rotary tillers are the main implements used for secondary cultivation.

With the introduction of powerful tractors and modern soil tilling implements, the ability to stir the soil has increased dramatically. This has spawned concerns about soil degradation, most notably associated with organic matter depletion, compaction and erosion.

In recent years, equipment and agronomic techniques have been developed to accommodate reduced tillage practices. Such operations enable farmers to sow seed, add soil nutrients, and harvest crops with minimal disturbance or cultivation of land. These practices are referred to as no-till, minimum-till or zero-till practices. Proper timing of field operations, reduced field speed, and proper choice and use of implements also help reduce the negative impact cultivation imposes on the soil.

The practice of land grading or land leveling involves the shaping of the soil surface within a field to improve surface drainage and eliminate areas where surface water may accumulate. This is carried out by cutting high spots and filling low spots. The activity requires the use of cultivation and land leveling equipment such as scrapers and heavy tractors. Land grading is generally done to improve drainage but can be used to change more subtle features of a field or site to bumps and hollows for improved erosion control and crop production.

Nuisance Concerns

The three primary disturbances referred to in the *Farm Practices Protection (Right to Farm) Act* are odour, noise and dust. Of particular concern to cultivation practices are noise and dust.

Noise

Farmers engage in a variety of activities that require the use of cultivation equipment. Most equipment generates some noise. Noise is defined as any sound that is audible but judged to be an unwanted,

irregular or erratic disturbance. Noise levels vary and may rise when equipment is run at higher speeds. Noise may be generated continuously or intermittently.

See also Nuisance Reference: [Noise](#)

Dust

Dust is defined as fine-grained suspended particulate in air. The degree to which individuals perceive dust to be a nuisance will depend on the frequency, intensity and duration of a dust-generating event.

Farmers engage in a variety of land clearing or cultivation operations that require the use of equipment that will generate 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

Field Operations

Farmers may till their fields to prepare a seedbed for annual or perennial crops or as part of land clearing or leveling operations. They may incorporate organic or inorganic soil amendments or fertilizers and crop residue into their land. Controlling weeds, insects and disease may also necessitate additional cultivation. Under certain soil moisture conditions, cultivation can create dust. Farmers should attempt to carry out all tillage operations when soil moisture levels are below field capacity and above the wilting point. This will minimize the creation of dust and will reduce compaction.

See also Farm Practices: [Mobile Equipment](#)
[Land Clearing](#)

Related Farm Practices

Other farm practices that pertain to cultivation include, but are not limited to, the following.

Crop Residue Management

Effective management of crop residue often requires the use of both cultivation and other mobile equipment. Both privately-owned and custom-hired equipment may be used to till farm land. Farmers may need to transport large cultivation implements and their power units on public roads in agricultural areas. Cultivation equipment may be operated 24 hours a day at critical times of the year.

See also Farm Practice: [Crop Residue Management](#)

Fertilizers and Soil Conditioners

Fertilizers and soil conditioners must be evenly spread over the soil and are most effective when incorporated into the crop root zone with the use of cultivation equipment.

See also Farm Practice: [Fertilizers and Soil Conditioners](#)

Weed Control

Besides the use of herbicides, one of the most effective and preferred techniques for the control of weeds – particularly in organic crop production – is through cultivation practices.

See also Farm Practice: [Fertilizers and Soil Conditioners](#)

Legislation

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

Provincial Legislation

The *Motor Vehicle Act* regulates the control of hazards – including the movement of equipment to and from fields – to ensure safe travel on highways.

Publications

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

British Columbia Agricultural Drainage Manual

Canada–British Columbia Environmental Farm Plan Reference Guide

Conservation Tillage/Seeding Equipment

Farm Vehicles on the Move

Soil Management Handbook for the Lower Fraser Valley

Soil Management Handbook for the Okanagan and Similkameen Valleys