

SOD PRODUCTION



According to Statistics Canada, 1990 sod sales in Ontario totalled \$49 million, more than half of Canada's total sod sales.

Sod farming has a relatively low environmental impact. Pesticide use is minimal and nutrients are carefully managed. The amount of soil removed during harvest operations is the issue most often raised. This is offset by the environmental benefits of sod use. Construction sites are highly prone to wind and water erosion. The eroded soil goes directly into lakes and streams through storm sewers and waterways. However, sod can stabilize these fragile areas quickly which reduces soil loss and leaching and filters storm water. The use of best management practices during sod production can help to ensure efficient production of nursery sod.

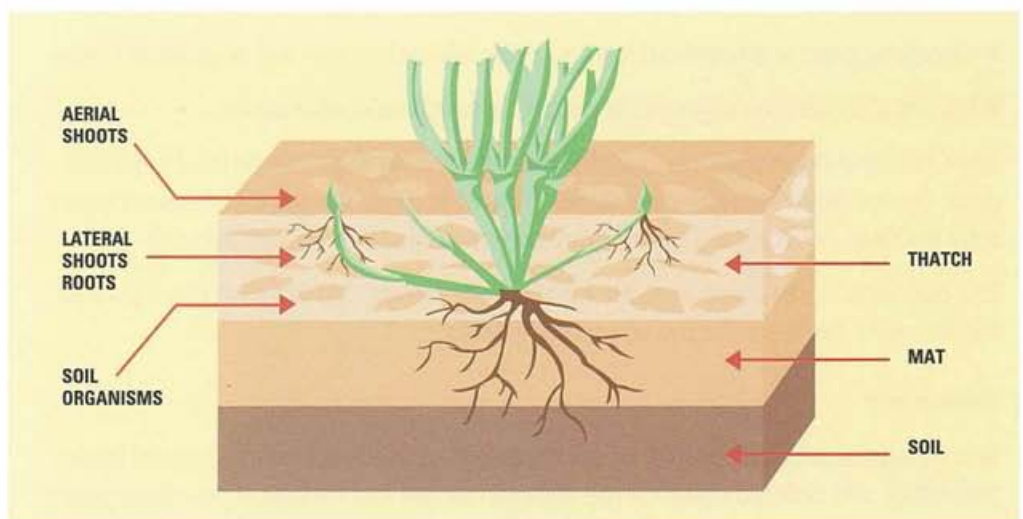
SOIL MANAGEMENT

During harvest of nursery sod, careful measures have shown that an average sod layer contains 9.4 millimetres of mineral soil and 8.5 millimetres of organic material. Nevertheless, many people confuse the two layers and believe two centimetres of soil are removed. Minimizing the removal of mineral soil has several advantages:

- ▶ A reduction in soil loss from the production site.
- ▶ More rapid rooting when laid on a properly-prepared site.
- ▶ Lower roll weight which reduces transportation costs.

There are a number of ways to **reduce the loss of mineral soil**:

- ▶ Properly preparing the soil prior to seeding.



Profile of turf showing the layers of thatch, mat and soil.

► Encouraging rapid, vigorous root development through the use of phosphate and mowing practices.

► Rolling the turf prior to cutting.

Before seeding, prepare a level surface with tillage and land levelling. If the soil is moist, roll immediately before harvesting sod to flatten irregularities. In combination, these two practices permit the cutter bar to operate at a uniform depth without skips or holes. Both avoid wasting sod and removing excess soil.

Tillers and rhizomes may develop to form in the organic or thatch layer. To encourage this, use irrigation, light frequent applications of nitrogen and frequent mowing.

Soil losses by water and wind erosion after harvest and before the next crop may be minimized by:

► Light surface cultivation followed by seeding a winter cereal crop such as rye immediately after harvest.

► Cutting the cover crop before it heads to avoid volunteer grain in newly-seeded grass.

► Seeding recommended cultivars from mid-August to early September when the chance of heavy rains is lower. This will establish sod faster.

Keep the soil surface covered to avoid erosion. Over 90% of the grass roots are in the top five centimetres of the soil. This will help to enrich the soil after harvest. Deeper tillage before the seedbed is prepared may help reduce compaction problems.





Broadcasting fertilizer in preparation for sod establishment.

NUTRIENT MANAGEMENT

Another concern is the potential for surface and groundwater contamination with fertilizer. However, soil and water losses from run-off are lower than from any other agricultural crop. Therefore, loss of phosphorus will be minimal (it does not move downward in soil so can only be lost on soil particles carried in run-off). Sod is a heavy feeder on nitrogen and will absorb much of the soluble nitrogen before leaching can occur, if the applications are light and frequent.

Best management practices for fertilizer use are:

- ▶ Apply phosphorus and potassium based on soil tests.
- ▶ Apply phosphorus only once, immediately before seeding, when it can be incorporated and will increase seedling vigour.
- ▶ Apply nitrogen as needed based on the colour, density and vigour of the turf. The amount should be adjusted depending on desired growth.

Experience will help you judge how much nitrogen to apply. Light applications of not more than 50 kilograms per hectare of actual nitrogen should not produce soluble nitrogen for leaching. The frequency of applications should promote rapid, but not luxuriant growth. Excessive nitrogen may reduce root development and the strength of harvested sod. See OMAF Publication # 384.

PEST MANAGEMENT

Sod production uses both cultural and chemical measures for pest management. The goal is a break-free, harvestable roll with a dense root system that meets the specifications of the Nursery Sod Growers Association.

Cultural Control

When establishing sod:

- ▶ Buy certified seed.
- ▶ Use disease-resistant varieties.
- ▶ Use different turf species in a mixture such as fine fescues and turf-type perennials.
- ▶ Irrigation and soil management practices to encourage rapid establishment of dense, vigorous turf.



Use of good cultural management practices at seeding will encourage fast establishment of dense, vigorous turf.

During sod production:

- ▶ Avoid excess irrigation.
- ▶ Avoid long periods of leaf wetness.
- ▶ Avoid excess thatch.
- ▶ Avoid high nitrogen applications which make turf more prone to leafspot.
- ▶ Use good mowing techniques, watching both timing and height. Mowing sod too close weakens the root system.

Chemical Control

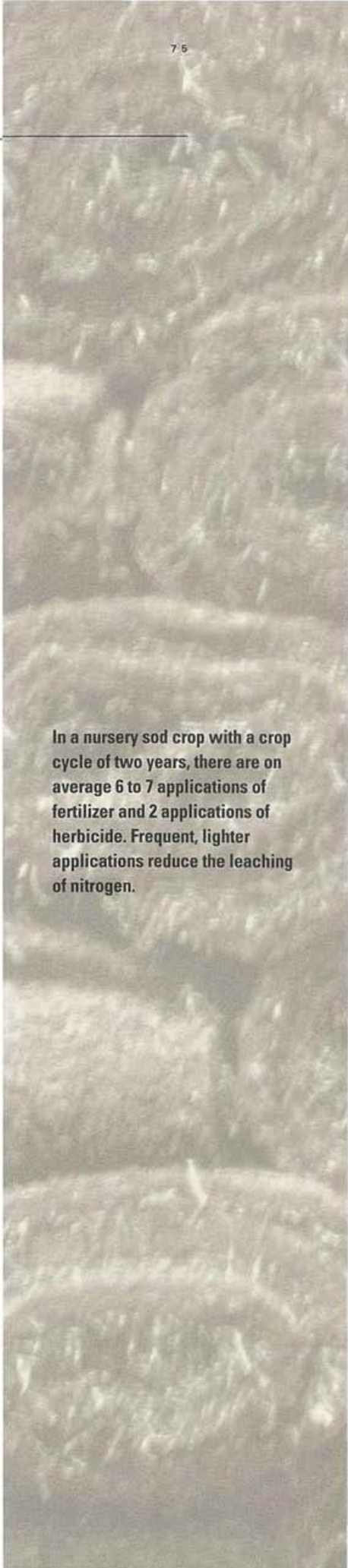
Sod production does not require large amounts of pesticides. The pesticides used most commonly are herbicides for broadleaf and grassy weed control. Fungicides are seldom needed in nursery production. On occasion, growers may need to use insecticides for localized control of chinch bugs, white grubs, cutworms and European chafer. When chemical control is needed:

- ▶ Positively identify the problem and its extent before spraying.
- ▶ Spray only those areas with the problem.
- ▶ Use a properly-calibrated sprayer.
- ▶ Be aware of all federal and provincial regulations regarding the use, storage and disposal of pesticides.

Summary

By using best management practices, healthy, competitive sod is produced. Use pesticides sparingly, plant cover crops between harvest and the next seeding, prepare a firm and level seed bed and encourage rapid development of roots.

These practices also ensure the future of the nursery industry at a time of increased public concern about agricultural practices.



In a nursery sod crop with a crop cycle of two years, there are on average 6 to 7 applications of fertilizer and 2 applications of herbicide. Frequent, lighter applications reduce the leaching of nitrogen.