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Sod production began in Washington, the first Pacific Northwest producer, in 1962. Emerald Turfgrass Farms at Sumner, Washington was the first producer that has stayed in business and had its beginning on 25 acres. At the present time Emerald operates about 250 acres of cultivated and specialized sod and stolons. It is estimated that there are seven or eight producers growing about 1,000 acres of cultivated sod. Perhaps there are several reasons why sod production isn't a larger industry when compared to Michigan.

First of all, the Pacific Northwest has a very friendly climate for the establishment of lawns from seed. Lawns can be planted in any month from April 15 through October 20, particularly in the metropolitan areas of Seattle and Tacoma, WA, and Portland, OR.

Secondly, there are few pests in the way of seedling diseases and weeds to prevent good establishment of seeded turf. Although crabgrass is found in nearly all areas of the Northwest, it is not a serious problem to the establishment of turf. Summer turfgrass diseases are not significant to the manager of fine turf.

Winter losses of turfgrasses in the Northwest is not a significant problem except in the interior regions where colder winters causes variable losses from snow mold and occasionally winter desiccation.

Along the Pacific coast, losses are not highly significant and are related to minor Fusarium Patch disease losses and only rarely to winter desiccation.



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Sod Production in

Well-designed and applied fungicidal programs help to make disease losses rather minor in all areas. Perhaps another reason, and perhaps the most significant for the lack of demand for good sod, is public awareness and promotion. Although sod production has increased more than 50 percent within the last five years, it is still in its infancy in the Pacific Northwest.

In Canada there are probably no more than a dozen sod producers West of Saskatchewan. If we wish to consider Alberta as a part of the Pacific Northwest, their major producers lie in the Calgary-Edmonton area. Even so, the total production of both Alberta and British Columbia probably do not exceed 1,000 acres of cultivated sod.

TYPES OF TURF GROWN FOR SOD

Bluegrass is the principal sod type produced in all areas of the Northwest. The principal varieties include Merion, Fylking, and Baron, with increased emphasis on Nugget in the colder interior regions of the Northwest.

Any of the named varieties of bluegrass in combination with the fine-leaved fescues make up the largest acreage of cultivated sod. Pennlawn, Illahee, Rainier, Dawson, Jamestown, and Wintergreen are the major varieties used in these mixtures. Some producers include up to 30 percent of the total seed mixture as fine-leaved fescues to compensate for shade tolerance that many of the bluegrasses, in general, lack.

More recently, mixtures of the bluegrasses and turf-type ryegrasses such as Manhattan and Pennfine have gained popularity for specialized uses such as athletic fields, playgrounds and park areas. Winter hardiness of the ryegrasses has not been a problem in the western portion of the Northwest, but have not proven to be highly popular in the colder interior regions. Ryegrasses maintain better growth and color during the fall and winter months west of the Cascade Mountains, hence, the popularity for this type of mixture. Red thread disease caused by the fungus *Corticium fuciforme* is probably the greatest weakness of the ryegrasses along the West Coast area.

Stolon production is very limited. To my knowledge, only Emerald Turfgrass Farms produces stolons for specialized uses on golf course putting greens. The

variety Toronto is the only stoloniferous type produced, however, some Old Orchard is shipped in from California producers.

SOIL TYPES FOR SOD PRODUCTION

Nearly all sod in the Pacific Northwest is produced on mineral type soils. Soils vary from loamy sands to silt loams. Little or no production occurs on peat or muck soils. Sod producers on the Northwest coast experience heavy rainfall during fall, winter and early spring, making peat soils difficult to manage during this period of time since mowing must be practiced in nearly all months of the year.

Although it requires more time to produce a saleable crop of sod on lighter soils, harvesting operations can proceed at any time the ground is not frozen or snow covered. This is not a significant factor west of the Cascade Mountains, although no harvesting occurs in areas east of the Mountains from, perhaps November 1 through April 15.

PRODUCTION AND HARVESTING

Sod fields are normally planted at the rate of 70 to 100 lbs. of bluegrass or bluegrass/fescue mixtures per acre. Brillion drills are predominately used for planting. No sod is reproduced from rhizomes or other vegetative material.

Fertilizers are applied prior to planting based upon soil tests. Normally preplant applications of 10-20-20 at the rate of 400-500 lbs. per acre are provided, after which nitrogen only is applied to produce the crop.

Nitrogen applications are made every five to eight weeks throughout the growing season to maintain vigorous growth and development. The average sod crop on sandy soils receives about between 250 to 275 pounds of nitrogen per acre before harvesting. Liming is practiced only on acid soils west of the Cascade Mountains where soil tests indicate the need.

Most irrigation is practiced with either portable handsets or portable wheel moves. Little solid set irrigation except for establishing new fields is practiced in the Northwest. Some farms practice laying out solid sets on newly seeded fields until they are ready for the first mowing, and then removed and replaced with wheel sets.

WEEDS TREES and TURF

the Pacific Northwest

Mowing is usually accomplished with pull-type units of 5, 7 or 9 gangs. Some producers in the higher rainfall areas west of the Cascade Mountains use very high flotation tires on tractors used for gang units, fertilizer application, or other operations in the field. Rear tires up to 42 inches wide make mowing operations possible when soils are soft and wet.

Harvesting is accomplished with a wide variety of equipment. Some smaller farms cut with 18 inch hand operated power cutters while others use the Nunes, Brouwer, or Princeton sod harvesters.

MAJOR PROBLEMS

Poa annua is by far the single most important problem in sod production.

All fields planted to premium quality sod must be fumigated with methyl bromide at 300 lbs. per acre prior to planting. This costs the sod grower about \$300 an acre by the time the tarps are retrieved from the land. Even this does not guarantee freedom from *Poa annua* invasion. Some tests have been made with tricalcium arsenate as a post-emergent eradication treatment with varying success considering variable soil types and soil drainage.

The sod producer has little control over the destination of the grass grown, since little sod is installed by producers. Frequently, bluegrasses are sodded in areas with too much shade and results in unacceptable lawns and occasionally complete losses. Bluegrasses sodded on putting green aprons produces a striking contrast with fairway types and is sometimes criticized.

Soil incompatibility on high use playfields is frequently a problem. The better football fields in the Pacific Northwest today are built from sand and organic material. Sod grown on soil heavier than loamy sand does not readily transmit precipitation unless intensively managed. Some producers are presently growing sod on sand which has been hauled in for premium quality athletic fields. This obviously increases the price of the sod to the consumer, but many feel this is a wise investment.

One other problem facing sod producers in the metropolitan areas of Seattle and Portland is high land costs and taxes. Land suitable for sod production in these areas is valued from \$2,000 to \$7,000 per acre. Land rent for the same land runs from \$80 to \$100 per acre with the renter participating in part of the taxes. □

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