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RESEARCH/EXTENSION

IMPLICATIONS OF WILLAMETTE VALLEY SOIL TYPES TO GRASS SEED PRODUCTION

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Poor drainage restricts the agricultural use of over 428,000 acres of Willamette Valley soils (Table 1). These soils have the water table at or near the surface during the late winter and spring. Grass seed crops are well adapted to these poorly-drained soils, particularly annual and perennial ryegrass. Grass seed growers in Linn, Benton, and Lane counties specialize in grass seed crops as most other crops will not survive the winter flooding on these soils. Alternate crops for grass seed are difficult to find.

An important consideration for crop selection is the amount of time a water table will be at a depth of less than 18 inches. A water table must have receded to the 18 to 20 inch level before tillage is possible. High water tables also slow springtime warming, thus, delaying planting. Dayton soils, for example, have a water table at 18 inches or closer to the surface over 60 percent of the time on May 1. Planting of crops such as broccoli, snap beans, corn, table beets and carrots begins in mid to late-April continuing through May. Tillage and incorporation of soil amendments and fertilizers precede planting. The combination of delayed lowering of water tables, and time required for land preparation and planting, produces a calendar date of mid-June for planting on poorly drained soils. In addition, an early rain on a field that has to be harvested in September or October could produce conditions that preclude harvest or economic production in the next year.

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Not all grass seed crops are grown on poorly drained soils. And conversely not all poorly drained soils have grass for seed grown on them. Although tile drainage and supplemental summer irrigation is technically possible on some soils, conversion of substantial acreages of poorly drained soils to vegetable production is limited by physical properties such as soil drainage, economic considerations of increased production costs and lack of a market, as well as legal constraints by both the Federal and State Governments. Our market driven economy would find another profitable use for these soils if one existed.

Of the soils listed in Table 1, Amity is the only soil series that is not classified as hydric. This classification means all but the Amity soils are considered wetland soils. As a result of the Food Security Act of 1985, wetland soils cannot be drained without high risk of any Federal Farm Program or other Federal assistance being lost. In addition to the probability of losing any federal assistance, state Fish and Game and other regulations would not permit installation of tile drainage systems. Thus, a potential for drainage exists for approximately 100,000 acres, or less than 25% of the poorly drained acreage in the six-county Valley area.

The Willamette Valley's poorly drained soils are best suited for fall tillage and establishment of a crop that will grow in the cool temperatures of late fall and early spring. This crop has to be tolerant of high water tables during part of the growth cycle. Grass grown for seed fits well in this environment.

Another provision of the Food Security Act that has potential impact on Willamette Valley growers is the Conservation Compliance Provision. Under this

provision, growers with highly erodible soils must develop a conservation plan that is acceptable to the Soil Conservation Service. This plan is to be developed by January 1, 1990 and implemented by January 1, 1995. Over 100,000 acres in the Willamette Valley are classified as highly erodible based on the percent slope, soil type, and annual rainfall. In many parts of the central Willamette Valley (Silverton Hills, foothill areas, etc.), perennial grass seed crops are included as a part of the conservation plan. Perennial grass seed crops are a valuable part of conservation plans since soil disturbance is minimized over extended periods of time. The removal of grass seed crops from rotations or the shortening of crop stand life would negatively impact a grower's ability to comply with soil loss requirements. Noncompliance results in immediate loss of all USDA farm program benefits.

Table 1. Acreages of poorly drained soils of the Willamette Valley.

Soil Series	Benton County	Lane County	Linn County	Marion County	Polk County	Yamhill County	Total Acres
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Amity	6,100		26,700	45,109	9,721	13,360	100,990
Awbrig		10,240	9,985				20,225
Bashaw	6,095	10,000	25,635	4,830	2,861		49,421
Concord	1,198		10,835	14,980	5,755		32,768
Conser	2,704	4,200	9,955				16,859
Courtney		2,820	8,500	4,850			16,170
Dayton	15,362	4,280	59,075	10,440	9,767	4,420	103,344
Natroy		17,880					17,880
Waldo	8,406	7,550	6,800	3,380	12,480		38,616
Wapato	1,217	2,320	4,920	11,008	3,053	9,670	32,188
Total	41,082	59,290	162,405	94,597	43,637	27,450	428,461