

1953 Field Crop

Recommendations
for Oregon

Agricultural Experiment Station
Oregon State College
Corvallis

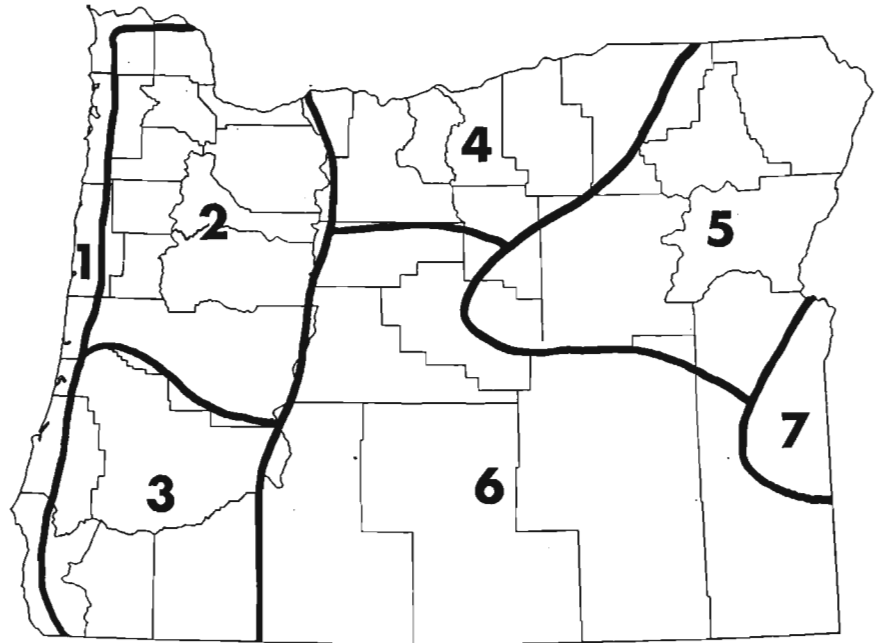
Station Bulletin 533

March 1953



CROP ZONES FOR OREGON

1. Coast
2. Willamette Valley
3. Southern Oregon
4. Columbia Basin
5. Blue Mountains
6. Central Oregon
7. Snake River Valley



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The recommendations of the crop varieties best adapted to each of the many diverse environmental conditions in Oregon is a responsibility of the Oregon Agricultural Experiment Station. The varieties recommended are those which have performed satisfactorily in trials conducted by the Farm Crops staff and by the branch experiment stations throughout the state. It is recognized that the list is incomplete at best and does not include all crop varieties now being grown. Only the major crops and varieties are presented. It is expected that some of the varieties now recommended will be replaced in the near future by others shown to be superior by experimental trials. The list of recommended crops will be revised as necessary.

In order to simplify the crop-variety recommendations, the state has been divided into seven distinct crop regions or zones. Within these zones there is usually sufficient similarity to permit uniformity of crop varieties. It should be recognized that within each of these zones there may be sufficient variation in other conditions, such as soil types or fertility, to modify the general recommendations. For example, variations in soil moisture and soil type or extremes of acidity or alkalinity may often make it necessary to modify the crop recommendations. Likewise, in Zones 4, 5 and 6, where irrigation is available the crops and varieties adapted will vary widely from the remainder of the zone. Information on crops and crop varieties for special conditions within any zone is available from the county agent.

The brief description of the varieties named is intended to convey the essential information on adaptation and is not intended to be complete. Additional information will be provided by the Farm Crops Department or the branch experiment stations.

These recommendations supersede those published in 1950 as Experiment Station Bulletin 476. The recommendations are based on experiments conducted on the Central and Branch Experiment Stations and on experiences of farmers throughout the state. The Farm Crops staff, the branch station superintendents, and representatives of the U. S. Department of Agriculture have collaborated in the preparation of this material.

Cereal Crops Recommended

Wheat

Federation: a beardless, brown-chaffed, stiff-strawed, common soft white spring wheat. It is moderately winter hardy and often fall planted where winters are mild or snow cover adequate to give protection from winter injury. Only moderately resistant to smut. It is rated as a satisfactory milling wheat by millers and cereal chemists. Federation is recommended for spring planting in Zones 4 and 5.

White Federation 38: a beardless, white-chaffed, early, stiff-strawed common white spring variety. It is resistant to some races of smut and stem rust. White Federation 38 is recommended for fall and spring planting in Zone 3.

Elmar: a short, stiff-strawed, high-yielding white club winter wheat. It is very similar to Elgin. It is satisfactory as a milling and pastry flour wheat. Elmar is resistant to dwarf smut and most races of common smut. Recommended for fall planting in Zone 3, Wasco, Sherman, and eastern Umatilla counties of Zone 4, and Zones 5 and 6.

Brevor: a high-yielding soft white winter wheat with a common head. It is resistant to dwarf smut and many races of common smut. Brevor is a poor milling wheat but produces high quality flour. Recommended for fall planting in Wasco, Sherman, Gilliam, Morrow, Wheeler, and western Umatilla counties in Zone 4 and Zone 5.

Rex: a beardless, stiff-strawed, high-yielding, common soft white winter wheat. It is drought resistant, winter hardy, and quite resistant to shattering and lodging. Rex is resistant to dwarf smut and many races of common smut. It is rated as a poor milling wheat. Recommended for fall planting in Wasco, Sherman, Gilliam, Morrow, Wheeler, and western Umatilla counties in Zone 4 and Zones 5 and 7.

Rio: a bearded, hard-red, Turkey-type winter wheat. It resembles Turkey, but has slightly shorter straw. Rio is resistant to several races of common smut, but susceptible to dwarf smut. Recommended for Gilliam, Morrow, Wheeler, and western Umatilla counties in Zone 4.

- Golden:** a beardless, short, medium stiff-strawed common soft white winter wheat variety. It is susceptible to both common and dwarf smut and shatters readily. Golden is rated as a good pastry flour wheat. Recommended for fall planting in Gilliam, Morrow, Wheeler, and western Umatilla counties in Zone 4.
- White Holland:** a beardless, late-maturing, soft white winter wheat. It has moderately stiff straw. Recommended for fall planting in Zone 2.
- White Winter:** a tall, late-maturing, beardless soft white winter wheat. White Winter is one of the oldest varieties grown in Oregon. Recommended for fall planting in Zone 2.
- Zimmerman:** a tall, beardless, soft white spring wheat recommended for spring planting in Zone 2. Should not be fall planted in the Willamette Valley.
- Marquis:** a hard red spring wheat grown to some extent in the Willamette Valley. It is susceptible to both rusts and smuts. Recommended for spring planting in Zone 2.
- Lemhi:** a soft, white, stiff-strawed, high-yielding spring wheat adapted for spring planting in Zone 7.
- Idaed:** a beardless, early, short, medium stiff-strawed common soft white spring wheat variety. Susceptible to stem rust, but early maturity allows it to escape severe damage. Satisfactory milling wheat. Recommended for spring planting in Wasco, Sherman, Gilliam, Morrow, Wheeler, and western Umatilla counties of Zone 4 and Zone 5.
- Baart 46:** a tall, white-strawed, bearded white spring wheat variety. Resistant to many races of rust and common smut. Rated as an excellent milling wheat. Developed by the California Experiment Station as a replacement for Baart 38. Recommended for spring planting in Zone 6.
- Orfed:** a bearded, common soft white variety which may be planted in either fall or spring. It is more winter hardy than Federation. Orfed is resistant to several races of common smut but susceptible to dwarf smut when fall planted. Recommended for fall and spring planting in Wasco and Sherman counties in Zone 4.

Barley

Hannchen: a two-rowed, rough-awned spring barley. It has moderately stiff straw, but may lodge badly on rich bottom land. It is the only two-rowed malting barley recommended for Oregon. Recommended for Zones 2, 5, and 6.

Cascade: a six-rowed, rough-awned winter barley. It has moderately stiff straw and is sufficiently winter hardy for fall planting in the Willamette Valley. Should not be spring planted. Recommended for Zone 2.

Winter Club: a six-rowed, rough-awned winter barley. It has stiff straw and a compact, dense spike. Not sufficiently winter hardy for areas with severe winters. Other names for this variety are *White Winter* and *Utah Winter*. It is acceptable as a malting barley. Recommended for Zones 3, 4, 5, and 6.

Meloy: a six-rowed, hooded, spring barley. It is recommended as a forage and hay crop in Zone 4.

Flynn 37: a six-rowed, smooth-awned spring barley with moderately stiff straw. Recommended for Zone 4, for both hay and grain production.

Bonneville: a six-rowed, smooth-awned spring barley with stiff straw. It is equal to *Trebi* in yield and superior in strength of straw. Recommended for irrigated areas of Zones 3, 6, and 7.

Spray: a six-rowed, hooded spring barley that has shown promise for forage production near *Spray*, Oregon and nearby comparable areas. Recommended only for *Wheeler County* in Zone 4.

Trebi: a six-rowed, rough-awned spring barley. It is a good yielder, but has weak straw. Not acceptable as a malting barley. Recommended for Zones 6 and 7.

Olympia: a six-rowed, rough-awned winter barley. It has moderately stiff straw and is moderately winter hardy. Recommended for fall planting in Zones 4 and 7.

Union Beardless: a six-rowed, hooded variety of spring barley grown in some areas as a hay barley. No known source of seed available.

Oats

- Victory:** a tall, late-maturing spring oat. It is susceptible to both rusts and smuts. It has fairly strong straw and is a good yielder of plump, white kernels. Recommended for spring planting in Zone 2 and for central Oregon section of Zone 6.
- Grey Winter:** a grey winter oat variety that is widely grown throughout western Oregon as a companion crop with vetch for hay and for grain production. It tillers profusely and is a high yielder. It has weak straw and often lodges. Recommended for fall planting in Zones 2 and 3.
- Support:** a grey winter selection very similar in appearance and performance to Grey Winter although straw is slightly stronger. Recommended for fall planting in Zones 2 and 3.
- Carleton:** a white spring oat variety that is a good yielder and resistant to smut. Recommended for Zones 3 and 4 and dry areas of Zone 5.
- Markton:** a tall, late-maturing white spring oat variety adapted in areas of low rainfall. It is highly resistant to smut. Recommended for spring planting in Zones 4, 5, and 6.
- Shasta:** a tall, late-maturing spring oat variety. It has moderately strong straw and is a good yielder of plump, heavy kernels although susceptible to rust. Because of its late maturity it has been damaged by early frosts in some areas. Recommended for spring planting in Zone 6.
- Overland:** a short, stiff-strawed, high-yielding, spring oat variety with white plump kernels. It is recommended for spring planting in the Klamath Basin region of Zone 6 and in Zone 7.
- Cody:** a short, stiff-strawed, spring oat variety with yellow kernels. It is a good yielder and resistant to both rusts and smuts. Seed supply is limited at present. Recommended for spring planting in Zone 7.
- Schoolmam:** a fine-stemmed white spring oat with considerable rust resistance. It is recommended for hay production in Zone 1.

Corn

Note: Because corn is being grown under conditions to which it is not ideally adapted, it is necessary to consider specific area adaptations more fully. In this analysis, therefore, corn is listed by area as well as by variety.

Willamette Valley (Zone 2)

Oregon 355: medium early in maturity for the Willamette Valley and is recommended for grain production throughout the valley. Oregon 355 has considerable cold resistance and hence is excellent for early planting. It is widely adapted and has proved to be an exceptionally high-yielding type on many of the upland soils of Clackamas and Marion counties.

Oregon 525: medium late in maturity and is recommended for silage production throughout the major portion of the Willamette Valley. It is a high grain yielder in the central portion of the valley when early planting is possible. This hybrid is a full season one for the area and is not recommended for late planting if grain production is desired.

Malheur County (Zone 7)

Western 90 Day: is early in maturity for the area and cannot be expected to yield as well as later maturing hybrids. It is recommended as an early maturing grain for late planting and in the shorter season sections of Malheur County where grain is produced.

Idahybrid 544: is medium early in maturity and has given excellent yields throughout the main portion of the irrigated area of Malheur County. It is recommended as a main grain crop.

Western 101: is medium early in maturity and is recommended as a main grain crop.

Idahybrid 680: medium late in maturity and is recommended principally for silage production.

Western 112 Day: is similar to Idahybrid 680 in time of maturity and is recommended for silage production; produces more grain than 680.

Morrow and Umatilla Counties (Zone 4)

U. S. 13: is medium in maturity for the area and is recommended for both grain and silage production in the irrigated sections of Morrow and Umatilla counties.

Southern Oregon (Zone 3)

Idahybrid 544: is medium late in maturity and in the southern Oregon area has given excellent results for both grain and silage on the more fertile soils.

Union and Baker Counties (Zone 5)

Oregon 355: has given excellent yields in the corn-growing valleys of the area and appears to be about right in time of maturity.

Cereal Crop Varieties Not Recommended

Compana barley: a two-row type that is much inferior to Hannchen in both yield and malting quality. Buyers of malting barley object seriously to mixtures of this variety.

Atlas barley: a Coast-type, six-row barley which should not be grown in areas where Hannchen is grown. Buyers of malting barley object to six-row mixtures.

Polish wheat: a low-yielding variety and its kernel is inferior for milling purposes. Often known as Goose wheat; should not be grown.

Alaska wheat: a variety often having a branched spike which gives the appearance of high yields. Should not be grown as the variety is low-yielding compared to common adapted varieties and the kernel is inferior for milling.

Grain Sorghums: as a group are not adapted to Oregon conditions as they require warm weather for best growth. They are usually late in maturing and fail to produce grain satisfactorily. Can not compete with adapted cereal varieties for grain production except under adverse conditions in the Hermiston and Ontario regions.

Table 1. CEREALS RECOMMENDED FOR OREGON

Crop	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	
Wheat Spring	Zimmerman	Federation White Federation 38	Federation Idaed Orfed Idaed	All counties { Wasco Sherman { Wheeler Gilliam Morrow W. Umatilla	Idaed	Federation { Deschutes Crook Jefferson Bart { Harney Federation { Lake Bart 46 Klamath	Federation
	White Holland White Winter	Elmar White Federation 38	Elmar Brevor Rex Orfed Rio Golden Rex Brevor Elmar	{ Wasco Sherman { Gilliam Wheeler Morrow W. Umatilla E. Umatilla	Rex Brevor	Elmar	Rex
Barley Spring	Hannchen	Bonneville	Meloy Flynn 37		Hannchen	Hannchen { All counties Treb { Deschutes Bonneville { Crook Jefferson	Bonneville Treb
	Cascade	Winter Club	Winter Club Olympia		Winter Club	Treb { Harney Lake Winter Club { Klamath	Olympia
Oats Spring Winter	Victory Grey Winter Support	Carleton Grey Winter Support	Carleton Markton		Carleton	Shasta Victory { Deschutes Crook Jefferson	Overland Cody
Corn	Oregon 355 Oregon 525	Idahybrid 544	U. S. 13		Oregon 355		Western 90 day Western 112 day Idahybrid 544 Western 101 day Idahybrid 680

Flax Varieties Recommended

Fiber Flax

Cascade: a tall, late-maturing, blue-flowering variety. It is a high yielder of straw and fiber and resistant to wilt and rust. Recommended for fiber flax production in Zone 2.

Seed Flax

Bison: a blue-flowering, high-yielding, wilt-resistant, seed flax variety. Recommended for seed flax production in Zone 2.

Forage and Seed Crops Recommended

Alfalfa

Ranger: highly resistant to alfalfa wilt. Forage in Zone 2; forage and seed on irrigated lands in Zones 4, 5, 6, and 7.

Orestan: highly resistant to alfalfa wilt. Forage and seed on irrigated lands in Zones 4, 5, and 7.

Ladak: moderately resistant to alfalfa wilt. Forage and seed on dry lands receiving 15 inches or more annual rainfall and on irrigated lands where the water supply is likely to be short in Zones 4, 5, 6, and 7.

Buffalo: highly resistant to alfalfa wilt. Forage and seed on irrigated lands in Zones 4, 5, and 6. Seed in Zone 7.

Talent: resistant to stem nematode. Not resistant to alfalfa wilt. Early growth in spring. Rapid recovery after cutting. Forage in Zone 2; forage and seed in Zone 3.

Atlantic: not resistant to alfalfa wilt. High yielder of forage in Zone 2.

Grimm: not resistant to alfalfa wilt. Is being replaced by better adapted, new varieties. Forage in Zone 2.

Table 2. FORAGE AND SEED CROPS RECOMMENDED FOR OREGON
(See following pages for more detailed information)

Crop	Coast (Zone 1)	Willamette Valley (Zone 2)	Southern Oregon (Zone 3)	Columbia Basin (Zone 4)	Blue Mountains (Zone 5)	Central Oregon (Zone 6)	Snake River Valley (Zone 7)
Alfalfa	NR	Atlantic Talent Ranger Grimm	Talent	Ranger Orestan Ladak Buffalo	Ranger Orestan Ladak Buffalo	Ranger Ladak Buffalo	Ranger Orestan Ladak Buffalo
Red clover	NR	Kenland Cumberland	Kenland	Kenland	Kenland	Kenland	Kenland Midland
Alsike clover	R	R	NR	R	R	R	R
Ladino clover	R	R	R	R	R	R	R
White clover	R	R	NR	R	R	R	R
Strawberry clover	NR	NR	NR	R	R	R	R
Subclover	Tallarook Nangeela Mt. Barker	Tallarook Nangeela Mt. Barker	Tallarook Nangeela Mt. Barker	NR	NR	NR	NR
Crimson clover	NR	Dixie Reseed- ing Autauga Re- seeding Common	Dixie Reseed- ing Autauga Re- seeding Common	NR	NR	NR	NR
Sweet clover	NR	Willamette	Willamette	Willamette Spanish Madrid Hubam	Willamette Spanish Madrid Hubam	Willamette Spanish Madrid Hubam	Willamette Spanish Madrid Hubam
Birdsfoot trefoil	Granger Common Broadleaf Empire	Granger Common Broadleaf Empire	Narrowleaf Granger Common Broadleaf Empire	Granger Common Broadleaf Empire Narrowleaf	Granger Common Broadleaf Empire Narrowleaf	Granger Common Broadleaf Empire Narrowleaf	Granger Common Broadleaf Empire Narrowleaf
Big trefoil	Columbia Beaver	Columbia Beaver	NR	NR	NR	NR	NR
Vetches	Purple	Hairy Willamette Common Hungarian	Purple Hairy Hungarian Willamette Common	Hairy	NR	Hairy	NR
Austrian and Dixie Wonder field pea	NR	R	NR	R	R	R	R
Perennial burnet	R	R	R	NR	NR	NR	NR
Rape	Dwarf Essex	Dwarf Essex	Dwarf Essex	NR	NR	NR	NR
Sunflower	NR	Advance Mammoth Russian	Advance Mammoth Russian	Advance Mammoth Russian	Advance Mammoth Russian		Advance Mammoth Russian
Tall fescue	Alta	Alta	Alta	Alta	Alta	Alta	Alta
Chewings fescue	R	R	R	R	R	R	R
Red fescue	Rainier Illahee	Rainier Illahee	Rainier Illahee	Rainier Illahee	Rainier Illahee	Rainier Illahee	Rainier Illahee
Sheep fescue	NR	NR	NR	R	R	R	R
Hard fescue	NR	NR	NR	R	R	R	R
Tall oatgrass	Tualatin	Tualatin	Tualatin	Tualatin	Tualatin	Tualatin	Tualatin
Orchard grass	Common Akaroa S. 143	Common Akaroa S. 143	Common Akaroa S. 143	Common Akaroa S. 143	Common Akaroa S. 143	Common Akaroa S. 143	Common Akaroa S. 143
Ryegrass	Common Perennial	Common Perennial	Common Perennial	NR	NR	NR	NR
Bentgrass	Seaside Astoria Highland	Seaside Astoria Highland	Seaside Astoria Highland	Seaside Astoria Highland	Seaside Astoria Highland	Seaside Astoria Highland	Seaside Astoria Highland
Meadow foxtail	R	R	R	R	R	R	R
Reed Canary grass	R	R	R	R	R	R	R
Harding grass	NR	NR	R	NR	NR	NR	NR
Smooth brome- grass	NR	NR	NR	Manchar Achenback Lincoln	Manchar Achenback Lincoln	Manchar Achenback Lincoln	Manchar Achenback Lincoln

R—Recommended. NR—Not recommended.

Table 2—Continued. FORAGE AND SEED CROPS RECOMMENDED FOR OREGON
(See following pages for more detailed information)

Crop	Coast (Zone 1)	Willamette Valley (Zone 2)	Southern Oregon (Zone 3)	Columbia Basin (Zone 4)	Blue Mountains (Zone 5)	Central Oregon (Zone 6)	Snake River Valley (Zone 7)
Mountain brome- grass	NR	NR	NR	Bromar	Bromar	Bromar	Bromar
Crested wheat- grass	NR	NR	NR	Standard Fairway	Standard Fairway	Standard Fairway	Standard Fairway
Siberian wheat- grass	NR	NR	NR	R	R	R	R
Beardless wheat- grass	NR	NR	NR	Whitmar	Whitmar	Whitmar	Whitmar
Streambank wheatgrass	NR	NR	NR	R	R	R	R
Intermediate wheatgrass	NR	NR	NR	R	R	R	R
Pubescent wheat- grass	NR	NR	NR	R	R	R	R
Slender wheat- grass	NR	NR	NR	Primar	Primar	Primar	Primar
Big bluegrass	NR	NR	NR	Sherman	Sherman	Sherman	Sherman
Kentucky blue- grass	NR	NR	NR	Common Merion	Common Merion	Common Merion	Common Merion
Bulbous blue- grass	NR	NR	NR	R	R	R	R
Timothy	NR	Cornell 1777 Common	Cornell 1777 Common	Cornell 1777 Common	Cornell 1777 Common	Cornell 1777 Common	Cornell 1777 Common
Sudan grass	NR	Piper Common Sweet	Piper Common Sweet	Common Sweet	Common Sweet	NR	Common Sweet

R—Recommended. NR—Not recommended.

Creeping alfalfas: values for Oregon not yet determined. Have pasture possibilities. *Nomad* appears best adapted for dryland grazing in Zones 4, 5, 6, and 7. *Rhizoma* has forage possibilities in Zone 2.

Red Clover

Kenland: seed and forage in Zone 2 and irrigated sections of Zones 3, 4, 5, 6, and 7. This variety is recommended for major clover growing areas of the United States.

Cumberland: forage and seed in Zone 2.	{	For seed production, both Cumberland and Midland should be replaced by Kenland as rapidly as seed becomes available.
Midland: forage and seed in Zone 7.		

Alsike Clover

Tolerant of poor drainage and acid soils. Forage in Zone 1; seed and forage in Zone 2 and irrigated sections of Zones 4, 5, 6, and 7. *Should not be grown in Ladino seed-producing areas.*

Ladino Clover

Use of certified seed is recommended because the seed is indistinguishable from that of white clover. Not adapted on poorly drained lands or to strongly acid or highly alkaline soils or on soils with limited water-holding capacity. Lacks winter hardiness in dry areas unless fall irrigated. Forage in Zone 1, forage and seed under irrigation in Zones 2, 3, 4, 5, 6, and 7, excepting the Klamath Basin.

White Clover

Some foreign varieties including Certified New Zealand, Welsh S-100, and Kentish Wild, are generally superior to domestic commercial White Dutch. Adapted at high elevations. Requires less moisture than Ladino clover. Forage on moderately acid soils in Zone 1; forage and seed with irrigation, and on fertile unirrigated lands in Zone 2, and irrigated nonalkaline meadows in Zones 4, 5, 6, and 7. *Should not be grown in Ladino seed-producing areas.*

Strawberry Clover

For moist or seepy areas and under irrigation on moderate to heavy alkali lands in Zones 4, 5, 6, and 7. Will tolerate poor drainage.

Subclover

Nangeela: distinguished from other varieties by an exceptionally conspicuous leaf-marking. Has a longer productive season than either Mt. Barker or Tallarook. Forage or seed on unirrigated lands of fair to good drainage that may be depleted in fertility in Zones 1, 2, and higher rainfall sections of Zone 3.

Tallarook: is more productive than Mt. Barker on the better lands. A late maturing variety for forage or seed on unirrigated lands of fair to good drainage, that may be depleted in fertility in Zones 1, 2, and higher rainfall sections of Zone 3.

Mt. Barker: a midseason variety for forage or seed on unirrigated lands of fair to good drainage that may be depleted in fertility in Zones 1, 2, and higher rainfall sections of Zone 3.

Crimson Clover

The *Dixie* reseeding variety is in greatest demand in the seed consuming regions. The *Autauga* variety is in demand also. Early fall planted for seed, forage, or winter cover crop on well-drained soils that may be depleted in fertility in Zone 2 and in northern part of Zone 3.

Sweet Clover

Willamette: resistant to stem rot. Short-lived pasture, green manure, or seed in Zones 2 and 3; irrigated lands, and land having at least 15 inches of rainfall annually in Zones 4, 5, 6, and 7.

Spanish (White) and Madrid (Yellow): *Madrid* is slightly earlier maturing than white sweet clovers and is useful on the lighter-textured, more droughty soils. Short-lived pasture, green manure, or seed for irrigated lands or where yearly rainfall is at least 15 inches in Zones 4, 5, 6, and 7.

Hubam: white-flowering summer annual for green manure and late bee pasture in irrigated sections of Zones 4, 5, 6, and 7.

Birdsfoot Trefoil—Lotus species

Narrowleaf (*Lotus tenuis*): forage and seed on irrigated heavy soils in Zone 3 (Jackson and Josephine counties). Forage on poorly drained alkaline soils in Zones 4, 5, 6, and 7. *Should not be grown in Ladino or alsike clover seed-producing areas.*

Broadleaf (*Lotus corniculatus*): generally more vigorous than narrowleaf. *Granger* and *Empire* are the only certified varieties of which seed is commercially available. *Granger*, a better-adapted, improved variety, has recently been released. In Douglas County, a local strain known as *Douglas* is giving good results. Adapted at high elevations. Forage and seed, with or without irrigation, in Zones 1, 2, and 3; forage on irrigated alkaline soils in Zones 4, 5, 6, and 7. *Should not be grown in Ladino or alsike clover seed-producing areas.*

Big Trefoil--*Lotus uliginosus* (*Lotus major*)

Columbia (smooth) and Beaver (hairy), are the two varieties in common use. Adapted to strongly acid soils. Tolerant of prolonged winter submergence, especially the Columbia variety. Forage and seed on diked tidelands, tussock lands, and hill lands in Zone 1; tussock bottoms and better hill lands at higher elevations in northern Zone 2, and irrigated lands in Zone 2.

Vetches

Hairy--(Smooth type): seed, forage, or winter cover-crop on hill and valley soils having fair to good drainage in Zones 2 and 3; orchard winter cover crop in Zone 4. Minor seed production possibilities in northwest Zone 6.

Willamette and Common: seed, forage, or winter cover-crop on fertile, well-drained soils in Zones 2 and 3.

Hungarian: seed, forage, or winter cover-crop on poorly drained soils in Zones 2 and 3.

Purple: seed on well-drained lands in Zones 1 and 3.

Field Pea

Austrian Winter (including Dixie Wonder): seed, forage, or winter cover-crop on fertile, well-drained soils in Zone 2; seed on irrigated lands in Zones 4, 5, 6, and 7; seed on drylands where annual rainfall is at least 18 inches in Zone 5.

Perennial Burnet

Burnet is not a legume. Two general types are available, the California and European. Most Oregon-grown seed is of the European type. Seed and in pasture mixtures on well-drained soils in Zones 1, 2, and 3.

Rape

The Dwarf Essex variety is much superior to turnip rape. May be sown in spring or early fall. Avoid sowing on poorly drained land. Winter annual or biennial pasture in Zones 1, 2, and 3.

Sunflower

The dwarf variety, *Advance*, is recommended for turkey pasture and shade. It is a hybrid variety, so first generation seed should be used. *Mammoth Russian* is recommended for silage. Zones 2 and 3, and irrigated sections of Zones 4, 5, and 7.

Tall Fescue

Alta: forage, seed, and erosion control in all zones of Oregon. Is tolerant of strong acidity and high alkalinity. Is long-lived and highly productive of forage. Has numerous deep roots that are highly effective in control of erosion. Shade tolerant. Is widely used for pasture. *Avoid planting:*

- ▶ On very poorly drained or swampy sites
- ▶ On drylands where rainfall is less than 15 inches (18 inches on shallow or light soils)
- ▶ Where elevation is over 5,000 feet
- ▶ Where deep snow cover remains for 100 days or more.

Chewings Fescue

A low producer of forage but is long-lived and resistant to heavy grazing. Requires good drainage. Tolerant of shade. Makes an attractive, durable, dense turf in all crop zones in Oregon. Forage, seed, and erosion control in Zones 1, 2, and 3; seed in the higher rainfall sections of Zones 4 and 5, and under irrigation in Zones 4, 5, 6, and 7; forage and erosion-control reseedings in forests of Zones 4, 5, and 6. Recommended for fern lands in Zones 1 and 2.

Red Fescue

Illahee: especially suited for lawns in most parts of Oregon. Not a forage or general utility grass. Shade tolerant. Seed production in Zones 1, 2, and 3, in the higher rainfall sections of Zones 4 and 5, and under irrigation in 4, 5, 6, and 7.

Rainier: more productive and better quality forage than Chewings fescue, but less tolerant of adverse conditions. Makes an attractive and durable turf under most lawn conditions. Requires good drainage. Shade tolerant. Forage, seed, and erosion con-

trol in Zones 1, 2, and 3; seed in the higher rainfall sections of Zones 4 and 5, and under irrigation in Zones 4, 5, 6, and 7. Recommended for fern lands in Zones 1 and 2.

Sheep Fescue

Valuable as an understory grass in combination with the wheat-grasses or dryland alfalfa. Well suited for revegetation plantings on sagebrush lands and in the drier forest areas. Makes acceptable dryland lawns. Produces an extremely dense root system which is of value in conservation plantings. Forage, seed, turf, and erosion control where annual rainfall is less than 15 inches in Zones 4, 5, 6, and 7.

Hard Fescue

A variety of sheep fescue used as an understory grass with alfalfa in Zones 4, 5, 6, and 7. Seedlings are stronger than those of sheep fescue. Has a dense root system. The leafy plants provide surface protection to the soil. Has been successfully used to reseed burned-over or depleted ranges in the Ponderosa pine zone.

Tall Oatgrass

Tualatin, an improved variety, is recommended for forage, seed, and erosion control in all zones of Oregon. Requires good drainage. Is very palatable to livestock. Requires careful management and moderate utilization for long life. Is a good companion grass with alfalfa. Thrives at both low and high elevations. Useful in revegetation of burned forest lands in Zones 4, 5, and 6. Moderately tolerant of both acid and alkaline soils. *Avoid planting:*

- ▶ On poorly drained sites
- ▶ On drylands having less than 15 inches of rainfall
- ▶ On pastures that are likely to be heavily grazed
- ▶ In rotations with row crops, because of its free-volunteering habit.

Orchard Grass

Available improved varieties are *Akaroa* and *Welsh S. 143*. Forage, seed, and erosion control in all zones of Oregon. Is tolerant of shade and thrives at low and high elevations. Responds to lime on acid soils. Is a valuable long-lived pasture plant. *Avoid planting:*

- ▶ On poorly drained sites
- ▶ On strongly acid soils
- ▶ On highly alkaline or salty soils
- ▶ On drylands having less than 15 inches annual rainfall.

Ryegrass

Common ryegrass: is short-lived, vigorous, and becomes established rapidly. Is a heavy competitor, is palatable to livestock, and is tolerant of poor drainage. For seed, forage, and erosion control in Zones 1, 2, and 3.

Perennial ryegrass: becomes established quickly, but is not extremely long-lived. Tolerates poor drainage. Not a high producer but is palatable and well adapted. Appears to depress the growth of companion plants. Forage, seed, and erosion control in Zones 1, 2, and 3.

Bentgrasses

Seaside Creeping: seldom planted for forage. Principally used as a fine turf for lawns and golf greens. Adapted to most places in Oregon where water is adequate except on highly alkaline soils. Seed is produced in the coastal portions of Lane and Douglas counties and in Union and Klamath counties.

Astoria: principally used for fine turf in lawns and golf courses. Adapted for lawn use in most parts of Oregon where water is adequate, except on highly alkaline soils. Is not relished by livestock but is persistent under heavy use and other unfavorable conditions. Planted to some extent for forage and erosion control on poor hill lands in Zones 1 and 2. Seed is produced in Clatsop, Columbia, Klamath, and Union counties.

Highland: principally used for fine turf in lawns and golf courses. Good for lawns in most parts of Oregon, given adequate water, except on highly alkaline soils. Is not relished by livestock, but is persistent under heavy use and other unfavorable conditions. Widely occurring volunteer stands are utilized for forage and seed production in Zones 2 and 3. Planted to some extent for forage and erosion control on poor lands in Zone 2. Seed is produced in Zone 2, northern Zone 3, Klamath and Union counties.

Meadow Foxtail

Tolerant of long submergence in winter and early spring, but will not endure prolonged summer flooding. Thrives at high altitudes under prolonged snow cover, making it well suited for moist mountain meadow plantings. Adapted on both strongly acid and highly alkaline soils. Preferred by livestock. Is a good companion grass with alfalfa on irrigated lands in the Klamath Basin. Forage,

seed, and erosion control on irrigated or poorly drained lands in all zones of Oregon. Especially adapted on diked tidelands in Zone 1.

Reed Canary Grass

Tolerant of prolonged submergence and summer flooding. Endures summer drought after becoming established. Adapted to moist alkaline soils. Not readily consumed by livestock when growth is rank. Will not endure close pasturing. Good stands are difficult to obtain. Forage and erosion control on fertile, wet lands subject to prolonged flooding in all zones of Oregon.

Harding Grass

Apparently best adapted for forage and seed on irrigated land in Zone 3. Some seed is now produced in Zone 2.

Smooth Bromegrass

The *Manchar* variety is recommended for forage in Oregon. Requires good drainage and moderate to high soil fertility. Tolerant of moderate alkali when soil moisture is adequate. Adapted at high elevations under prolonged snow cover. Is a good companion grass with alfalfa. Southern varieties such as *Lincoln* and *Achenbach* are good seed yielders, and seed of these is in demand in the large seed-consuming areas of the Northeast and Midwest. Forage, seed, and erosion control, with irrigation, or where rainfall is 15 inches or more annually, in Zones 4, 5, 6, and 7.

Mountain Bromegrass

The *Bromar* variety is recommended. Valuable for short-rotation pastures and green manure in combination with sweetclover. Is shorter lived than slender wheatgrass but makes more growth when soil moisture is adequate. Adapted on the heavier soils having clay subsoils. Forage, seed, erosion control, and green manure on croplands where annual rainfall is 15 inches or more in Zones 4, 5, and 6, and irrigated lands in Zone 7.

Crested Wheatgrass

Especially valuable for retirement of cultivated lands of moderate to low fertility in low rainfall areas, and for revegetation in the sagebrush and bunchgrass areas below the Ponderosa pine zone. Not tolerant of heavy alkali or high altitudes with prolonged snow cover. Forage, seed, and erosion control on drylands of less than 15 inches of rainfall annually, and with supplemental irrigation in

Zones 4, 5, 6, and 7. The *Fairway* variety is little used for forage, but is useful for roadside plantings and general control of erosion, dust, and weeds.

Siberian Wheatgrass

Siberian wheatgrass is closely related to standard crested wheatgrass, and has similar uses. Its chief value is, that in years of low rainfall and on lighter or poorer soils, it always produces more forage than crested wheatgrass, and the seedlings are more vigorous. Forage, seed, and erosion control on drylands of less than 15 inches of rainfall annually in Zones 4, 5, 6, and 7.

Beardless Wheatgrass

Whitmar is the only variety in use. Valuable for revegetation in the areas where crested wheatgrass is used. Provides later summer grazing and earlier fall grazing than crested wheatgrass. Forage, seed, and erosion control where the annual rainfall is less than 15 inches in Zones 4, 5, 6, and 7.

Streambank Wheatgrass

A long-lived, drought-tolerant sod grass that is used as an understory with dryland bunchgrasses for range reseeding. Is easy to establish. Spreads rapidly by rhizomes, but is not weedy. Is a good ground cover when planted alone to protect banks, irrigation canals, and airport surfaces. Forage, seed, and erosion control on drylands of less than 15 inches of rainfall annually, and with supplemental irrigation in Zones 4, 5, 6, and 7.

Intermediate Wheatgrass

Well adapted to use in mixture with alfalfa for hay. Becomes established rapidly. Requires good drainage and moderate to high soil fertility. Forage, seed, and conservation plantings, with irrigation, and on drylands where the annual rainfall is 15 inches or more, in Zones 4, 5, 6, and 7.

Pubescent Wheatgrass

More widely adapted than Intermediate wheatgrass. Tolerant of drought and moderate alkali. Is persistent on shallow soils of low fertility, and on rocky, mountainous ridges. Withstands prolonged snow cover. Is better adapted for pasture than for hay. Forage, seed, and erosion control where annual rainfall is less than 15 inches in Zones 4, 5, 6, and 7.

Slender Wheatgrass

Primar is the variety used in Oregon. Valuable for short-lived pastures. Used for green manure in combination with sweetclover on lands that are too light-textured or too droughty for Mountain brome grass. Forage, seed, erosion control, and green manure on croplands where annual rainfall is 15 inches or more annually, in Zones 4, 5, and 6.

Big Bluegrass

The *Sherman* variety is recommended. Used in hay and conservation plantings with the wheatgrasses and with Ladak alfalfa. Must be grazed lightly to avoid serious injury. Forage, seed, and erosion control where annual rainfall is 10 inches or more in Zones 4, 5, 6, and 7.

Kentucky Bluegrass

Seldom recommended for forage because of low yields. Volunteers profusely where moisture is plentiful and soils are not strongly acid or highly alkaline. Is sometimes used in alpine meadow reseeding. The principal improved variety in Oregon is *Merion*, a superior turf type. Lawns, erosion control, and seed, under irrigation, in Zones 4, 5, 6, and 7.

Bulbous Bluegrass (*Poa bulbosa*)

Makes little forage, but is an early grower. Useful under arid conditions on steep or rocky terrain where seedbeds cannot be prepared, and as an understory grass for erosion control. Is a good competitor with cheatgrass. Natural reseeding is required for perpetuation. Forage and erosion control at elevations below 4,000 feet in Zones 5 and 7.

Timothy

The best improved variety for Oregon is *Cornell 1777*. Forage, erosion control and seed for irrigated nonalkaline hay meadows in Zones 4, 5, 6, and 7; for revegetation on forest lands in Zones 4, 5, 6 and eastern portion of Zones 2 and 3; for seed in Zone 2.

Sudan Grass

High yielder of forage when soil moisture and fertility are adequate. Requires irrigation where annual rainfall is less than 30 inches annually. May develop prussic acid which is poisonous to

livestock consuming the fresh forage, after fall frosts or prolonged drought. *Texas Sweet*, the most popular improved variety, is often outyielded by common Sudan. *Piper*, a recent Wisconsin release, is the most vigorous variety tested in Oregon, and has low prussic acid forming properties. Forage and seed in Zones 2, 3, 4, 5, and 7.

Forage and Seed Crops Not Recommended

Meadow fescue: this grass is short-lived and is much inferior to Alta fescue for long-term pastures.

Tall fescue varieties other than Alta: none of the several varieties of tall fescue has proved to be superior to Alta fescue in Oregon. Unless superiority is demonstrated experimentally, planting of them should be avoided in areas where Alta fescue seed production is important, because of the danger of cross-pollination.

Sorghums (other than Sudan grass): sorghums are best suited to regions where temperatures during the growing season are higher than are found in most parts of Oregon. Good yields of forage sorghums can be obtained in the Hermiston and Ontario regions. Corn, however, is usually more productive for silage purposes. In other parts of the state, cool weather and a short growing season limit growth.

Miscellaneous unadapted grasses:

Buffalo grass	Johnson grass
Gramma grasses	Bahiagrass
Lovegrasses	Kikuyu grass
Bermuda grass	Zoysia
Bluestems or Andropogons	

Southern (non-hardy) alfalfas: these are seldom hardy enough for Oregon conditions. They include Arizona Chilean, Argentine, Italian, Peruvian, and common alfalfas from Arizona, New Mexico, Oklahoma, and California.

Miscellaneous unadapted legumes:

Lespedeza	Velvet bean
Soybean	Pigeon pea
Kudzu	Dwalganup subclover
Crotalaria	Sour clover
Cowpea	Burclover
Mungbean	Grass pea
Horsebean or Fava bean	