

**DRAFT**  
Subject to Field Testing

December, 1997

## FORAGE SUITABILITY GROUP – WESTERN OREGON

### WELL DRAINED < 15% SLOPES

**Number:** G002XY002OR

**MLRA:** A2 Willamette and Puget Sound Valleys

**Climate:** Average annual precipitation ranges from 29.5 to 100 inches. Precipitation is evenly distributed throughout fall, winter, and spring, but summers are dry. In most of this area, snow falls only a few days each year. Average annual temperatures vary from 9 to 13 degrees Centigrade. Average freeze-free-period is 165 to 210 days.

**Vegetation:** The native vegetation is generally an overstory of trees and an understory comprised of shrubs and grasses. Generally the following tree species occur: Oregon white oak, Douglas fir, and maple. The following plants may be found in the understory: poison oak, salal, wild rose, blackberry, snowberry, swordfern, and both annual and perennial grasses. Once cultivated for pasture or hay, the areas that have a low level or no management tend to show an increase in brushy species such as blackberry, wild rose, and Scotch broom. Also tansy ragwort and St. Johnswort may increase on sites with low level or no management.

#### **Soil Suitability Group Description:**

**Soil description:** These well-drained soils are generally moderately deep to deep, and are formed generally in alluvium and colluvium. Textures are predominantly silty clay loams, silt loams, and loams. Rooting depth on most soils in this group is from 20 to > 60 inches, but Chehulpum and Philomath have rooting depths from 10 to 20 inches. In summer irrigation is needed for maximum production of most crops.

**Landscape position:** Floodplains, valley terraces, stream terraces, low foothills and uplands.

**Depth to seasonal water table:** more than 6 Feet.

**Available water holding capacity:** 3 to 14 inches.

**pH range:** 4.5 - 6.5.

**Frequency and duration of flooding:** Most soils in this group do not flood except Chapman, Chehalis, and Cloquato have rare to occasional flood frequency, and duration is brief.

**Frost heave potential:** Most soils in this group do not have a potential for frost heave except Chehalis, Cloquato, and Salkum which have a low potential for frost heave.

**Degree of stoniness:** Fragments > than 3 inches vary from 0 to 35%.

**Trafficability parameters:** Sticky and plastic when wet which restricts trafficability.

**Typical soils:** See attached List.

**Adapted Forage Species List:**

**Grazing Use:**

Tall Fescue	Festuca arundinacea
Orchardgrass	Dactylis glomerata
Annual Ryegrass	Lolium multiflorum
Perennial Ryegrass	Lolium perenne
Alfalfa	Medicago sativa
Red Clover	Trifolium pratense
White Clover	Trifolium repens
Birdsfoot Trefoil	Lotus corniculatus

**Machine Harvest:**

Tall Fescue	Festuca Arundinacea
Orchardgrass	Dactylis glomerata
Alfalfa	Medicago sativa
Red Clover	Trifolium pratense
White Clover	Trifolium repens
Smooth Brome	Bromus inermis

**Suggested seeding season:** Spring or Fall

**Production Estimates:** Based on Animal Unit Months, and high level of management

**Grazing use:**

**Non-irrigated** - 6 to 15 AUMs/Acre/Year (@ 35% Harvest Efficiency – 100% of Growth Curve)

Base Production by Soil Fertility Level (Lbs./Acre/Year)

Very Low	Low	Moderate	High	Maximum
13550	18625	23700	28775	33850

For **Chehulpum & Philomath** soils: 3 - 4 AUMs/Acre/Year (@ 35% Harvest Efficiency – 100% of Growth Curve)

Base Production by Soil Fertility Level (Lbs./Acre/Year)

Very Low	Low	Moderate	High	Maximum
6775	7350	7900	8450	9025

**Irrigated** - 12 to 18 AUMs/Acre/Year (@ 35% Harvest Efficiency – 100% of Growth Curve)

Base Production by Soil Fertility Level (Lbs./Acre/Year)

Very Low	Low	Moderate	High	Maximum
27075	30450	33850	37250	40625

For **Chehulpum** soil: 6 - 8 AUMs/Acre/Year (@ 35% Harvest Efficiency – 100% of Growth Curve)

Base Production by Soil Fertility Level (Lbs./Acre/Year)

Very Low	Low	Moderate	High	Maximum
13550	14675	15800	16925	18050

**Machine Harvest:**

**Non-Irrigated** - 1 to 6 Tons/Acre/Year (@ 70% Harvest Efficiency – 80% of Growth Curve)

Base Production by Soil Fertility Level (Lbs./Acre/Year)

Very Low	Low	Moderate	High	Maximum
3575	8050	12500	16950	21425

**Irrigated** - 3 to 7 Tons/Acre/Year (@ 70% Harvest Efficiency – 90% of Growth Curve)

Base Production by Soil Fertility Level (Lbs./Acre/Year)

Very Low	Low	Moderate	High	Maximum
9525	12700	15875	19050	22225

**Growth Curve: Pasture & Hayland - High Level Management**

Growth Curve Number: **02MXHN**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	10	15	15	25	15	5	0	5	5	5	0

Growth Curve Number: **02MXHI**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	5	10	25	25	15	5	5	0	5	5	0

**Growth Curve: Pasture & Hayland - Medium Level Management**

Growth Curve Number: **02MXMN**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	10	15	20	25	15	0	0	5	5	5	0

Growth Curve Number: **02MXMI**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	10	15	15	25	15	5	0	5	5	5	0

**Growth Curve: Pasture & Hayland - Low level Management**

Growth Curve Number: **02MXLN**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	10	15	25	30	10	0	0	0	5	5	0

Growth Curve Number: **02MXLI**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	10	15	20	30	10	5	0	0	5	5	0

**Management:**

**Limitations:** These soils become sticky and plastic when wet, which restricts trafficability. Also they are susceptible to compaction when wet. Grazing and machine use should be restricted when soils are saturated. When degree of stoniness exceeds 15% it can restrict ease of movement of both livestock and machinery or prohibit it entirely. Stoniness can also lower production.

**Vegetation management:** Move livestock by plant height. Move livestock onto a field when forage is at least 6 to 8 inches tall. Discontinue grazing when the average height of the pasture is down to 2 to 4 inches. Avoid grazing when soil is wet and before pasture stand is fully established. Remaining stubble height is the more important of these two measurements.

**Season of use:** To avoid damage to plants and compaction of wet soils in the winter months caused by animals, any livestock on pasture should be removed when the soils are saturated, which generally occurs for long periods between November and March.

**Facilitating Practices:**

**Cross-fencing:** Cross fencing will help achieve higher forage yields and more uniform grazing use through more intensive management.

**Water developments:** Water is critical to livestock gains and general health. Generally, the best source of water in a field is a trough with water piped from a well or a spring. If piped water is not available, allow only restricted access to rivers or streams. If livestock only have a small access area for watering, the amount of manure and sediment in the water will be minimized. Additionally, bank erosion problems will be minimized, and streamside vegetation will be protected, which will keep the water cooler.

**Minerals:** Salt should be provided in the field for livestock. The salt block or box should be up off the ground and under cover so it will not dissolve by rain or dew. Salt should be placed away from watering areas to reduce livestock concentration areas and encourage more uniform grazing.

**Clipping and dragging:** Clip and drag pasture as often as required to encourage uniform grazing and pasture vigor. Clipping and dragging is best done after each grazing period and a minimum of twice annually.

**Fertilization:** Take soil samples to determine nutrient levels. An application of nitrogen in the spring is generally necessary for optimum forage production, but tests have shown that two applications one in fall and one in winter will optimize forage production. Fertilization will increase both the production and the nutritive value of the forage for livestock, but too much fertilizer can build up toxic level of certain minerals (such as nitrate and potassium) in forages.

**Weed control:** Weed control can be accomplished mechanically, chemically, biologically, or with a combination of these methods. The recommendations for chemicals can change, so it is always best to contact the local county extension office.

**Hayland management:** For maximum production and quality of forage, the grass should be cut just as the head emerges. The stubble height should be no lower than 2 to 3 inches. The best time to apply manure is just after harvest, because the nutrients can reach the soil more efficiently if excess foliage isn't in the way.

**Reseeding:** Reseeding should always be the last option. It is expensive, and takes a pasture out of production for most of a year. Additionally, the need to reseed is usually a symptom of a need to change livestock management practices. If management problems or a change in stocking rate or season of use are not addressed first, newly seeded pastures will soon look like the ones they replaced. Species selection is very important. If the species is not adapted to the site, the best seedbed preparation in the world will not make the seeding successful. Generally, a mix of one grass species and one legume is recommended. This cuts down on patch grazing of grasses caused by palatability differences. If multiple species are desired, make sure that the species of grass all have approximately the same growth schedule. It is very important to keep the animals off of a new seeding until well established. Otherwise, the new seedlings probably will be damaged or killed, and the time and money invested in the seeding will be wasted.