

## **Hydroseeding and Hydromulching.**

The terms are often times used interchangeably.

- Hydroseeding is applying a slurry of water, wood fiber mulch, and seed to prevent soil erosion and provide an environment conducive for plant growth.
- Hydromulching is applying a slurry of water, wood fiber mulch, and a tackifier to a slope to prevent soil erosion.

### **When to Use**

General recommendation: On steep, highly erosive slopes that have been partially or completely denuded of vegetation due to fire, apply the seed to the site first and then hydromulch over the seed.

This is fairly expensive and it is often reserved for areas close to bridges, roads, homes, and other structures. Use is sometimes restricted due to lack of access roads and adequate water supplies. Slope lengths of 125-225 feet can be treated.

## Reforestation

Key points in reforesting areas that have been burnt are: matching proper tree species to the site (soils, aspect, elevation, climate), removing standing dead trees to provide planting sites and reduce future human safety and potential fire hazard, using quality seedling stock from correct seed zone, proper care and handling of seedlings before planting, proper planting techniques, and protection of seedlings from big game and rodents.

### Matching Tree Species to Site (See WA Tree Seed Transfer Zones)

Ponderosa pine is the most drought tolerant tree species in this area. Southern and western aspects are more suitable to ponderosa pine. These aspects should be planted back to ponderosa pine at 12-14 foot spacing. On North and NE aspects a mix of species could be planted including ponderosa pine, Douglas-fir, and western larch. Plant spacing should range 10-12 feet. Cold air drainages and frost pockets should be planted to Douglas-fir. Ponderosa pine is not suitable on these sites. Elevation will also be factor on tree selection. Elevations over 4000' should be inventoried to determine if sites are cool and moist enough for Douglas-fir.

While planting, look for good micro-sites to protect seedlings from hot temperatures, such as north or east sides of stumps or logs.

### WA Tree Seed Transfer Zones

Matches correct seed zone for reforestation of tree species growing in specific geographical areas of Washington.

For selected species in Southeast WA; Douglas fir – Grande Ronde TZ 16; Ponderosa pine – Grande Ronde TZ 11; Western Larch – Grande Ronde TZ 6.

### Grass Seeding in Reforestation Areas

In areas that are prioritized for tree planting, grass seed mixes should not include rhizomatous grasses such as smooth brome, intermediate or pubescent wheatgrass. Native bunch grass species are preferable with fast growing annual species such as wheat.

### **Dead Tree Removal**

Standing dead timber should be removed as much as possible to prevent potential for future lightning strikes. Merchantability of standing dead timber goes down each year due to wood borers and fungi. Cutting down some of the unmerchantable trees to provide better planting sites should be considered on southern and western aspects.

## **Quality Nursery Stock**

Seedling stock comes in a variety of types; bareroot 2-0 or 2-1 stock, and 1-0, 1-1 container plug stock. It is important to obtain stock from the correct seed zone noted above. For Southern and western aspects 10-cubic inch container stock is recommended.

Nurseries to order seedlings include, but are not limited to;

USFS Coeur d'Alene Nursery  
WA DNR Webster Forest Nursery

Lawyer Nursery  
U of I Pitkin Forest nursery

## **Seedling Care and Handling**

Once the seedlings arrive on site they should be planted within 48 hours. Keep seedlings not being planted in a cool moist area. Avoid exposure to hot temperatures and drying winds. If bareroot seedlings not planted within 72 hours, store in appropriate cooler that can keep environment between 34-38 degrees F and 90-95% humidity.

The best time to plant is during cloudy moist conditions less than 60 degrees. Usually planting period is March through early May depending on snowmelt and frost leaving soil.

## **Planting Technique**

Shovels and different type of tree dibbles can be used to plant the seedlings. It is extremely important that they are planted at the correct depth and the roots have good soil contact. The correct depth for bareroot and container seedlings is ½ inch above the root collar. Avoid jamming the roots into the planting hole. This causes "J" rooting and poor seedling survival.

## **Seedling Protection**

Once the seedlings are planted they may need protection from big game and rodents. Vexar mesh tree shelters can be installed over the seedlings to prevent the terminal buds from being browsed. Another alternative is to spray animal repellants. Their effectiveness is variable depending on rainfall events. The best defense against rodents is to keep the area around the seedling free of weeds and grass. Post and pre-emergent herbicides can be used. It is important to read the herbicide label to check if herbicide is labeled to use for tree species planted.

## **Fall Weed Control**

Weed frequently proliferate after fires. The dark soil stays warm late into the fall and the absence of desirable vegetation that was killed by the fire make for ideal growing conditions for weeds. Fire control equipment accidentally moves weed seed from weedy areas to weed free areas. Biocontrol agents that kept weed populations in check may be significantly impacted by fire.

## **Winter Annual Weeds**

### **Yellow starthistle**

Yellow Starthistle is fairly common in southeastern Washington. Fires that burn through starthistle patches rarely do any appreciable damage to the seed soil bank. The Lewiston Grade burns almost every summer and starthistle has yet to be reduced! Starthistle invades burned slopes very rapidly, and it is not uncommon to find over 100 starthistle seedlings per square foot on burned areas in the fall. Once starthistle has successfully colonized an area, establishing desirable cover is exceedingly difficult. Starthistle rosettes will appear in October but they are not overly competitive in the fall. They are easy to control in the spring with most broadleaf herbicides. Some broadleaf herbicides are injurious to seedling grasses so it is important to select an appropriate herbicide.

Starthistle biocontrol agents such as seed weevils may be reduced for a few years so it is important to rely less on them. Augmenting biocontrol populations may be prudent. Check with your county extension service or county weed superintendent.

### **Cheatgrass**

Cheatgrass will provide a modicum level of soil protection in the fall and can be important temporary fall forage. However, it is very competitive and a tremendous fire fuel. Fire rarely does a thorough job of reducing seed in the soil because cheatgrass fires advance very fast and do not heat up the soil. Areas that were heavily infested with cheatgrass prior to the fire will be heavily infested this fall.

Cheatgrass control should begin in the fall. Fall tillage after a flush can greatly reduce populations and the seed bank. Tillage coupled with reseeding can be a very effective control system. There are several herbicides that are effective in the fall. Be sure to select compounds that will not interfere with any revegetation efforts that might be needed.

### **Mustards, Hairy vetch, and Filaree**

These broadleaf weeds are common in waste areas and moist draws. One factor that should be considered is rodents because their populations can be very high in stands of these weeds. Tilling the ground in the fall can greatly reduce weed populations as well as reducing the rodent population. A dense stand of grass is very effective for controlling these weeds but seeding should be delayed until the spring. Seeding this fall will probably result in a failure.

## **Perennial Weeds**

### **Canada Thistle**

Canada Thistle has rhizomes that will sprout in the spring but the patches do not spread rapidly. Seed will be produced the following summer and allow long distance dispersal. Concentrate on revegetating the majority of the land that needs vegetation regardless if Canada thistle was present prior to the fire. Canada thistle patches will show the following spring and these can be surgically addressed. Low residue compounds such as glyphosate can be applied in the spring and summer, and revegetation of the patches can be initiated afterwards.

### **Common Tansy**

Common Tansy grows very well on disturbed soil. It is most troublesome on road cuts, jeep trails and other highly disturbed areas. The seed is frequently moved by vehicles, ATVs, and animals. Like Canada thistle, it tends to grow in patches so its control and revegetation practices are similar.

### **St. Johnswort**

St. Johnswort is fairly fire resistant. A beetle was released many years ago for suppression of this weed. Population levels of the beetle might be reduced from the fire and takes a few years to rebuild. Augmenting weevil populations may be prudent. Check with your county extension service or weed supervisor.