

ARE WEEDS REALLY A PROBLEM?

Weeds are a problem because they grow faster and often taller than young seedlings, and therefore compete with your seedlings for the limited available moisture, nutrients, light and space. The end result may be seedling mortality. At the very least, they will keep your seedlings from growing as quickly and as vigorously as they would without competition.

In addition, a thick stand of weeds next to your seedlings provides habitat for rabbits and rodents who can girdle or cut off your plants. The only way to avoid these problems is to control the weeds.

WHAT DOES CONTROLLING WEEDS MEAN?

Controlling weeds means keeping them from growing in a two to four foot zone around your seedlings. This can be accomplished by either bands, circles or squares of weed control. The weed-free zone gives your plants room to get started and keep growing without competition.

Weed areas between seedlings should not be mowed more than once, preferably at the end of the growing season. This will reduce potential damage from rabbits and rodents.

HOW DO I GET STARTED?

Begin weed control before your seedlings are planted in the spring. To prepare for planting, kill all vegetation in strips or squares two to four feet wide. (The width depends on the size of your seedlings, the size of competing weeds, and the erosion potential of your site).

You can remove vegetation by cultivating (disking, harrowing, rototilling, or hoeing) in either spring or fall. Fall cultivation would be best if your site contains heavy sod, plant residue, or other biomass. In the spring, cultivating on such sites would be required at least twice, with some time between treatments.



If you use herbicides to remove vegetation, it's probably best to spray during the fall before planting in the spring, if perennial or biennial weeds or grasses are a problem. Annual weeds will die in the fall anyway. Growing weeds can also be controlled in the spring by using a post-emergent herbicide, but only weeds that are already growing will be affected.

There should be no vegetation growing in the strips or circles at the time of tree planting. If weeds are present, treat again just prior to planting.

WHAT DO I DO AFTER PLANTING?

Weed control is needed for the first three to five years after your seedlings have been planted. While weed control efforts can

decrease as your seedlings become established, some control will be necessary until your plants are tall or dense enough to suppress competition.

There are several ways to control weeds, including cultivating, mowing, mulching, and chemical control. You can decide which method or methods will work best for you.

CULTIVATING

Mechanical or hand cultivation can effectively control weeds, if you have the necessary equipment and labor. You'll need to allow adequate space for cultivation equipment between seedlings during planting.

To avoid damage, do not try to get closer than six inches from the seedling, or deeper than three inches when mechanically cultivating the two to four foot strips or circles. Mechanical cultivation should be supplemented with hand cultivation, herbicide treatment, or mulching to control weeds close to your seedlings. Cultivation will be required more than once per season.

MOWING

Mowing is a poor alternative for controlling weeds. Although mowing controls competition for light and space, weeds still compete with seedlings for moisture and nutrients. There is also the potential for mechanical damage to the seedling when mowing too closely. Hitting seedling stems while mowing provides a place for diseases to enter the plant.

If you decide to mow, you'll need to allow adequate space for equipment between seedlings when planting. Mowing



should be done often enough to keep seedlings clearly visible.

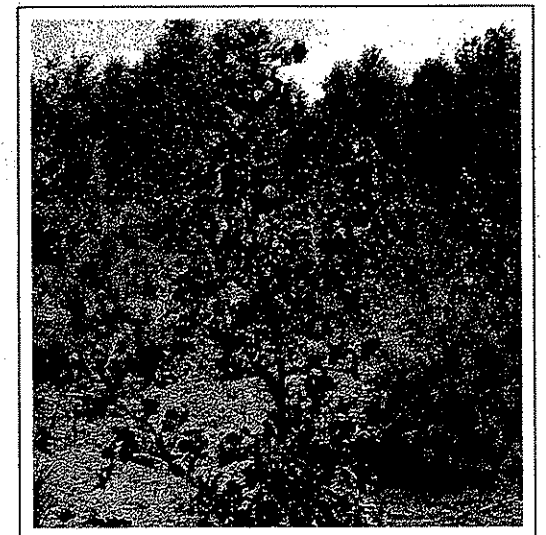
MULCHING

Mulch can be used around your seedlings to control weeds and reduce moisture loss. It can be difficult and expensive to obtain mulch and spread it on a large scale, so this method of weed control is probably best for small plantings. You'll need to remove any weeds before applying mulch and the mulch must be thick enough to keep weeds from reappearing.

Various materials can be used as mulch, including sawdust, wood chips, and bark. (Straw is not a good choice unless it can be raked away from the seedlings in the fall. Otherwise, rodents may overwinter there).

CHEMICAL CONTROL

Herbicides do a good job of controlling weeds when applied in the proper amount at the right time. They are available from



most distributors of agricultural supplies. You can use a variety of equipment to apply herbicides, from boom sprayers suitable for large areas of level land to backpack sprayers for smaller areas or on irregular terrain. Specific mixing and application instructions are given on the manufacturers' labels.

Apply herbicides only when needed and handle them with extreme care. Follow label directions and heed all precautions. Pesticides are especially dangerous when improperly handled, applied, or disposed. They can injure humans, domestic animals, desirable plants, wildlife, and fish; and they can contaminate water supplies.

Two general types of herbicides are effective in controlling grasses and broad-leaf weeds. These are (1) pre-emergence soil-applied chemicals which are put on before weeds emerge, and (2) post-emergence chemicals which are applied to the foliage of established weeds. Pre-emergence herbicides are soil applied. They control weeds by inhibiting seed germination and development. Post-emergence herbicides are applied to green foliage where the herbicide is absorbed and translocated throughout the plant. Some herbicides exhibit both soil and foliage activity.

The choice of a herbicide depends on a number of factors including:

- 1) the type of tree species,
- 2) weed species to be controlled,
- 3) site and soil conditions,
- 4) method of application,
- 5) seedling age.

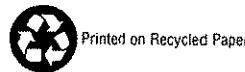


Each herbicide label lists tree species registered for application, application rate dependent on soil condition, and weed species controlled. A herbicide may be labeled for a specific species of trees, like white pine or red oak, yet lack labeling for a very similar tree species. This may be due to a number of reasons. The most obvious reason is a known negative effect

the herbicide has on the tree species. Another may be that research data supporting the herbicide's use on a particular tree species may be lacking.

The choice between pre-emergence and post-emergence herbicide depends on weed competition or expected competition. In most situations, a combination of pre-emergence and post-emergence herbicides will be necessary to control weeds.

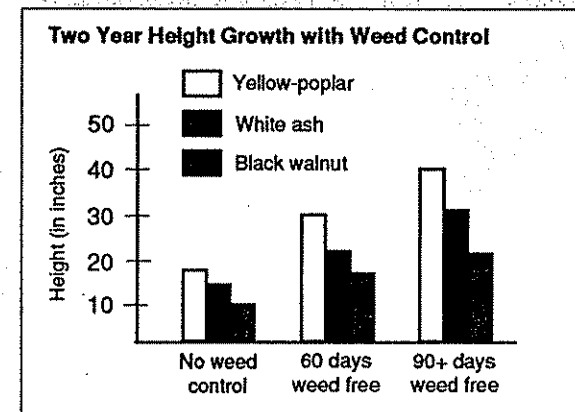
Herbicides are sold as many different formulations or products. Important herbicide formulations for plantation establishment are: (L)=liquid, (WP)=wetable powder, (G)=granules, (D)=dry flowables, and (SP)=soluble powder. If possible, purchase the herbicide in a liquid formulation. Mixing, measuring, and application are generally simpler with the liquid formulation.



WEED CONTROL IS WORTH THE EFFORT

The survival and growth of your seedlings can be increased significantly by controlling weed competition. In fact, weed control may be the most important single factor in establishing successful tree and shrub plantings.

Remember, establishing a future forest or wildlife area will not be accomplished simply by planting your seedlings. If your seedlings are worth planting, they are worth the care.



Purdue University weed control studies show that prolonged seedling protection from weeds improves height growth over a two year period.

Prepared by John R. Seifert
Extension Forester

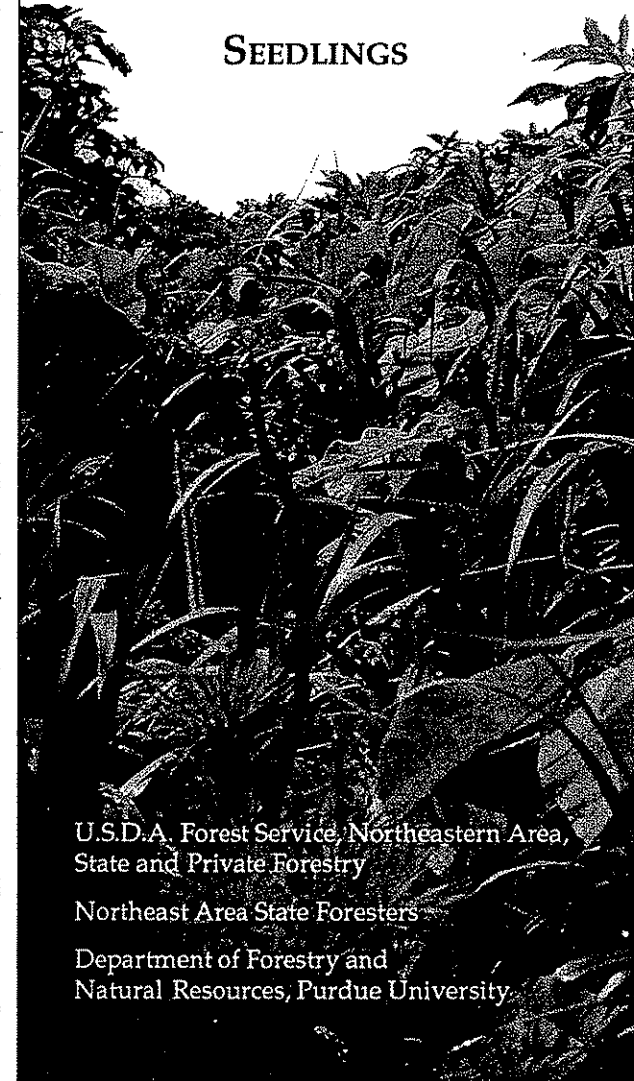
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WEED CONTROL

FOR TREE AND SHRUB SEEDLINGS



U.S.D.A. Forest Service, Northeastern Area,
State and Private Forestry

Northeast Area State Foresters

Department of Forestry and
Natural Resources, Purdue University.