

EXTENSION NOTES



CLEARING THE WAY: PREPARING THE SITE FOR TREE PLANTING

Site preparation is the term used to describe improvements made to the planting site before planting. Proper preparation of the site benefits tree seedlings by providing the best possible conditions for survival and

growth in the crucial first years. This Extension Note provides information that will help you plan a successful tree planting project.

HOW SITE PREPARATION HELPS

Tree seedlings require four basic elements to grow: water, nutrients, sunlight and room to grow. Grasses, weeds, and brush growing on the planting site threaten your new seedlings by competing for these basic requirements. Heavy vegetation also provides habitat for mice and other rodents that eat the bark of young seedlings. Good site preparation helps to reduce competition from unwanted vegetation.

Good site preparation also ensures suitable planting spots for your seedlings. For example, soils that are saturated

by water for long periods can suffocate seedling roots. Some of these sites can be improved by creating raised planting spots where tree roots can “breathe.”

Site preparation may also make tree planting easier. For example, moving brush and tall vegetation speeds the thawing of the soil and makes it easier to plant. Some treatments such as furrowing, scalping, and band spraying make planting easier by controlling row spacing and keeping planting rows straight.

SITE ASSESSMENT

Site assessment should be done when developing your planting plan (see Extension Note *Planning for Tree Planting*). A complete assessment includes your observations of the soil characteristics, the type and quantity of vegetation presently growing on your planting site, and the presence of any obstacles to planting.

SOIL TEXTURE

Coarser soils like sand tend to be less fertile than finer soils like clays and loams. However, more effort is required to control competing vegetation on fertile soils because it is usually much more vigorous.



Proper site preparation is the key to success.

SOIL DRAINAGE

Most tree seedlings do not tolerate poor soil drainage, so choose species appropriate for the moisture conditions on your site. Avoid planting on very wet land and plan for some type of drainage improvement through ditching or mounding if your site is wet or spongy for even part of the year.

It is difficult to operate heavy equipment on wet soil. Plan to do any site preparation on wet sites during the dry summer months.

VEGETATION

While inspecting your planting site you should determine what types, size and quantity of vegetation are presently growing there. Separate them into grasses, leafy weeds and brush. Also look for young trees growing naturally; you may wish to leave these undisturbed to add variety to your planting.

the plants are mostly much shorter than your knees, the vegetation can be classified as light. Moderate vegetation is thick enough to hide the soil below and is about knee deep. Heavy vegetation is very dense and the plants are knee deep or more.

Classify the vegetation on your site as light, moderate or heavy. When grass, weeds and brush are quite sparse, and

VEGETATION CONTROL

HOW MUCH IS ENOUGH?

Vegetation control is usually not necessary if the vegetation is very light. Good control in a narrow band along each row of trees, or in a small circle surrounding each individual tree is adequate for moderate vegetation. A weed-free zone of 60 centimetres (two feet) on all sides of the seedling is recommended. Band or spot weed control is also recommended for sites subject to erosion by wind or water.

If your planting site has dense, tall vegetation, consider controlling the vegetation, across the whole planting site. This will reduce the possibility of seedlings being crushed by vegetation weighted down by snow and will reduce the losses to mice or disease.

If the vegetation on your planting site is moderate to heavy, you should be prepared for some type of follow-up weed control for the first few years (see the Extension Note *Room to Grow: Controlling the Competition*).

CONIFERS VERSUS DECIDUOUS

Deciduous trees require more soil nutrients and moisture than conifer species and they are much more susceptible to rodent damage. If you want to be successful with hardwood seedlings such as black walnut, red oak or sugar maple, you should plan on keeping the site relatively free of vegetation for at least three years (see Extension Note *Room to Grow: Controlling the Competition*).

DEAL WITH BRUSH FIRST

Willow, alder, prickly ash and other shrubs not only compete with your seedlings, they can also be a physical obstacle to equipment and tree planters. If your site has a lot of this brush you should consider removing it before doing any other site preparation operations or planting your trees.

Small areas of brush can be cleared by hand using a brush axe or a gas powered brush saw. Larger areas are best cleared using a tractor and a heavy duty rotary mower.

After cutting, common brush species will grow new sprouts from the roots or stumps. Brush resprout can be reduced by ploughing and repeated cultivation but is most effectively controlled with herbicides.

A standard agricultural sprayer can be used to treat brush. Brush that is too tall to be effectively sprayed with your equipment should be cut in early summer and allowed to resprout to at least 60 centimetres (two feet) before spraying. Difficult to control species may require a second application. After four to six weeks the dead stems can be mowed down if desired.

MECHANICAL OR CHEMICAL VEGETATION CONTROL

Vegetation can be effectively controlled by either mechanical methods or by the use of herbicides. In many situations the best results are obtained by using a combination of both. The following sections describe the most common techniques of mechanical and chemical site preparation. The flow chart on the following page shows how these techniques might be used singly or in combination.

MECHANICAL

The most common methods of mechanical vegetation control include:

Scalping

Scalping is the removal of the sod layer to a depth of four to six centimetres (1½ – three inches), in strips or patches at least 30 centimetres (one foot) wide; suitable for light to moderate vegetation. Trees are planted in the middle of the scalped area. Scalping can be accomplished manually with a planting shovel or a heavy hoe, or mechanically with a shallow single furrow plough, or a soil-saver cultivator.

Furrowing

Furrowing is the creation of deep, wide furrows at regular spacings across the planting site. The primary purpose of furrowing is to create planting spots above the water-table on wet sites. However, furrowing also provides weed control by overturning and burying the sod layer. Trees are planted on the “top” of the overturned soil deposited beside the furrow.



Furrowing is one of the most common methods of preparing a site for planting.

Cultivation

Cultivation is the process of breaking up the entire planting site. When the entire site is treated it is usually done by ploughing, followed by at least one pass with a disc harrow to break up and level the soil. Cultivation can also be achieved with a tractor mounted roto-tiller. A garden-type roto-tiller is suitable for small planting projects.

Mowing

Mowing is the cutting of the above ground portion of the competing vegetation. It is partial weed control because it only removes the competition for light and space above ground. The below ground competition for water and nutrients is much more critical to young seedlings. In site preparation, mowing is most appropriate for preparing the way for other operations. Suitable equipment includes tractor mounted rotary or flail mowers for large areas, or garden equipment for very small areas.

Mechanical weed control methods are temporary. Cultivation of any form usually unearths more weed seeds and promotes vigorous sprouting from broken root systems. Therefore, mechanical site preparation should be scheduled for as late in the summer or fall as soil conditions permit. This will ensure a virtually weed free site at planting time the following spring.

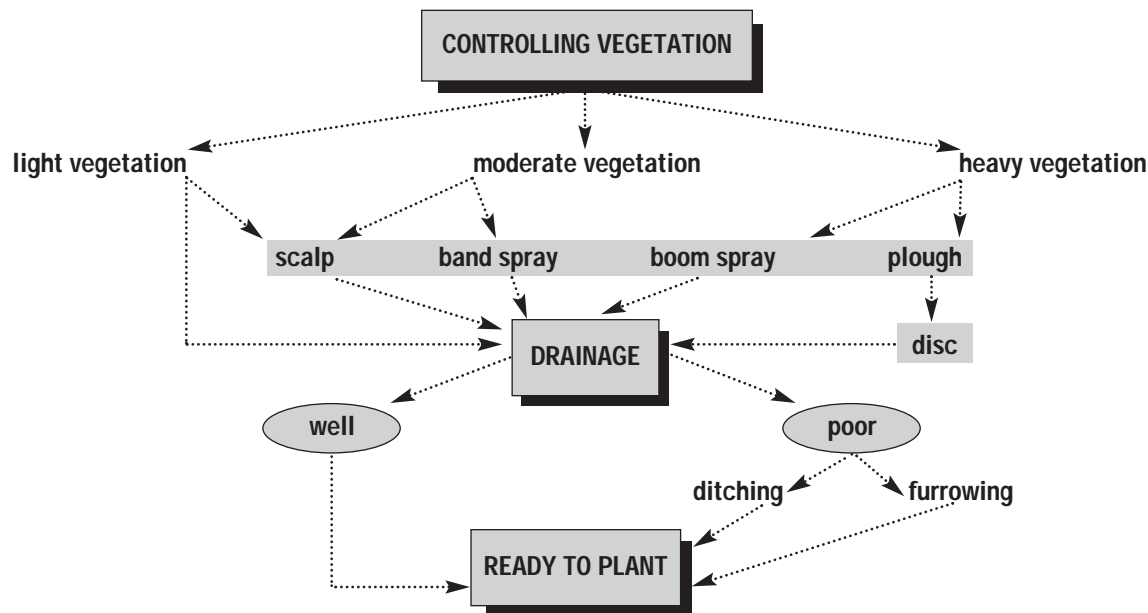
CHEMICAL

Herbicides provide an efficient and cost effective means of vegetation control. There are a number of herbicides approved for site preparation that are available to landowners with an Ontario Grower's Pesticide Safety Certificate or who are licensed applicators. The brand names and formulations of appropriate herbicides are subject to change. Contact the Ministry of Natural Resources office nearest you for an update on suitable products.

Bands, spots and total site application

Moderate vegetation can be controlled by applying herbicides in bands at the desired row spacing. Treating individual spots with a backpack sprayer is an option for smaller plantings. If the treatment has been effective the spots or bands will appear brown against the new growth in the spring. Plant your trees in the centre of the bands or spots.

If the competing vegetation is dense and tall, consider treating the total site to reduce the possibility of seedlings being crushed by vegetation weighted down by snow and to reduce the losses to mice or disease.



IMPROVING DRAINAGE

Ditching can improve drainage across a planting site if there is some place to drain the excess water. Ditching can be performed before or after any other site preparation operation. Call your local drainage superintendent before ditching into a municipal drain. Call the Ministry of Natural Resources before ditching into a natural watercourse or wetland.

Furrowing is an effective way to create raised plantings spots on sites that are only periodically wet. Furrowing is

done best with a single furrow mouldboard plough with at least a 45 centimetre (18 inch) bottom. A potato hiller would be an option on cultivated soil. Furrows should be ploughed to a depth of 20 to 25 centimetres (eight to ten inches) to create mounds large enough for tree planting.

Furrows can make future access difficult. Make sure your furrows are far enough apart to allow your equipment to travel easily between them.

WHEN TO SITE PREPARE

You will be at the mercy of the weather if you try to do all your site preparation operations in the spring just before planting. Don't get caught with trees on the truck and your tractor stuck in the field. The best time to prepare your planting site is the year before planting. This will allow you time to work around the weather and to deal with the unexpected.

Your efforts in proper preparation of your planting site will be rewarded with the best possible growth and survival of your seedlings in the first year after planting.

But remember that grass, weeds and brush will do their best to come back. Make periodic inspections of your plantation throughout the growing season to detect problems. Dealing with weed problems promptly will give your seedlings the best chance.

Practical advice and assistance on tree planting, site preparation and tending is available through your local office of the Ontario Ministry of Natural Resources.

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