EXTENSION NOTES

Ontario

ROOM TO GROW: CONTROLLING THE COMPETITION

There are four requirements for tree growth: water, nutrients, sunlight and room to grow. Competition from grasses, weeds and brush must be controlled to allow trees to grow well. This Extension Note provides information on ways to control different types of competition.

WHY IS TENDING IMPORTANT?

Through tending, you can ensure that competition does not rob your trees of water, nutrients, sunlight and room to grow. Some competition may be acceptable, but excess competition can lead to reduced growth, and even the death of your trees. Heavy weed growth competition can create favorable conditions for harmful diseases and fungi, and provide an ideal home for mice and other rodents which feed on the bark of young trees. Tending is an important step in protecting your investment, and a way to ensure that your trees will grow to their full potential.

WHEN IS TENDING NEEDED?

Imagine a garden. You know that there is a problem when you can no longer see the tomato plants for the weeds. The same applies to your trees. Trees generally do most of their growing during the late spring and early summer. Therefore, it is important to look at your trees during this period. They will benefit from tending during this time. Late-season work will also help the trees in the next growing season.

Tending is required until the trees reach a "free-to-grow" state. This means that they are taller than the surrounding competition, and are no longer adversely affected by it. This usually takes three to five years, depending on tree species, site, effectiveness of the initial site preparation and subsequent tending. Site preparation generally provides competition control for one to two years. As mentioned, it is important to get out and check your trees periodically.

HOW MUCH TENDING?

The amount of required tending varies according to the tree species. Generally, conifers (softwoods, such as pines, spruces, and cedars) require less tending than deciduous trees (hardwoods, such as maple and oak). The deciduous trees are more sensitive and can be killed even by moderate levels of competition.

The spacing of your planted trees will influence the choice of tending methods you may use. Wider spacing will permit mowing, discing and roto-tilling. It is important to consider what tending method you intend to use before you plant. This will make all future operations much easier.

METHODS OF TENDING

There are four tending options: manual, mechanical, chemical, and alternative methods, such as mulching, cover crops and tree shelters.

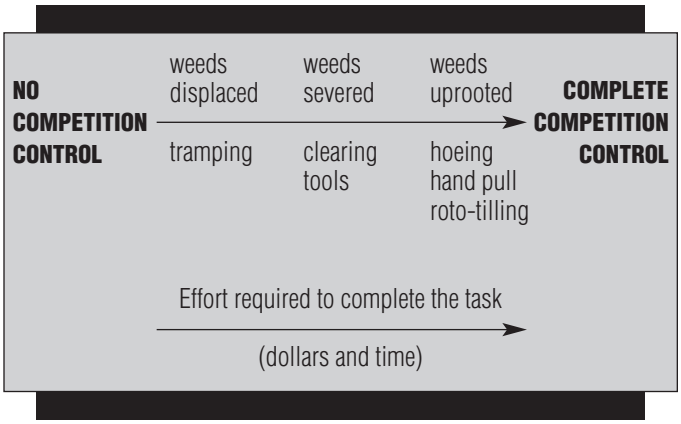
1. MANUAL TENDING

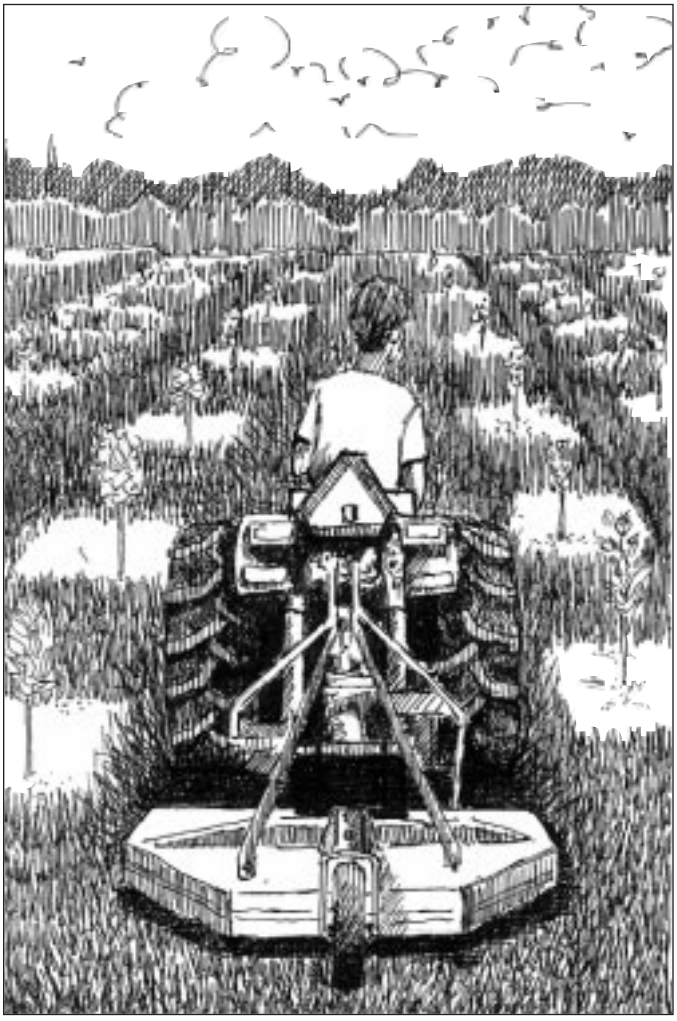
This first option is usually used on smaller scale operations and is probably the most labor intensive. A wide variety of operations are suitable for manual tending. Manual tending includes both grass and weed control (tramping, hoeing, hand weeding and roto-tilling), and brush control (brush axe, brush saw, pruning shears and chainsaw). Each offers a different level of competition control, and each requires a different amount of effort. The chart on this page shows three types of manual competition control, from tramping down the plant, to displacing it, to disrupting the roots. As well, the chart shows the amount of effort — both time and money — required to do the job.

It is important to realize that when doing a manual control operation, repeat treatments may be necessary, especially in areas with heavy competition. Be sure to check your plantation periodically to ensure that the competition is not taking over the trees.

2. MECHANICAL TENDING

These operations require the use of mechanized tools such as tractors, mowers and roto-tillers. This type of equipment is very effective when dealing with large-scale operations. It generally requires less human effort to complete the job. Mechanical tending is the preferred method for those looking for a way to control competition in a large plantation without using herbicides. The two common methods are mowing/brush cutting and roto-tilling/discing.





Mechanical tending provides the greatest benefit when done in both directions.

Mowing grasses and weeds is a good option. However, this method tends to keep the competition in a more vigorous state (just think of your lawn!), allowing it to compete more effectively during the growing season. Brush cutting is similar to mowing, but requires the use of equipment heavy enough to cope with woody vegetation.

Roto-tilling/discing involves disturbing the roots of the competing vegetation. Since this activity creates ideal conditions for the growth of new weeds, it may be necessary to repeat this treatment during the growing season. Once again, it is important to check your trees periodically. When conducting either of these operations, don't get too close to the trees, as you may damage the branches, the stem or the roots. Mechanical tending provides the greatest benefits if it can be done in both directions (between rows and within rows). If this is not possible, some manual tending may be required to complete the job.

Manual and mechanical tending can be disruptive to birds nesting in your plantation. Consider delaying operations until fledglings have left the nest.

3. CHEMICAL TENDING

Application of herbicides in accordance with the manufacturer's label can be very effective and cost efficient. It is essential that only approved herbicides be used to control competition. It is best to use a non-selective herbicide that will have an effect on all plants. If you plan to use herbicides to control competition, you should take the "Ontario Growers Pesticide Safety Course" offered by the Ontario Ministry of Agriculture, Food and Rural Affairs. This course provides instruction and training in the safe and effective use of herbicides, as well as a certificate required to purchase herbicides approved for tending. Further information on suitable, approved herbicides is available from your local Ministry of Natural Resources area office. This is a good place to start when planning any herbicide project.

Herbicide treatments tend to last longer, which can mean less effort required to achieve the same results. It is important to use the herbicide at a time when the trees are less sensitive and the competition is more sensitive.

Some of the methods of herbicide application include: backpack sprayer and machine/boom sprayer.

Backpack Sprayer

Using a backpack sprayer is a very effective way to control grass and weed competition. Follow the manufacturer's label when mixing the spray solution. Cover the tree with a shield prior to spraying to prevent damage (see Figure 1). A simple shield can be made from a 20-centimetre diameter stove pipe, 60 centimetres long. A wooden handle should be installed for ease of use. Spray two 50-centimetre swaths on each side of the shield, making sure that the competition is wet but not dripping. It is recommended that you practice this technique with a tank full of water before using any herbicide solution.

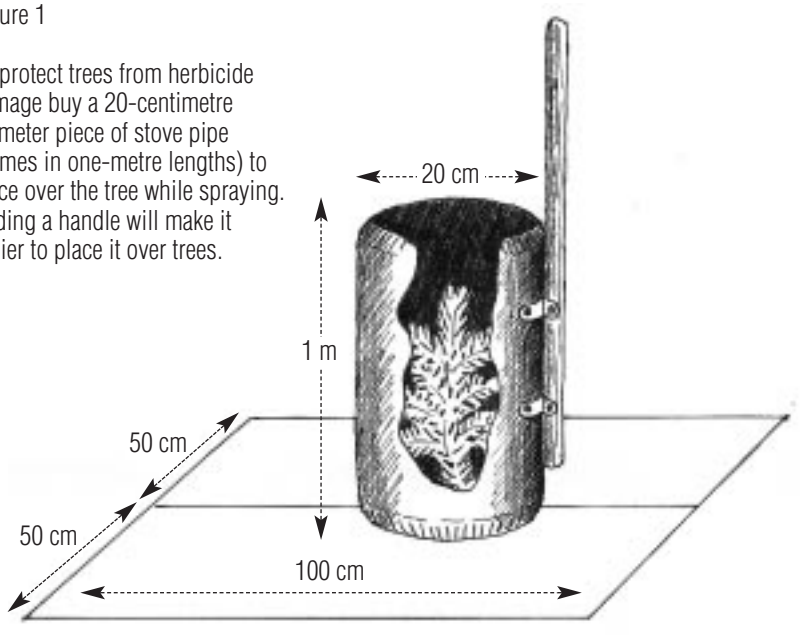
Boom Sprayer

For larger operations, a tractor mounted sprayer with a shielded boom can be used.

Another operation that can be done with a boom sprayer (not shielded) is a late fall or early spring overspray. Timing of this operation must coincide with the trees not being sensitive, and the unwanted competition must still be actively growing. This is an effective operation, but incorrect timing may cause tree mortality.

Figure 1

To protect trees from herbicide damage buy a 20-centimetre diameter piece of stove pipe (comes in one-metre lengths) to place over the tree while spraying. Adding a handle will make it easier to place it over trees.



PESTICIDE USER BEWARE

Keep in mind these important points when using herbicides:

- Follow all manufacturer's label directions
- Wear all recommended personal protective equipment
- Use a different sprayer for herbicides and insecticides

4. ALTERNATIVE TENDING METHODS

Other tending methods include: mulching, cover crops and tree shelters.

Mulching

This operation is an option on a small scale due to the cost of labor and materials. Both man-made (black plastic, woven black plastic, newspaper) and organic (straw, wood chips) mulches are available. Apply the two-foot rule (60 centimetres around the base of the trees). When using organic mulches consider a depth of at least five to 10 centimetres. When using chips, try to have a mix of conifer and deciduous species, due to the resin in the conifer chips.

Mulches are an option on a small scale.

Cover Crops

Cover crops can be used effectively to not only prevent soil erosion by wind and water but also to improve weed control. Some examples of crops that could be used are perennial rye grass, alfalfa and white clover. In the case of the latter two, they also provide nutrients by fixing nitrogen in the soil. Cover crops should also be grown in the fall to reduce cover and minimize rodent damage.

Cover crops can improve weed control.

Tree Shelters

Tree shelters are translucent plastic tubes up to two metres in length that fit over deciduous seedlings. They benefit the tree by providing a warm, moist, weed-free environment; protection from wind and weather (snow); and protection from mice and other bark chewing rodents. They are effective on a small scale due to material and labor costs.

One of the most important factors to consider when dealing with newly planted trees is timely and regular checks to monitor growth and site conditions. Your efforts will be rewarded in future years, through the many benefits derived from the stewardship of healthy, vigorous trees.

Tree shelters provide protection for tree seedlings.

The following Extension Notes will further assist you in controlling the competition:

- *Mulches Help Trees Beat Weed Competition*
- *Cover Crops Help Tree Seedlings Beat Weed Competition*
- *Tree Shelters Help Hardwood Trees Grow Faster*
- *Using a Backpack Herbicide Sprayer to Control Weeds*
- *Planning for Tree Planting*
- *Clearing the Way: Preparing the Site for Tree Planting*

For more information contact:
LandOwner Resource Centre
P.O. Box 599, 5524 Dickinson Street
Manotick, Ontario K4M 1A5
Tel 613 692 2390 or 1 800 387 5304
Fax 613 692 2806
Product Ordering: 1-888-571-INFO (4636)

E-mail: lrc@sympatico.ca
Internet: http://www3.sympatico.ca/lrc

Produced by:
- LandOwner Resource Centre

With support from:
- Ontario Ministry of Natural Resources

ISSN 1198-3744
R.P. (5k P.R., 99 02 11)

Printed in Ontario, Canada

Cette publication est également disponible en français.
printed on recycled paper