



# WINDBREAKS FOR POULTRY HOUSES

## Conservation Practice Job Sheet

Natural Resources Conservation Service (NRCS)

November 2007

### INTRODUCTION

Trees and shrubs can be planted around poultry houses to provide shelter from winter winds; reduce particulates, ammonia, and other odors from tunnel fans; create visual screens; and provide shade to reduce extreme summer heat.

This job sheet provides instructions for planting and maintaining trees and shrubs in good condition so that they can serve their intended purpose. Using proper planting and management techniques, especially during the establishment years, will significantly improve plant health and survival.

### SITE PREPARATION

Site conditions, including soil quality and the type and density of existing vegetation, will determine how much site preparation you will need to do before planting. Around buildings and other structures, soil may be heavily compacted or contaminated with construction debris, gravel, and other fill material that can severely hinder plant rooting and survival.

If grasses or weeds are tall, you should mow or brush hog the planting strips. It is recommended that the planting strips either be tilled up or treated before planting with a non-selective herbicide such as glyphosate (for example, Roundup, KleenUp), following all label directions. Then plant the trees and shrubs.

### PLANTING

Trees and shrubs that are planted correctly will grow faster, and will more likely to survive, than ones that are planted incorrectly.

Always check for utility lines (gas, water, cable, electricity) before planting. Avoid planting on top of buried utility lines, or below overhead lines.

#### Plant Availability and Planting Dates

Containerized and balled-and-burlapped plants are usually available throughout the year. The preferred planting times are in the fall or early spring. Do not plant during the summer months when high temperatures and lack of rainfall will make survival very difficult, or in the winter if the ground is frozen. In tunnel



fan impact areas, planting 1- to 2-gallon container stock in the spring, along with irrigation and good weed control, has generally produced the best results for plant survival and growth. To obtain recommended planting dates for the different types of woody plant materials, contact your local NRCS Field Service Center.

#### Storing and Planting Techniques

Containerized and balled-and-burlapped stock can be stored for extended periods if they are protected. Store the plants in partial to full shade and water as needed to keep moist. Lift and carry the plant by the container or rootball, never by the branches or trunk.

These plant materials can be planted either by hand or by machine, depending on site conditions and available equipment. Larger stock is typically used when it is not feasible to wait for smaller plants to reach a desired size (such as for landscaping, visual screens, or windbreaks). Because larger stock is more difficult for most people to handle, installation by a professional landscaping contractor is recommended. See Figure 1 for instructions on hand planting smaller containerized stock.

Instructions for hand planting balled-and-burlapped plants are essentially the same as for planting containerized stock. Prepare a planting hole, and gently set the plant in the hole. Cut away any wire or twine from around the trunk. If the root ball is contained in a wire

**Land owners and managers please note:** If you received cost-sharing for your windbreak, be sure to check with your funding agency/organization for specific management requirements.

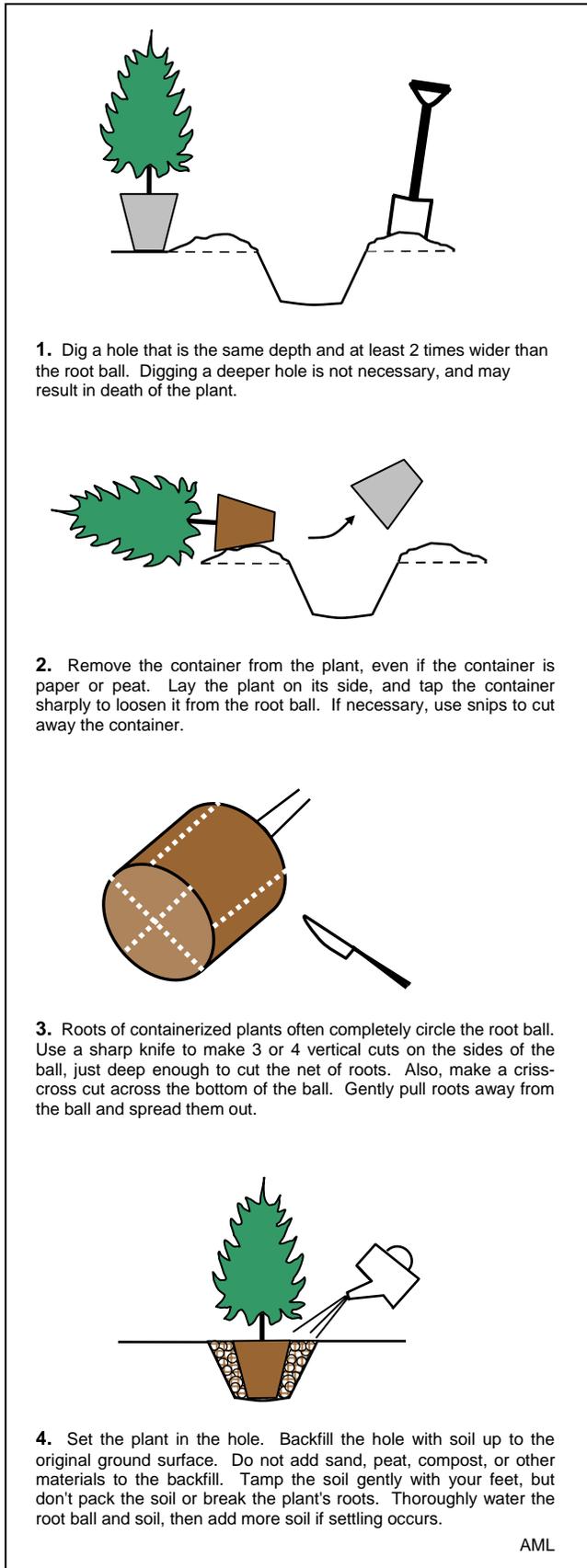


Figure 1. Hand planting containerized trees and shrubs.

basket, some nurseries and arborists recommend leaving it on, while others say it should be removed. Most experts recommend cutting and removing as much of the wire basket as possible, *provided you can do so without breaking up the root ball*. Avoid buying plants that have a plastic liner, because the liner must be removed and you will probably have to remove the basket to reach it.

For very large trees, it is best to leave the basket in place if there is no liner. Just remove any wire from around the trunk. Improper removal of a wire basket can result in serious damage to the root system that may outweigh any benefits derived from removal of the basket.

For burlap-wrapped plants, remove natural burlap and fasteners from at least the top half of the root ball, again being careful not to damage the roots. Avoid purchasing plants wrapped in plastic or synthetic fabrics. These must be completely removed because they can severely restrict the roots if left in place.

Adding sand, peat, compost, or other materials to a planting hole is generally not recommended unless the soil is excessively compacted or otherwise has very poor quality. Trees and shrubs planted in natural soil without soil amendments are more likely to develop root systems that extend well beyond the planting hole. If planted in improved soil, roots will tend to remain confined in the original hole for a longer period of time.

If soil amendments are needed, the best approach is to rip or deep-till a wide planting strip and add the materials to the entire strip. If this is not feasible, then dig a wide planting hole (at least two or three times the diameter of the root ball), and mix the excavated material with the soil amendments. A mixture of three parts soil to one part compost is recommended for each prepared hole.

### Staking

Trees may need to be staked if they have dense crowns, are more than 5 feet tall or have slender stems, or will be planted in windy locations. Use guy lines that won't damage the bark. Leave some slack in the lines so that trees will have slight amount of flex. Remove all stakes and guying materials after one year.

### Lime and Fertilizer

Newly planted trees and shrubs should not be limed and fertilized, unless soil tests show that pH and nutrients are extremely low. For most sites, it's best to allow the root systems of new plantings to become established before applying lime and fertilizer.

## Weed Control Barriers

The use of plastic landscape fabric or black polyethylene (6 mil) is recommended to provide an effective, long-lasting weed barrier. Black poly is generally cheaper than landscape fabric, and works well if trickle or emitter irrigation is also implemented.

Mulch can also be used around trees and shrubs, but will not provide long-term weed control unless more mulch is periodically added. If using mulch, spread a layer of well-aged bark mulch (shredded, chipped, or nuggets) 2 to 3 inches thick around new plantings, but not within 3 inches of the trunk. A minimum 3-foot diameter circle of mulch is recommended around each plant.

Treatment of the site with a pre- and post-emergent herbicide before planting is also helpful for controlling weed growth.

## ESTABLISHING AND MAINTAINING THE PLANTING

### Establishing the Planting

**Planting year.** After planting, keep plants watered during dry periods. It can take up to 5 years before a tree or shrub develops a root system extensive enough to sustain itself, especially in harsh conditions. Sufficient moisture during this period is important for plant survival and overall plant health.

The feasibility of watering will depend on the size and location of the planting, availability of a water source, watering equipment, etc.

On well-drained loamy soils, new plantings usually need at least 1 inch of water per week from rainfall or irrigation in summer and fall, and also during the spring if there is little rainfall. On sandy soils, plants may need at least 2 inches of water per week, preferably in two separate 1-inch waterings. On heavier soils or wet sites, plants may need less water. Watering should be sufficient to moisten the soil to the depth of the root ball—usually 1 to 2 feet deep. Installation of a trickle or emitter irrigation system (instead of hand-watering) is highly recommended for all plantings. Contact your local NRCS Field Service Center for a list of suppliers or irrigation companies. Be careful where you tap into your water system. Many integrators meter the water consumption for each poultry house.

Control weeds around plants by mowing, hand pulling, or treating with an appropriate herbicide. Weed control is extremely important to the establishment and longevity of windbreaks. For windbreaks that will be maintained with mowing, consider that plant spacing

will need to accommodate mowing equipment. Mowing should be done with extreme caution to avoid damaging the stems or bark of plantings.

Pre- and post-emergent herbicides may also be used if weeds are abundant. Herbicides can be spot-sprayed around plantings or applied to the planting strip. Follow specific label instructions to reduce or eliminate damage to trees and shrubs. Do not apply herbicides on windy days when spray drift can damage nearby plantings.

Control noxious weeds at all times according to Maryland state law. Noxious weeds are Johnsongrass, shattercane, Canada thistle, bull thistle, plumeless thistle, and musk thistle. For more information about controlling specific weeds in tree and shrub plantings, contact your local office of Maryland Cooperative Extension; the Maryland Department of Agriculture, Weed Control Section; or the Maryland Department of Natural Resources, Forest Service.

For windbreaks that are planted to reduce particulates from tunnel fans, a build-up of particulates on leaves may threaten to smother and kill the plants. If feasible, periodically remove the accumulated particulate matter from the leaves by hosing the plants with water. Excessive accumulation of particulates may require installation of additional barriers such as fencing or netting to protect the plants. Unlike dust, particulates from chick down and feathers do not wash off easily, so the planting distance and type of plant materials opposite fans is critical.

**Second year after planting.** Continue to water plants, as needed. Control weeds by mowing, hand pulling, or treating with an herbicide. Always avoid damaging the plantings during mowing and herbicide application. If using mulch around plants, do not exceed a total thickness of 3 inches (new mulch, plus any remaining old mulch). Replace any dead trees and shrubs until the barrier is functional.

### Maintaining the Planting

By the third year, the trees and shrubs should be adjusting to the site and becoming well-established. Continue to water plants as needed, and monitor the planting for any problems that need to be treated. See Table 1 (next page) for a monthly summary of maintenance activities.

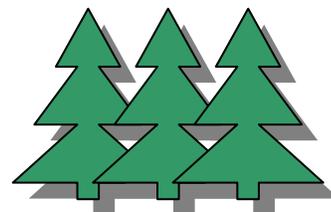


Table 1. Tree and Shrub Planting, Maintenance, Monitoring & Evaluation Calendar.

Activity	Recommended Time of Year											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<b>Planting</b>												
<b>Seedlings (bareroot)</b>												
<b>Large Trees (containers)</b>												
<b>Maintenance</b>												
<b>Mulching</b>												
<b>Watering</b>												
<b>Monitoring <sup>1/</sup></b>												
<b>Evaluation <sup>2/</sup></b>												

**Notes:**

1/ Monitoring – Pay special attention during these months to mulching and watering needs, weeds to be mowed/sprayed, disease or insect infestations that need treatment, or animal damage (e.g., deer browsing, vole or beaver cutting) that may be controllable. Monitor for a minimum of the first three growing seasons. Frequent monitoring will help you to identify problems early, before damage becomes extensive.

2/ Evaluation – Assess survival of the plants in the spring and the fall, and determine the need for replanting.



Please note: Brand names are mentioned in this jobsheet for informational purposes only. NRCS does not intend any endorsement of brands mentioned, nor criticism of similar products not mentioned.

Contents of this jobsheet may be reproduced for non-commercial purposes, provided that USDA-NRCS, Maryland, is credited. Text and graphics by Anne Lynn, State Resource Conservationist, NRCS, Maryland. Photo by Sally Griffith-Kepler, State Resource Conservationist, NRCS, Delaware.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.



WINDBREAKS for POULTRY HOUSES  
PLAN VIEW

Landowner Name:

Poultry House No.:

Assisted By:

Date:

SIDE A

LENGTH = \_\_\_\_\_ NUMBER OF ROWS = \_\_\_\_\_

SIDE D

NUMBER OF ROWS = \_\_\_\_\_

LENGTH = \_\_\_\_\_

D=

D=

POULTRY HOUSE

D=

D=

SIDE B

NUMBER OF ROWS = \_\_\_\_\_

LENGTH = \_\_\_\_\_

LENGTH = \_\_\_\_\_ NUMBER OF ROWS = \_\_\_\_\_

SIDE C

SEE ATTACHED SHEETS FOR ADDITIONAL PLANTING REQUIREMENTS

Call before you dig!  
1-800-257-7777 in DE & MD.

**MISS UTILITY**

GIVE TWO BUSINESS  
DAYS NOTICE

NORTH ARROW