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# PLANTING UPLAND (NON-WOODY) CONTAINERIZED PLANTS AND ROOTSTOCK



## TECHNICAL GUIDANCE DOCUMENT

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### Table of Contents

- Introduction
  - Application
  - Other Considerations
  - Costs
  - Additional References
- 

### INTRODUCTION

Species that do not germinate well from seed or grow slowly such as gentians, coneflowers, liatris, prairie cord grass, and lilies are often planted as containerized plants and rootstock (bare root plants and transplants) to increase species diversity. Specific areas of projects may also be planted with containerized plants to increase the rate of establishment, stabilize erosion, provide specific wildlife benefits, or for aesthetic purposes. A variety of container sizes are available for projects including 1" (plugs), 2", 4" and 6" (gallon) containers. Bare-root plants are available from many nurseries early in the spring when they are dug from production beds. Some restoration efforts have set up production beds to grow species that are difficult to harvest in sufficient amounts of seed for planting. Using bare-root plants can be a cost effective way to introduce species that do not establish well from seed.



### APPLICATION

It is best to plant as early in the spring as possible to use available soil moisture after snowmelt and spring rains. This timing works well for the use of bare-root plants that were transplanted from nursery beds, or for containerized plants that were over-wintered. Planting can be conducted in the later fall with dormant containerized plants if there is sufficient soil moisture. Plants that were established the season of planting need to be grown through May to be large enough for transplanting. Using larger containers can increase the rate of establishment but also significantly add cost to projects compared to relatively inexpensive plugs. Bare-root plants have significant root systems so they can grow quickly and are less susceptible to environmental stressors.

When planting containerized or bare-root plants holes should be dug large enough for the entire root system.. It is best to plant on a day with cool temperatures and low winds. Minimize root exposure to drying conditions by only exposing roots right before planting. For planting plugs holes can be made with a planting bar that creates a hole about the size of the plug to be installed. Root masses of containerized plants should be

loosened before planting by hand or with a garden weeder. After planting soil should be lightly packed followed by watering. If possible, planting should be conducted before a rain, as rainfall can get plants off to a good start.

The maintenance requirements of upland plantings involve weeding and watering. In some cases, wood mulch is placed around plants to control weeds and retain water. Where wood mulch is not used, some hand weeding or spot spraying may be needed to control competition. Newly-installed plants require approximately one inch of water a week from rainfall or watering. Time plantings with predicted rainfall when possible. Water trucks or tanks on ATVs are used to water newly-installed plants. If a large number of plants are installed flags should be used so plants can be found later for maintenance and watering.

## **OTHER CONSIDERATIONS**

The planting of containerized plants typically does not change routine maintenance needs for a site. Upland mowing that is recommended during the establishment period can still be conducted as long as the height of mowing will not damage new plants. The use of containerized plants in uplands may increase watering needs.

## **COSTS**

The costs for planting non-woody containerized plants vary depending on the size of the area to be planted, the size of plant material, and vendor or staff time to conduct the planting. For contractor installation of plants plugs tend to cost around \$1.75-\$2.10 installed, 4" containers \$5.00-\$7.00 installed, and bare root plants \$2.00-\$8.00 installed. Mulching plants will add additional cost.

## **ADDITIONAL REFERENCES**

A Landowner's Guide to Prairie Management in Minnesota, Svedarsky, W.D., M.A. Kuchenreuther, G.J. Cuomo, P. Buessler, H. Moechnig, and A. Singh.

The Tallgrass Restoration Handbook for Prairies, Savannas, and Woodlands, Packard, S., Mutel, C.F.