

5713 – TREE SEEDLINGS

TABLE OF CONTENTS

- .01 Purpose
- .02 Objective
- .03 Authority
- .04 Responsibility
- .05 Definitions (Reserved)
- .06 Policy
- .07 Priorities

- .1 Seedling Quality
 - .11 Source
 - .12 Size
 - .13 Condition
- .2 Procurement
- .3 Handling
 - .31 Nurseries
 - .32 District
 - .33 Planters
 - A. Heel-in Beds
 - B. Puddling

5713 – TREE SEEDLINGS

.01 Purpose. This section provides standards and guidelines for tree seedling management in forest development work.

.02 Objectives. The objective is to provide tree seedlings of the best possible quality for use in forest development work.

.03 Authority. (See 5700.03)

.04 Responsibility. (See 5700.04)

.05 Definitions. (Reserved)

.06 Policy. (See 5700.06)

5713 – TREE SEEDLINGS

.1 Seedling Quality. High quality seedlings are essential to plantation success. In general, seed source, genetic characteristics, size and physiological condition of the seedlings determine their quality.

.11 Seed. Seed is used to grow seedlings must be the highest quality available as described in 5712.1.

.12 Size. Small seedlings which usually have never been transplanted are short, easy to tie, package, and plant. However, they generally compete unsuccessfully with vegetation, animals, and insects, and therefore should be used only under ideal conditions. Large seedlings, especially transplants, are difficult to tie, package, and plant, but are recommended for use in areas of fast growing brush or severe animal browsing. Top-root ratio is not critical to survival, provided the seedling is vigorous and the root system is well developed.

.13 Condition. The physiological condition of seedlings is influenced by handling methods. Therefore, care must be taken in lifting seedlings from nursery beds, packaging, storing, and shipping. Containerized stock, such as seedlings grown in pots, plastic tubes, or bags, provides minimum disturbance to the tree during planting, thereby assuring continued normal growth following planting. Stored trees may become moldy even under refrigeration. Detrimental molds are black or grey in color and form a "spider-web" effect on the top of seedlings as well as on the roots and stems. White or chalky molds are not detrimental. Should seedlings freeze, they become fragile and should be thawed slowly before being handled.

5713 – TREE SEEDLINGS

.2 Procurement. Most seedling needs are met through agreements with state or Federal nurseries. Seedlings also may be obtained by purchasing trees produced from other than BLM seed. Seedlings which do not meet the requirements of reforestation areas may be exchanged for more desirable seedlings owned by other forest managers—Federal, state, or private.

5713 – TREE SEEDLINGS

.3 Handling.

.31 Nurseries. Timing of root pruning and lifting of seedlings should be governed by its effect on seedling vigor. Root pruning is best accomplished when carbohydrates (in roots) are at a low level so as to minimize loss of energy needed for growth following planting. Ideally, seedlings are lifted after energy reserves have built to their highest level. Culling, a form of genetic improvement, is easily done in the nursery by removing weak and deformed trees. Keep nurseries informed as to the preferred packaging method. The sealed bag method should not be used in periods of warm, sunny weather are likely to occur, as experience has shown that bags heat up rapidly under these conditions. Each package is marked with the lot number of seed which produced the trees, and the date of lifting.

.32 District. Movement of seedlings from nursery to District should be done in refrigerated trucks. If these are not available, use covered vehicles, such as panel or pickup trucks with canvas covers, and transport only during cool weather. Be certain that trees are not exposed to wind or heat inside trucks during transport. Immediately upon arrival in the District, open a sample of the packages and inspect for evidence of drying, molding, or other unsatisfactory conditions. District storage facilities provide for 85 to 99 percent humidity, 33 to 35° F temperatures, air circulation, and racks to hold seedlings without stacking or tight packing. Water trees in all but sealed bags at least twice a week; drain packages after watering.

.33 Planters. Transport trees from the District to field operations in covered vehicles, as described above. Trees are normally issued to planters on a daily basis, and only in special cases does the District issue more than a daily supply of trees to be stored in the field. Adequate arrangements are made to protect seedlings stored overnight in the field from drying, freezing or heating. Planters are not authorized to prune tops or roots. While planting, planters carry trees in canvas bags or other containers that are without rips or holes, to prevent drying. If the weather is conducive to drying, add moist packing material to the containers. Heel-in beds are required for storing bare root stock held in the field for more than two days prior to planting.

5713 – TREE SEEDLINGS

- A. Heel-In Beds. Select sites with well-drained, friable soils, near water, in partial shade, and away from frost pockets. Prepare the bed by removing duff and litter. Dig trenches deep enough to accommodate the roots in a vertical position. Place trees in moist, mineral soil so that the root collars are approximately level with the soil.

- B. Puddling. Coating the roots of the seedling with mud or a synthetic moisture-holding material has proven helpful in reducing mortality. The roots are dipped into the slurry. Do not allow roots to be rubbed in shallow mud holes, as such action will damage or destroy delicate root hairs. Avoid washing the roots in water as this is not puddling and is detrimental because it removes soil particles from rootlets.