

Agronomic Practices

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TRANSPLANT PRODUCTION

The production of an ample supply of uniform, healthy plants that are available reasonably early in the transplanting season is the first step for a successful crop. The best practice is to produce your own transplants. Doing so will reduce the likelihood of importing disease and pest problems onto your farm. The next best alternative is to buy transplants from someone in your local community. If you must import transplants, purchase only certified disease-free transplants.

Below is an outline of plant-bed management practices that have proven effective over the years. If you follow these suggestions, most of the risks in plant production should be reduced or eliminated.

1. Locate the bed on a deep, fertile soil with good surface and internal drainage and a southern or southeastern exposure. The site should be near an adequate water supply and protected by windbreaks on the north and west sides.
2. Seed 75 to 100 square yards of plant bed for each acre of tobacco to be planted. (Proper plant bed clipping may reduce the plant bed area needed to 60 to 80 square yards per acre).
3. Prepare a good seedbed. The soil should be well pulverized, smooth, and free of clods. Avoid flat and saucer-shaped beds. To assure good surface drainage, use a moldboard plow to break the beds to the center so that the center of the bed is 2 to 3 inches higher than the surrounding area. In the later stages of plant-bed preparation, do not use heavy equipment that will tend to pack the soil.
4. Fumigate soil with methyl bromide when the soil moisture is right for cultivation and the air temperature is 55°F or higher, preferably in the fall.
5. Apply 50 pounds of 12-6-6 fertilizer per 100 square yards and disc into the top 2 to 3 inches of soil. If extra nitrogen is needed, you can use 3 to 6 pounds of calcium nitrate (15.5-0-0) per 100 square yards as a top dressing. To avoid plant injury and possible loss of transplants, do not use organic forms of nitrogen on plant beds.
6. Sow 1/6 to 1/8 ounce of seed per 100 square yards, cover with a thin layer of straw, and place cover directly on straw (15 to 20 pounds of straw per 100 square yards).

7. In dry weather, frequently water beds covered with porous materials (Reemay, cotton, etc.). Frequent, light applications during the germination period often mean the difference between a good stand and plant-bed failure. One-fourth inch (about 140 gallons per 100 square yards) every other day should be sufficient for germination and establishment of plants. As the plants develop in size, about 1/2 inch of water twice a week is usually adequate. Apply water slowly enough so that it is absorbed and the force of the water does not dislodge the seedlings. Water plant beds when the soil is dry, regardless of the temperature. Plants can perish in cold weather as well as warm weather.
8. Control diseases and insects using only approved chemicals.
9. Consider clipping beds two to four times about five days apart beginning at a height of 4 inches and ending at a height of 8 inches to improve plant uniformity and/or delay plant growth. Clip approximately 1/2 inch above the bud of the largest plants.

The lack of sufficient water is perhaps the most frequent cause of an inadequate plant-bed stand and transplant shortage. Moisture is particularly necessary for seed germination and seedling establishment. Natural rainfall often is not adequate and must be supplemented with irrigation to ensure production of adequate transplants.

Deficiencies of sulfur or magnesium may be corrected by broadcasting 5 pounds of Epsom salts per 100 square yards or 3 pounds per 100 square yards of Sul-Po-Mag. You may also use potassium sulfate at a rate of 3 pounds per 100 square yards to correct a sulfur deficiency. Apply these materials to dry plants and follow with a light irrigation.

PLANT BED MECHANIZATION

Narrow Raised Plant Beds

A narrow (4 to 6 feet wide) raised plant bed has many advantages over the more traditional 5-yard-wide bed. The narrow bed facilitates the use of tractor-mounted equipment for spraying, clipping, and undercutting. In addition to reducing labor and increasing efficiency of transplant production, raised narrow beds are better drained and easier to undercut than traditional beds. Raised beds, which are flat across the top, may be formed with a tillover or bedformer. Acceptable raised beds may also be formed by breaking the bed to the center with a turning plow and disking with the angle taken out of the back section of the disk.

Mechanical Seeding

Mechanical seeding that will ensure a uniform rate of seed is becoming more popular in tobacco transplant production. Most precision seeded beds utilize pelleted or coated seed that can be metered for specific seed spacing. Commercial seed companies are now marketing most of the popular varieties as pelleted seed. The Stanhay Precision planter has been used most frequently and has given good results.

Clipping Plants

Clipping (removing a portion of the leaves above the bud) has been shown to increase uniformity among plants and increase the percentage of usable plants in a bed. Removing leaves from the larger plants permits light to penetrate to smaller plants, allowing them to catch up and produce a higher percentage of desirable plants in one pulling. Clipping is also a good management tool to salvage overgrown plants or to hold back the excessive growth of plants in the bed during adverse field conditions. Two clippings spaced four to five days apart can delay transplanting by seven to ten days.

You can clip with a modified high suction lawn mower or a tractor-mounted rotary mower with rear-mounted gauge wheels. Tractor-mounted mowers work best on narrow (6 feet wide) raised plant beds, but can be used on wide (15 feet) beds by running one set of wheels down the center of the bed.

Plants should be clipped when the largest plants reach a height of 4 inches; repeated clipping can be done four to five days apart. Care must be taken not to cut the buds off. The mower should be washed with a 1:1 solution of household bleach and water before and after each use to minimize the possible spread of virus diseases.

Plant Bed Undercutting

Undercutting, a new technique accomplished by pulling a blade just below the root system of transplants, loosens the soil around plant roots and makes pulling easier and faster. Research conducted at North Carolina State University by R.C. Long showed that pulling labor can be reduced by 50 percent to 60 percent on clipped beds with undercutting. Undercutting is most advantageous on beds with a high percentage of uniform, useable plants; therefore, plants should be clipped two or three times before undercutting. A narrow plant bed (4 to 6 feet wide) is suggested where undercutting will be used.