

Build a Hunting Oasis Within Your Pine Plantation with Durana White Clover!

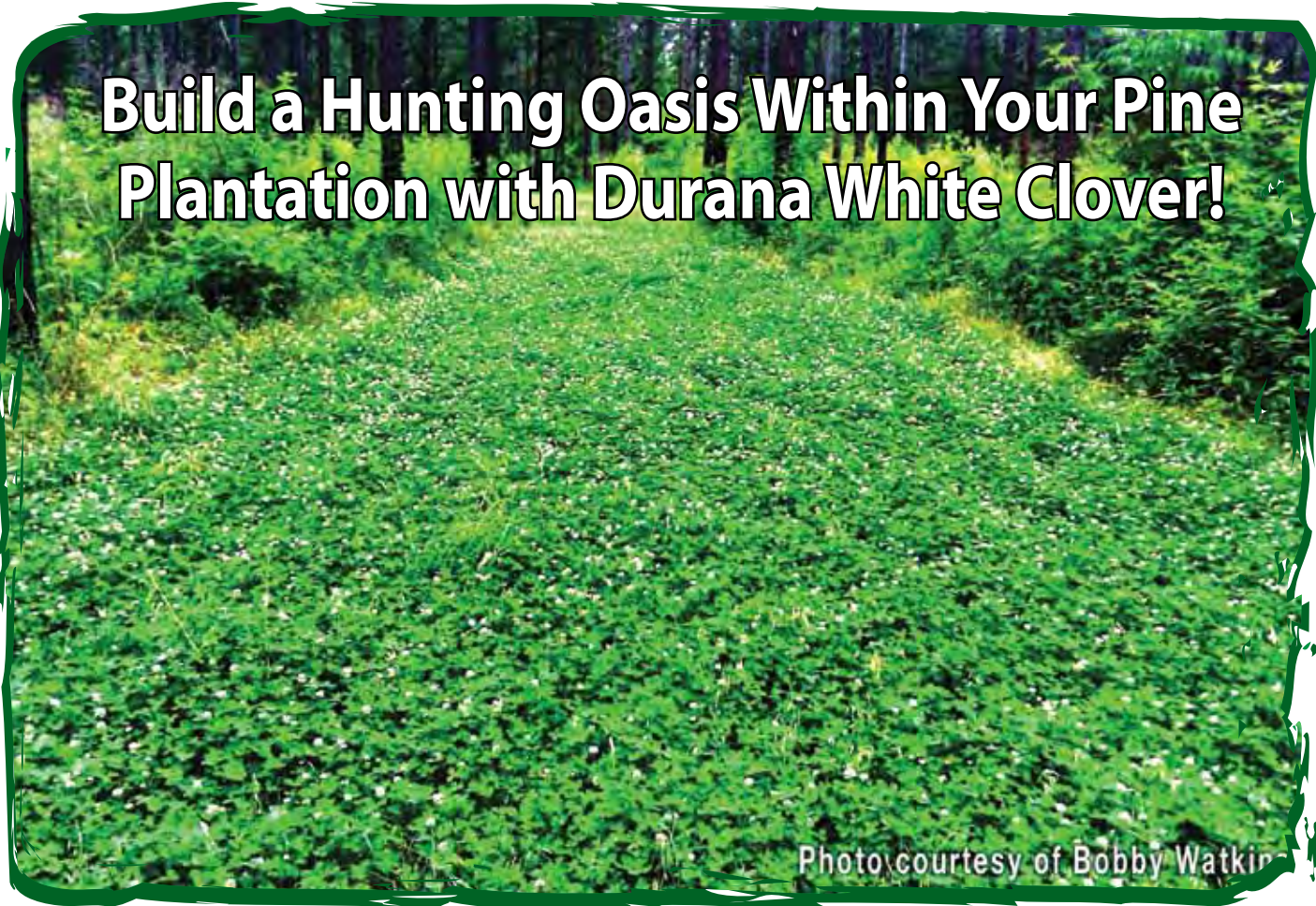


Photo courtesy of Bobby Watkins

PINE PLANTATION

If one of the main goals for landowners is to establish and maintain optimal habitat for wildlife, it can be accomplished by implementing programs that include strip disking, interplanting food plots, prescribed burning and/or applying selective herbicides in pine plantations. These management activities will produce a landscape matrix of habitats that are beneficial for quail, turkey, deer and many other game and non-game species. In addition, these practices will improve the land and hunting/sighting success on the property.

An excellent time to initiate such a wildlife management program in pine plantations is when the first thinning is done. In most first thinnings, every 3rd, 4th, or 5th row of trees is removed to allow access for harvesting equipment. This thinning operation creates open space for tree growth and allows sunlight to reach the forest floor.

If food plots are to be established in the newly opened row, the soil must first be broken up. In year one, pine stumps will make it difficult to till the row. A slotted disk harrow which can straddle stumps or a small regular disk harrow that will fit on each side of the row of stumps can be used to disk the area until stump and

wood debris has rotted enough for a regular disk to be used. For the first or second season following thinning, annual food plot mixtures are best since they will be roughed in. Mixtures like Buckmasters Feeding Frenzy and Rackmaster Deluxe are great choices. In the second or third year after thinning, most of the woody debris will be gone. This is a good time to establish a longer-term or perennial food plot.
(continued on next page)



Durana Clover Benefits to Wildlife and Land Use in Pine Plantation Thinned Lanes

Benefits to Wildlife

- Clover supplies nitrogen enhancing growth of adjacent browse plants
- Year-round food source
- Food source for multiple species - game and non-game
- Pollen food source for honey bees
- High protein and energy food source
- Attracts insects desired as a food source by game and non-game birds

Benefits for Land Use

- Recreational use
- Diverse wildlife viewing lanes
- Travel lanes, walking lanes, riding lanes (ATV, horse back), etc.
- Non-game bird sanctuary - desirable habitat
- Reduce soil erosion
- Vegetative fire break - reduced maintenance cost

Photo courtesy of Bobby Watkins

Pennington's long lasting Durana white clover is a proven choice for the establishment of a perennial food plot planting. Durana is heat and drought tolerant and grows well in partial shade. It is easily established with just light soil disturbance. As a perennial plant, this workhorse clover offers year-round sustainable and low maintenance vegetative cover and high quality wildlife nutrition. It is a legume that captures atmospheric nitrogen ranging from 75 to 150 lbs./acre or more per year which it shares with adjacent plant browse. Durana provides a year-round source of high protein and energy rich nutrition for multiple species of game and non-game wildlife. Because of its prolific flowering characteristic, it is an excellent pollen food source

for honey bees and attracts insects desired as a food source by game and non-game birds.

Using Durana in thinned pine plantation lanes offers additional advantages including (1) diverse recreational use opportunities including wildlife viewing, travel, walking and riding lanes (ATV, horseback), etc., (2) desirable habitat sanctuary for non-game bird species, (3) a reduction in soil erosion, and (4) serving as a vegetative fire break. An added benefit is that many state and county NRCS or FSA offices include these management practices in their cost share programs.



Food plots planted in narrow lanes provide comfortable feeding areas for wild game and increases daytime sightings.



A slotted disk harrow which can straddle stumps can be used to disk the lanes until stump and wood debris has rotted enough for a regular disk to be used. (Consult with a local forestry professional prior to disking in areas where Annosum root disease is troublesome.)

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Increasing Pine Plantation Wildlife Habitat and Recreational Value with Hub and Spokes

By Rick Hamrick

Creating quality wildlife habitat, in addition to pine production, is a top priority for many forest landowners. Landowners may be interested in encouraging an abundance of deer and other game for personal hunting and/or to increase revenue opportunities from hunting leases. Still others do not hunt at all and are happy just to enjoy watching or photographing wildlife on their property. Regardless of the landowner's motivation, the key to success in wildlife management comes down to providing essential habitat with ample food and cover for wildlife on a year-round basis. Forest landowners using selective herbicides, such as Arsenal® herbicide Applicators Concentrate (Arsenal AC), in a Quality Vegetation Management™ (QVM) program find that applying selective herbicides can encourage the growth of food and cover sources desirable to many wildlife species. But despite management strategies, adequate food and cover resources for wildlife are limited during certain times of a pine stand's lifespan (such as before the first thinning or after canopy closure). To create long-term habitats rich in food and cover and conducive to hunting or wildlife viewing, landowners can utilize a land-management technique known as Hub and Spokes™.

Spokes Attract Wildlife

The Hub and Spokes technique involves creating a small clearing with 3 or more "lanes" leading away from the clearing in different directions, similar to how spokes radiate outward in a wheel. Incorporating Hub and Spokes into new or existing pine plantations will make the stand more accessible for hunting and viewing wildlife and maintain early successional habitat (grasses and forbs) throughout the life of the stand. The spokes, typically 30 to 75 feet wide and up to 200 yards long, can provide clear shooting lanes for hunting and allow for easier wildlife viewing. In addition, the clearing provided within the spokes is an ideal area to plant food plots for wildlife. The spokes can be made slightly "wavy", if desired, rather than simply creating straight-line openings. The hub, where the spokes converge, offers an area where visitors can view wildlife down each spoke. Landowners often erect a viewing deck, shooting house, or deer stand in the area of the hub, allowing a bird's-eye view of wildlife along each spoke.

How Much Timber Acreage Is Given Up with Hub and Spokes?

Obviously, the wider the spokes, the more acreage that could be devoted to growing trees is sacrificed. However, 30, 60, or even 100 foot-wide spokes may not remove as much acreage as one would think from pine stands 20 acres and larger (Figure 1). For example, a hub with four 60 foot spokes in a 40 acre stand comprises only 3.5 acres, or 9% of the stand. The examples in Figure 1 are somewhat simplistic (for example, wavy spokes would remove a little more acreage

than straight spokes), but this provides a basis for evaluating how much timber acreage is given up under several spoke-width scenarios. Basically, the decision on how wide spokes should be comes down to each landowner's objectives. If timber production is a greater priority, narrow spokes are recommended. If maintaining more long-term grassland wildlife habitat throughout the stand rotation is a greater priority, wider spokes are more appropriate.

Creating Hub and Spokes

The easiest way for landowners to create Hub and Spokes is during site preparation and planting. After using Chopper® herbicide, OneStep® herbicide, or Arsenal AC to control competing hardwoods, plant pines as usual, but leave the hub and spoke areas unplanted. For established stands, Hub and Spokes habit Wildlife Trends - Practical Wildlife Management Information that can be created during thinning, using spokes as skid trails and the hub as a loading deck. The hub and spokes can then be used for skidding and loading in all future logging operations. The spokes can also be used as fire breaks that partition a timber stand into smaller blocks for prescribed burning.

If the only goal is to manage the Hub and Spokes specifically for deer, then each year during late summer, apply a non-selective herbicide in the spokes to eliminate broadleaf weeds and till the soil about 2 weeks later. Then plant foods such as clover or winter grains for in the spokes. To attract turkey, quail, and other grassland wildlife, manage Hub and Spokes by rotational strip-disking during fall



Aerial view of a Hub and Spokes system of forest openings (photo: Bobby Watkins).



View of a "spoke" managed for deer forage production (photo: Bobby Watkins).



Shooting/viewing house placed at the "hub" (photo: RickHamrick).

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through spring. Disking helps reduce woody plant invasion, stimulate growth of seed producing annual plants, and reduces litter accumulation. Bare ground created by disking also exposes seeds and gives birds a place to dust themselves. For spokes less than 60 feet wide, disk one-half the length of each spoke on a 2-year rotation (Figure 2). In fall or spring of the first year, disk the first strip of land and leave the second strip “undisked.” In the second year, disk the second strip and protect the first (disked during previous year). Continue this rotation treatment, disking strips every other year. For spokes greater than 60 feet wide, you can disk half to a third the length of each spoke on a two- or three-year rotation as described above. Alternatively, you can split each spoke into plots and rotationally disk in a “checker-board” fashion (Figure 2) on the same schedule outlined above for strip-disking. Prescribed burning is more cost-effective than disking

and can replace strip-disking, if desired, as conditions in pine stands become safe for burning. These rotational soil disturbance patterns maintain grassland habitat and create a greater diversity of plant communities that meet the different habitat needs of birds throughout the year. Spokes can further be enhanced by creating scattered patches of shrubby habitat (e.g. plum thickets) throughout the spokes. Portions of disked strips or plots can be utilized to plant rotational summer and winter food plots each year. However, permanent cover is important to grassland birds. If creating bird habitat is a priority, focus less on food plantings and more on a diversity of permanent herbaceous cover (for example native warm-season grasses and legumes) created through the techniques described above.

Conservation Reserve Program Pines and Hub and Spokes

For landowners with Conservation Reserve Program (CRP) pine acreage enrolled in CP3 or CP11 beginning with Sign-up 20, 10-20 percent of this acreage was required to be in permanent openings for contracts offered with a Habitat Cover Benefits score of 50. Hub and Spokes openings are excellent ways to meet CRP openings requirements. Each state has different criteria for how wide a forest opening must be, and the minimum width ranges from 60 to 100 feet (recall Figure 1 for an example of how much stand area might be converted to openings). Once created, openings must be managed with strip-disking or prescribed fire. Mid-contract management cost-shares are also available to manage both CRP pines and forest openings. In many of the southeastern states, these mid-contract management cost-shares are 50% of the actual cost of applying the management practice (not to exceed certain limits). Approved mid-contract management cost-share practices vary by state, although most include prescribed fire and strip-disking in CRP pines and openings. Some states also include selective herbicide treatments, as necessary. It is important to note that these mid-contract management practices must be incorporated into a CRP contract and management

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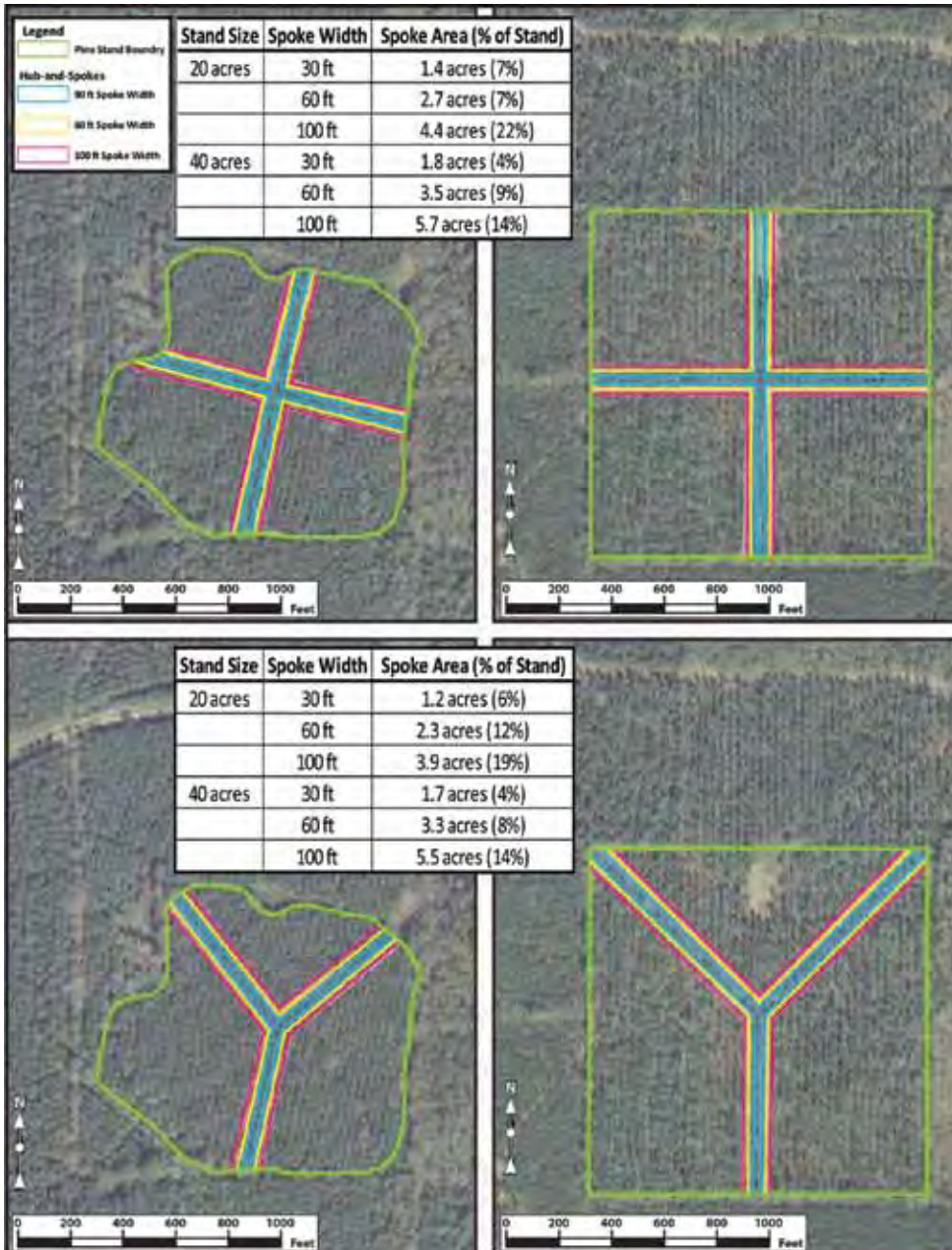


Figure 1. Examples of a 20-acre (left) and 40-acre (right) pine stand and amount of acreage removed by 3 different spoke widths in a “I” (top) and “Y” (bottom) shaped Hub and Spoke design.

plan. Contract holders must modify their Conservation Plan of Operation (CPO) to reflect the timing, frequency, and extent of approved mid-contract management practices. This requires visiting the county USDA Service Center, describing to the FSA personnel the suite of management practices you wish to apply, and developing a prescription and schedule of activities. This prescription and schedule will be incorporated into a contract CPO. The FSA personnel will involve the NRCS District Conservationist and/or a registered forester to provide technical guidance in developing an approved CPO. Prescribed burning should be conducted by or under the

supervision of a certified prescribed burn manager. Strip-disking and prescribed fire should be limited to October through February to produce desirable annual weeds and grasses. No management activities can be applied during the primary nesting period established by each NRCS state office. Total cost-share payments for mid-contract management may not exceed certain limits. For example, mid-contract management cost-shares in Mississippi cannot exceed \$50 per acre per year or \$100 per acre for the entire 10-year CRP contract period (\$125 per acre for contracts that exceed 10 years).

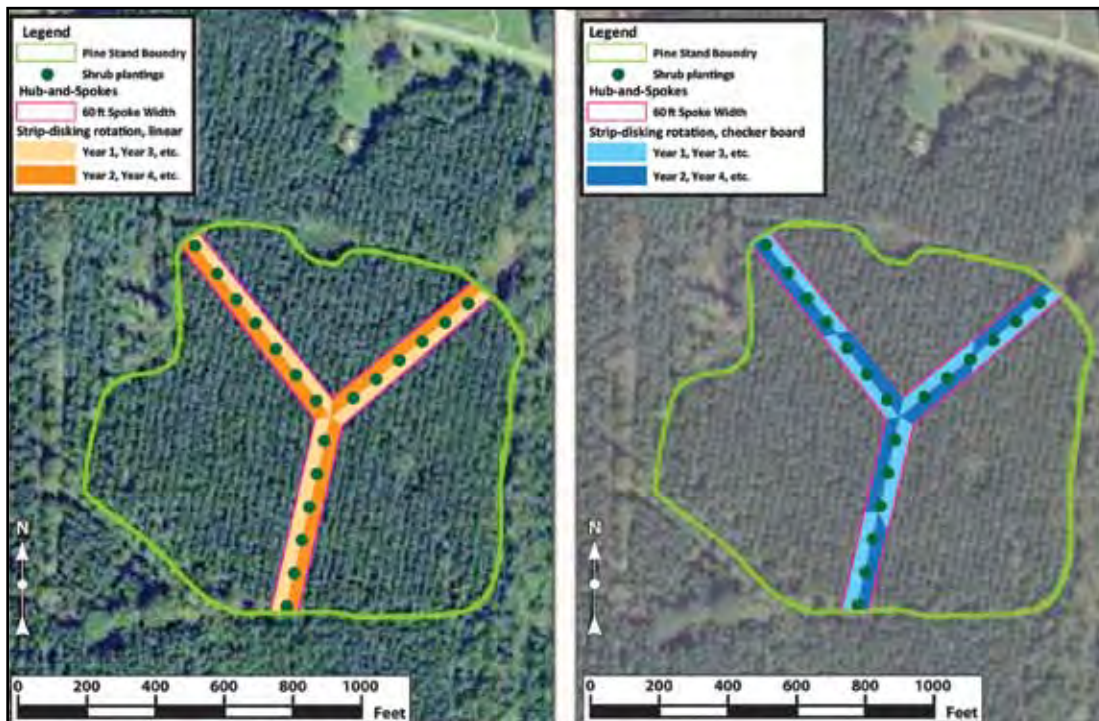


Figure 2. Suggested management of Hub and Spoke openings. Scattered shrub plantings provide good protective cover for grassland wildlife (protect shrubs from diskling and fire). Example of 2-year rotation linear strip-disking (left) and 2-year rotation plot-disking in a checkerboard design (right). This type of design could easily be extended to a 3-year rotation on Hub and Spokes wider than 60 feet.

Closing Remarks

Many landowners have found Hub and Spokes areas to be the best areas in a forest for hunting and viewing wildlife. The technique provides excellent deer forage production within pine plantations and can help landowners achieve higher hunting lease rates. Hub and Spokes areas also help to support some grassland wildlife habitat that would otherwise be lost to pine canopy closure prior to or shortly after initial thinning. With Hub and Spokes openings, forest landowners can simultaneously improve wildlife habitat, meet CRP program objectives, and improve the recreational

value of their land.

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Durana White Clover for Pine Plantations



Photo courtesy of Bobby Watkins

Name: Durana White Clover (*Trifolium repens*) **Type:** Cool season perennial legume

Adaptation: From eastern Texas and Oklahoma across the south to the Atlantic coast and north along a line from Macon, GA to Dallas, TX. On loamier soils in the Coastal Plain region of the Southeastern U.S. under orchard, pine plantation or wildlife habitat management. Also in the Pacific Northwest and in river valleys and certain irrigated areas of the western U.S.

Benefits: A perennial plant that offers year-round sustainable and low maintenance vegetative cover and high quality wildlife nutrition. Durana is highly persistent with excellent drought, cold and heat tolerance. Reduces weed competition and is competitive with existing grasses. As a legume, Durana captures atmospheric nitrogen ranging from 75 - 150 lbs./acre or more per year. Builds soil organic matter and improves soil tilth.

Wildlife: Supplies nitrogen for enhancing growth of adjacent browse plants; provides year-round food source for multiple species - game and non-game; pollen food source for honey bees; provides high protein and energy nutrition; attracts insects desired as a food source by game and non-game birds.

Land Use: Offers diverse recreational use opportunities including wildlife viewing, travel, walking and riding lanes (ATV, horseback), etc.; provides desirable habitat sanctuary for non-game bird species; reduces soil erosion; serves as a vegetative fire break thus reducing maintenance cost.

Planting:

- Seeding rate:** Seeding rate: 5 lbs/ac.
- Method:** Plow and firm loose soil with a culti-packer or similar roller device prior to seeding. Broadcast seed on the soil surface with a seeder designed for sowing small seed. Culti-pack or roll the area following seed application to obtain good seed/soil contact. Seed can be drilled with a no-till planter equipped with a small seed hopper.
- Depth:** 1/8 inch maximum; many stand failures result from seed planted too deep.
- Planting dates:** **South:** September - November, may be frost seeded in February to early March in some locations
Upper South: September - early November, may be frost seeded in February to early March or spring planted in April - early May
- Fertilizer:** Soil testing is highly recommended. Durana performs best at a soil pH of 6.0-6.5 but will tolerate a pH in the 5.5 range. Providing adequate levels of potassium and phosphorus are necessary to ensure that the clover establishes and remains productive.
- Innoculant:** Durana seed come pre-inoculated with selected Rhizobia strains of bacteria for optimal root nodulation and nitrogen fixation.

Management: Durana does not require the addition of nitrogen fertilizer. Excess clover forage may be periodically clipped. Keeping the vegetation at a 4" - 6" height helps maintain the clover and aids in weed control/suppression.

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