

Pasture Gazette

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Editor's Corner

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It's the Time of the Season!

Have you noticed a difference in the sunlight intensity? It is not quite as intense as it was

during June and July and this is the first sign that fall and winter are approaching. It has been said that if it were not for winter and drought, raising cattle could be fun and profitable. With the approaching change in seasons cattlemen are beginning to think about their livestock wintering program. Many producers choose to simply feed hay all winter. While this is relatively risk free, it is a very expensive way to feed cattle, and with the dry conditions that much of Texas has experienced this year, hay may be in short supply. Thus, many livestock producers will be looking at various plant by-products, cubes, and molasses/urea licks.

Some producers, however, will be using home-grown forage in the pasture for wintering their livestock, and that is what this issue of the *Pasture Gazette* is about.

Now is the time to consider stockpiling your warm-season perennial grass for grazing during the fall and early winter. A short article with the protocol is included in this issue. Also, many producers will be establishing winter pasture and a comprehensive article by Dr. Gerald Evers will illustrate how to successfully prepare for and plant your winter pasture.

So take some time to read through these articles and hopefully we will have provided you some information that makes it a little easier, and more profitable, to feed your livestock this winter.

Now all you need is a little rain...

Stockpiling Bermudagrass or Bahiagrass for Fall/Winter Grazing

Larry Redmon, Ph.D., State Forage Specialist, Texas Cooperative Extension, College Station

Winter feeding programs can contribute heavily to the overall ownership costs of cow-calf production systems. Traditional feeding programs in Texas and across the southeastern US have concentrated on feeding conserved warm-season grasses (hay) for many years. This practice, however, is generally a very expensive

method of feeding cows during the winter period. A different approach could use standing or stockpiled bermudagrass left in the field for grazing during fall and early

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Cattle readily graze frosted bermudagrass.

winter. Stockpiled bermudagrass can provide the required nutrition for dry, pregnant cows through January if the appropriate procedure is followed. Producers should plan on providing approximately 45 - 60 days of grazing with the dormant bermudagrass.

In most instances, stockpiled bermudagrass should be used up by mid January. Once the stockpiled bermudagrass is completely grazed, a shift to *another* bermudagrass pasture overseeded with annual ryegrass can provide necessary nutrition throughout the remainder of the winter feeding period. A short period of hay feeding may be necessary until the ryegrass pastures are ready to be grazed. These changes in winter feeding programs can substantially reduce winter feeding costs.

In order for stockpiled bermudagrass and ryegrass to contribute to the program, the stocking rate must be in balance with the property's ability to produce the forage necessary for the resident cow herd. In many instances, overall stocking rates will have to be reduced in order to provide the deferred pastures for stockpiling bermudagrass and overseeding ryegrass.

Adequate moisture combined with the appropriate fertility program is required to produce the desired bermudagrass quantity and nutritive value. Note that if adequate moisture is not received during September, October and November, little bermudagrass will be produced and grazing initiation of ryegrass may be delayed. *Always* have a barn full of good hay in reserve for drought or ice and snow cover. Also realize that good hay stored appropriately in a barn does not have to be replenished each year and can last for many years without further deterioration once an approximately 10% loss in dry

matter and nutritive value occurs during the first year of storage.

On the opposite side of this page is a suggested protocol for stockpiling bermudagrass that will provide adequate nutrition for mature, spring-calving cows that go into the fall in good body condition (Fig.1). This protocol is designed to provide stockpiled bermudagrass that will provide 8-14% crude protein and >50% TDN through January. *If* the bermudagrass is used for other classes of cattle, appropriate supplements will likely be required.

- Estimate the number of acres required for your cow herd. In lieu of actual ranch forage production records, some assumption must be made. These assumptions include:
 - a. Enough moisture will be received to produce the desired level of bermudagrass.
 - b. An appropriate amount of fertility will be applied to stockpile 2500 lbs of bermudagrass DM per acre.
 - c. A 1000-lb cow (animal unit) will consume 26 lbs of forage dry matter (DM) per day.
 - d. Harvest efficiency of the stockpiled bermudagrass will be 65%.

An example of a typical east Texas cow herd is demonstrated below.

- 1) 25 cows x 26 lbs forage DM per day x 75 days = 48,750 DM required by the animals



- 2) $48,750 \text{ lbs DM} / 0.65 \text{ harvest efficiency} = 75,000 \text{ lbs DM production requirement}$
- 3) $75,000 \text{ lbs DM requirement} / 2500 \text{ lbs DM per acre production} = 30 \text{ acres required for stockpiling}$
- Graze pasture to a 1-2" stubble height or harvest the final cutting of hay in preparation for fertilization approximately 8 weeks prior to first anticipated frost. Mow only as a last resort as mowing simply places thatch on top of the grass you are attempting to grow and costs money in tractor fuel and wear and tear on the equipment.
- Apply 60-75 lbs N, 18 lbs P_2O_5 , 60-75 lbs K_2O per acre. If P and K are adequate according to soil test results, apply only N.
- Defer pasture(s) from grazing and allow forage to accumulate until frost.
- Initiate grazing in response to the need for hay supplementation
- When grazing is initiated, control the grazing with either an electric wire or by opening and closing gates. If grazing is not controlled, much forage will be wasted. Provide cows with 1-2 days of forage only and allow enough time for cows to harvest 65% of the standing forage. The top 2/3 of the stockpiled forage is primarily leaf and provides good nutrition. If cows continue to graze closer than the top 65%, they will be consuming mostly stems, which is much lower in nutritive value.
- After cows graze stockpiled forage to the appropriate height, advance the electric wire or allow access to other pastures to provide additional days of grazing.
- If grazing is not controlled, cattle will selectively harvest the leaves the first 4-5 weeks and leave the stems which are lower in quality. At this time, it may be necessary to start supplementing the cattle with protein to prevent loss of body condition. A good method to determine if the cattle are deficient in protein is to observe their manure for consistency.
- When stockpiled forage is completely grazed, it will be time to start a traditional hay feeding program or initiate grazing ryegrass. A limited amount of hay is typically needed until the ryegrass is ready to be grazed.
- Be sure to provide free choice loose mineral supplement to the cattle and closely monitor the body condition of the cattle.
- Bahiagrass may be substituted for bermudagrass based on preliminary data obtained at Overton.
- If system experiences a break down, switch to Plan B (hay stored in the barn).



Grazing trial study on stockpiled bermudagrass in Wood County.

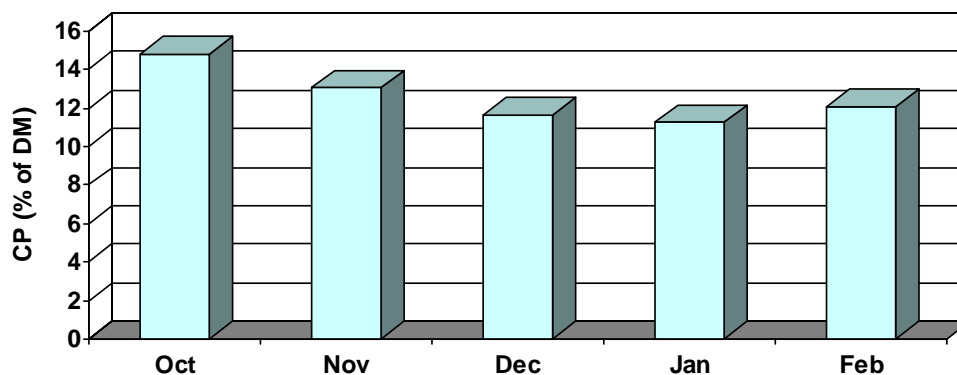


Figure 1. Crude protein (CP) of bermudagrass and bahiagrass cultivars during fall and winter for two years at Overton, TX. Evers et al., 2004.

A Guide to Overseeding Warm-Season Perennial Grasses with Cool-Season Annuals

Gerald W. Evers, Ph.D., Regents Fellow & Professor, TAMU Research & Extension Center, Overton

Introduction

In the Lower South, defined as adaptation zone A in the book *Southern Forages*, warm-season perennial grasses are the basis of pasture systems. In the Middle South, defined as adaptation zone B in *Southern Forages*, a combination of warm-season and cool-season perennial grasses are grown. The growing season of warm-season perennial grasses in the southeastern US is from the last killing frost in early spring to the first killing frost in late autumn with the peak growing period in May and June (5). The predominant warm-season perennial grass forage species are bermudagrass, bahiagrass, and dallisgrass.

The hot and dry periods during the summer prevent or impede persistence of cool-season perennial grasses in the lower southeastern US. Cool-season annuals such

as small grains, annual ryegrass, and legumes are frequently overseeded into warm-season perennial grass pastures in autumn to move closer to a year round growing season. The cool-season forages provide winter and spring grazing

that reduce the need for stored forages; have a higher nutritive value that results in better animal performance than warm-season grasses; provide spring weed control; and, if a legume, adds nitrogen to the pasture system. The overseeding of warm-season perennial grasses avoids erosion since there is no deep tillage. The pasture system is ideal for animal manure application since there is essentially year

round nutrient uptake. In autumn and late spring, the growing seasons of the warm-season perennial grass and the cool-season annual overlap. Therefore it is especially difficult for cool-season annual seedlings to compete with a well established warm-season perennial grass in autumn. Periods of hot and/or dry weather during this time also often contribute to the risk of cool-season annual establishment. Following is a discussion of management practices to enhance successful establishment of cool-season annuals when overseeding warm-season perennial grasses.

Reducing Warm-Season Grass Competition in Autumn

Bermudagrass has stolons and rhizomes and bahiagrass and dallisgrass have tufted rhizomes near the soil surface that make them very tolerant to close, frequent defoliation. Persistence under continuous, heavy grazing is one of the reasons for their wide use. Under continuous grazing, they form a tight prostrate sod that shades the soil surface and is very competitive to emerging annual forage seedlings. A more upright growth and open sod develops if the warm-season perennial grass is allowed to grow undefoliated for 4 to 5 weeks before overseeding. The top growth can be removed as hay or by flash grazing. This more open sod allows sunlight to reach the soil surface and is less competitive to emerging seedlings.

Another practice to reduce the warm-season grass competition is a light disking about 1 to 2 inches deep. With bermudagrass growing on sandy soils, the total sod can be disked, as the bermudagrass will recover in the spring from stolons, rhizomes, and roots.



Lightly disked bermudagrass pasture.

However, spring recovery will be slower than if the bermudagrass was not disked. Another option is to turn the blades on the disc almost straight. This will result in alternating strips (4 to 5 inches wide) of disked and undisked sod. This practice can be used on all warm-season perennial grasses with improved spring recovery compared to complete disking. Another advantage to light disking is that it provides some loose soil for covering the seed and helps ensure good seed/soil contact.

Planting Date

The general guideline is to overseed cool-season annuals from 4 to 6 weeks before the average first killing frost date. From the cool-season forage standpoint, planting should be as early as possible when night temperatures drop to the low 60's with day temperatures in the low 80's. Germination and seedling growth is rapid under these mild temperatures. As planting is delayed, cooler temperatures slow germination rate and seedling growth which result in less autumn and winter forage production. The risk with early planting is that periods of high temperatures and/or limited rainfall following planting can result in stand reduction or loss of the overseeded annual. When cool-season forages are planted early, they also have to compete with a more vigorous warm-season perennial grass sod. A light disking of the warm-season perennial grass is essential for successful early planting. Without disking, or the use of desiccants, planting should be delayed until night temperatures are

consistently below 50°F to slow growth of the warm-season perennial grass.

Cool-Season Annual Species

Annual ryegrass, rye, wheat, and oat are the primary cool-season annual grasses used for overseeding warm-season perennial grasses. Their rankings for cold tolerance, maturity, and yield are listed in Table 1. Rye has a tendency to do better on sandy soils and wheat on loam and clay soils that are well drained. Oat is used in the lower southeastern US where winters are mild.

Small grains are usually mixed with annual ryegrass to extend the grazing season. Small grains provide more forage production in autumn and winter than annual ryegrass but they mature from late March to mid-April. Annual ryegrass is productive through spring. In the Gulf Coast area, pure stands of annual ryegrass are as productive as small grain-ryegrass mixtures because of milder winters and a shorter cool-season annual growing season.

Annual ryegrass is the most popular cool-season annual for overseeding in the southeastern US. It is adapted to all soil types and does better on poorly drained soils than the small grains (12). In contrast to the small grains, successful ryegrass stands can be obtained by broadcasting the seed on the soil surface, especially on bermudagrass and dallisgrass sods. Disking tight bahiagrass sods is usually necessary



Drilling small grain and "broadcasting" ryegrass in one pass.

Table 1. Cool-season annual grass traits and seeding rates.

Species	Cold tolerance	Maturity	Yield	Pure stand seeding rate lb/ac
rye	1+	1+	4	90-120
wheat	2	2	3	90-120
oats	3	3	2	90-120
ryegrass	3	4	1+	25-30

+ = most cold tolerant; earliest maturity; highest yield

for good broadcast ryegrass stands. However, thicker ryegrass stands occur on all grass sods if they are disked lightly before seeding. Seed cost per acre is less for ryegrass than for other cool-season annual forages and ryegrass has the ability to volunteer each autumn if managed for reseeding.

Cool-season legumes are more soil specific than grasses and therefore producers must know their soils and select the best adapted legume species.

Preferred soil characteristics and species traits are listed in Table 2. It is recommended that ryegrass be mixed with legumes for grazing. The ryegrass provides earlier grazing than the legume alone and reduces the potential for bloat.

Another advantage for mixing ryegrass with the small seeded legumes is that the ryegrass can act as a carrier for the legume seed if a planter with a small seed box is not available.

Seeding Rates

Recommended seeding rates are reported in Tables 1 and 2. Using a drill places a higher percentage of the seed at the proper planting depth, resulting in better stands than broadcasting the seed and covering them with a drag or packer. Seeding rates should be increased from 25 to 35 % when broadcasting seed to get the same stand

density as drilling the seed. When a small grain-ryegrass mixture is planted, the normal small grain seeding rates are used with 20 to 25 lb/acre of ryegrass. For legume-ryegrass mixtures, from 15 to 20 lb of ryegrass is planted with 2/3 the recommended seeding rate for a pure stand of the legume (Table 2).

Planting Methods

Planting options are a light disking followed by drilling or broadcasting the seed, drilling the seed in an undisturbed sod with a sod seeder, or broadcasting the seed on an undisturbed sod. In all cases, it is critical for the warm-season perennial grass to be as short as possible and less competitive to the overseeded cool-season annual by using a hay harvest, grazing, or mowing. Mowing may not be a good option if the grass is very tall since the cut grass will act as a mulch and shade the soil surface. As stated previously, light disking reduces the summer grass competition permitting early planting and some loose soil for covering the seed. If seed are broadcast on a lightly disked sod, some type of drag should be used to help cover the seed. Sod seeders are equipped with fluted coulters that cut a slit in undisturbed sod followed by some type of opener that places the seed in the slit.

In both scenarios small grain seed should be placed from 1/2 to 1 inch deep for good stands. If the small grain seed is broadcast



Cool-season annual forage overseeded into bermudagrass pastures.

Table 2. Cool-season annual legume species, preferred soil characteristics, plant traits, and seeding rate.

Species	Soil			Maturity	Plant			Seeding rate
	pH	Texture	Drainage		Cold tolerance	Bloat potential	Reseeding potential	
Arrowleaf clover	6.0-7.0	sand, loam	good	late	good	low	high	8-10
Ball clover	6.5-8.0	sand, loam, clay loam	fair	medium	good	high	high	2-3
Berseem clover	6.5-8.5	loam, clay	poor	medium	poor	low	low	12-16
Crimson clover	6.0-7.0	sand, loam	good	early	good	medium	low	16-20
Medics, annual	7.0-8.0	sand, loam, clay	fair	early	poor	high	high	10-12
Persian clover	6.0-8.0	loam, clay	poor	medium	fair	high	medium	6-8
Red clover	6.5-8.0	loam, clay	good	late	good	low	low	10-12
Rose clover	6.0-8.0	sand, loam, clay	good	medium	good	low	high	12-16
Subterranean clover								
<i>T. subterranean</i>	6.0-7.2	loam clay	fair	medium	fair	medium	low	16-20
<i>T. brachycalcium</i>	7.0-8.0	loam clay	fair	medium	poor	medium	low	16-20
Sweetclover, annual	6.5-8.0	loam, clay	fair	medium-late	good	medium	high	12-15
Vetch, Hairy	5.5-8.0	sand, loam, clay	good	medium	good	low	low	20-30
White clover	6.0-7.5	loam, clay	poor	late	good	high	high	3-4

on a disked sod, the area should be disked lightly again to help cover the seed. Annual ryegrass and most legumes should be planted from ¼ to ½ inch deep. It is best to broadcast very small seeded legumes like ball and white clovers on the soil surface. Attempts to drill the small seed in the soil usually put the seed too deep and results in poor stands. Large seeded legumes like hairy vetch must be placed in the soil ½ to 1 inch deep.

Placing legume seed in the soil has several advantages. If the seed is in the soil, the emerging root system can reach soil moisture sooner and have better drought tolerance. This is

especially important in sandy soils where the soil surface dries out quickly after rainfall. A second advantage to legume seed burial is survival of the *Rhizobium* bacteria that was applied to the seed immediately before planting, which is responsible for N₂-fixation. The bacteria are sensitive to sunlight and high temperatures. Preinoculated legume seed is coated and offers some protection of the rhizobia bacteria if the seed is broadcast on the soil surface.

Broadcasting seed on an undisturbed sod is an option only for annual ryegrass and small and medium-seeded legumes.

Dragging the area after broadcasting the seed is recommended to shake any seed caught in the grass stubble down to the soil surface. Average recommended seeding rates should be increased at least 25% when broadcast seeding to compensate for the likelihood a smaller percentage of the seed becoming established as seedlings. Seeding must be delayed until late autumn when low temperatures cause slow growth of the warm-season perennial grass.

Annual ryegrass and most legumes can be mixed with the first fertilizer application and broadcast on a lightly disked or undisturbed grass sod. It is important that

the fertilizer and seed be spread within 6 to 8 hours of mixing or reduced germination and seedling vigor may occur. Unless spreading is prompt, survival of the rhizobia on the legume seed may also be adversely affected.

Grazing During and Following Establishment

The general recommendation is to allow the overseeded forages to become well

established before grazing so that animals do not pull up the young seedlings. Horses, sheep, goats, and deer have the ability to graze very close because they have teeth on the upper and lower jaws. Cattle have teeth

only on the lower jaw and a denture pad on the upper jaw. Therefore cattle can not graze as close as animals with teeth on both jaws. If annual ryegrass or clovers are overseeded on an undisturbed grass sod, or volunteer on an undisturbed grass sod, cattle can graze the warm-season grass during emergence. This helps reduce the warm-season grass competition. Emerging ryegrass and clover seedlings are very flexible and usually bounce back after being stepped on by grazing animals. The cattle should be removed when the seedlings get 2 to 3 inches tall.

Warm-Season Grass Recovery

Mid to late spring is the other period when the growing seasons of the cool-season annual and warm-season perennial grass overlap. Late maturing cool-season annuals such as arrowleaf clover and annual ryegrass are the most competitive. Recovery of the warm-season grass is especially slow in a dry spring because the cool-season annual has depleted the soil moisture. The nutritive value of warm-season perennial grasses

"Placing legume seed in the soil has several advantages."



Cool-season annual forages are a "must" for winter stocker cattle.



Winter pasture also works well for cow-calf operations.

peaks in the spring. If overseeded with late maturing annuals, the first hay harvest with the highest nutritive value is lost.

Management practices such as light

disking and short warm-season perennial grass height enhance early forage production of overseeded cool-season annual forages. However these same practices slow spring recovery of the warm-season perennial grass. A 3-year study at the Texas A&M University Agricultural Research and Extension Center at Overton has shown that the autumn sod treatments hindered Coastal bermudagrass recovery even if not overseeded (Table 3). Compared to undisturbed sod, light disking reduced first harvest bermudagrass yields by an average of 600 to 700 lb/acre. Compared to the 4-in. stubble height, the 1-in. stubble height reduced bermudagrass yields an average of 500 lb/acre when overseeded with clover, and 250 lb/acre when overseeded with ryegrass or not overseeded. Winter weeds were present on the Coastal bermudagrass that was not overseeded, highlighting the cool-season forage benefit of weed control.

Volunteer Reseeding of Cool-Season Annuals

Legumes that produce a high percentage of hard seed and annual ryegrass are capable of volunteer reseeding each fall. The first requirement for successful reseeding is to produce sufficient amount of seed in the spring. Stocking rates may have to be reduced or terminated by a certain date for satisfactory seed production. High temperature dormancy in annual ryegrass is the mechanism that prevents summer seed germination. Volunteer ryegrass does not germinate until mid or late autumn because of the high temperature dormancy trait. Purchased ryegrass seed will germinate when planted in early autumn. Broadcasting about 1/2 the normal ryegrass seeding rate will improve early forage production.

Embryo dormancy and hard seed coat are the mechanisms in legumes that reduce summer seed germination. The initial percentage of hard seed is dependent on species and sometimes the climatic conditions during seed maturity. Alternating high and low temperatures and wet and dry periods cause the hard seed to soften. The rate at which hard seed soften also varies by species.

Table 3. First harvest yields of Coastal bermudagrass following fall sod treatments (1 vs. 4 in. sod, control vs. disking) and overseeding of arrowleaf clover, crimson clover, ryegrass, or not overseeding at Overton (3-year mean).

	Stubble height					
	1 in.	4 in.	Mean	1 in.	4 in.	Mean
-----Coastal bermudagrass (lb/acre)-----						
Arrowleaf overseeded			Crimson overseeded			
Control	1459	2069	1764*	1870	2492	2181
Disk	906	1263	1085	1466	1718	1592
Mean	1183	1666		1668	2105	
Ryegrass overseeded			Not overseeded			
Control	1522	1778	1650	1989	2260	2125
Disk	887	1142	1015	1407	1602	1505
Mean	1205	1460		1698	1931	

*All means between sod heights and undisturbed vs. light disking, significantly different at 0.05 level, P < 0.001.

Whether to manage the cool-season annual for reseeding and sacrifice some loss of spring grazing or to graze the cool-season forage out and replant the following autumn is a management decision that varies with producer and economic situation. Usually by mid-April there is sufficient forage growth on other warm-season perennial grasses that were not overseeded to support the livestock that were grazing the winter pasture. The monetary savings would be the planting and seed costs to reestablish the cool-season forage in the following autumn. If the overseeded pasture is utilized by young growing animals that have a high nutrient requirement, it may be more economical to graze it out and replant each autumn. Allowing the cool-season annual to reseed will delay recovery of

the warm-season perennial grass because of shading.

Summary

Overseeding warm-season perennial grasses with cool-season annuals in the southeastern US has many benefits. Because the growing seasons

overlap in autumn, management practices to reduce the warm-season grass competition are necessary for early cool-season forage production. Cool-season forage production and distribution is dependent on species, seeding rates, and planting methods. Growing seasons also overlap in spring which delays spring recovery of the warm-season grass.

"Overseeding warm-season perennial grasses with cool-season annuals in the southeastern U.S. has many benefits..."



Rye-ryegrass seedlings emerging within 2-3 weeks of planting.

New Legume will be Devine for Central Texas

William R. Ocumpaugh, Ph.D., Regents Fellow & Professor, TAES, Beeville

Devine little burr medic [*Medicago minima* var. *minima* (L.) Bart.] was developed by the Texas Agricultural Experiment Station at Beeville for use in Central and South Texas, and released in 2005. What is a medic??? Or more technically correct what is an annual medic??? These terms are used to describe a group of plants that are annual relatives of alfalfa. Both annual medics and alfalfa belong to the genus *Medicago*. This group of plants is sometimes called “clover”, but technically to be a clover, a plant needs to belong to the genus *Trifolium*. Plants that belong to the *Medicago* and *Trifolium* genus (as well as a number of other species) are collectively called “legumes”. Legumes are known for their ability to associate with Rhizobia on the roots to “fix” nitrogen from the air and make it available to the plant. This fixed nitrogen can provide all or nearly all the nitrogen that is needed to maintain a productive pasture

system. The other attribute of most legumes is that they are known as high protein plants which contribute to the nutrition of animals that consume them. Winter legumes can be 20 to 30% protein in the mid-winter period. These high levels of protein can replace the need for high protein supplements like range cubes. We often provide range cubes in small quantities, so do not expect a winter legume to provide the entire feed supply for the grazing animal, but think of it as a supplement or “range cubes on the ground” that do not need to be purchased and fed daily.

The original seed that resulted in Devine was collected from a kleingrass pasture on Hondo Creek west of Devine, TX in 1998. The kleingrass pasture had several acres of this plant, so instead of the normal "pick a few seeds collection", we were able to harvest

seed with a commercial harvester, and had about 200 lbs. of seed to work with immediately. This allowed us to have a major jump-start on the typical 10-year evaluation process. So we were able to start advanced evaluations on many fronts in those first years after collection. Over the years, we have planted Devine from northern Mexico to Oklahoma. However, we have found that its best niche seems to be along the I-35 corridor from a few miles south of where it was collected in Devine to just south of the Red River. Devine little burr medic has performed extremely well in tests at Luling, Thrall, McGregor, and Stephenville. This plant is not native to Texas, but it has become naturalized in a region of Texas from south of Uvalde to north of the Red River. This particular ecotype may not be exactly the same as the one that is scattered all over this region, but it is very similar. We have collected samples of naturalized stands from as far north and west as near Lubbock to the area south of Uvalde and none were a lot different from the Devine collection when evaluated at Beeville.

When compared to other legumes, Devine was superior to all other legumes we tried at San Angelo. Yields in trials near San Angelo were not real great due to the lack of good winter rains, but good stands were

maintained through natural reseeding for a number of years. The next best legume at San Angelo was Estes button medic. In South Texas, Devine is not as productive as Armadillo burr medic, and some of the less winter hardy

Australian-released barrel medics such as Jemalong, Jester, and Parabinga, but as you move northward, Parabinga is the least winter hardy and we normally do not recommend it north of about Beeville. Jester and Jemalong will work to about Austin,

whereas Armadillo will perform most years as far north as Waco. These legumes do better as you move east from I-35, while Devine is superior in the western areas. And as you might expect, there is a fair amount of overlap in where some of these legumes perform well. In the higher rainfall years, some of the true clovers such as Overton R18 rose clover, several crimson clovers and sometimes Apache arrowleaf clover will produce more forage than many of these medics. However the real advantage to most all the medics is the hard seed trait, excellent seedling vigor, and the flowering habit that allows them to produce seed even under severe grazing pressure. Most true annual clovers (except subterranean clover and ball clover) will not produce a significant amount of seed without some form of grazing restrictions during the flowering and seed maturation period. Our research suggests that Devine little burr medic will yield as much as or more than all the other medics in the region from the area just south of San Antonio to north of Stephenville. This I-35 corridor area has no other medic that will consistently produce as much dry mater as Devine. In wet and mild years, Armadillo will compete, as will Jemalong and Jester, but all of these can be frozen out in cold winters. We have not looked at mixing some of these medics together, but given the strengths and weaknesses of each of these annual medics, a blend of Devine little burr and Armadillo burr and/or one of the barrel medics should prove to be a productive and reliable legume mix.

Devine can be grown in pastures or deer food plots as a monoculture or in blends with other annual medics or clovers. Devine will tolerate extremely heavy grazing pressure by wildlife and livestock. Our research shows that Devine is like most of other legumes in its need for phosphorus fertilizer. A soil tests is the only way to know what your soil phosphorus status is, so if you have not taken one in recent years, you need to. The soil test will also tell you the status of other



'Devine' little burr medic seed production field.

essential nutrients for plant growth, and will tell you what the soil pH is in your field. Most medics, including Devine prefer a soil pH above 6.5, and will perform well on sites with a pH into the 8-range. Most sites where we have planted Devine in Central Texas, it will flourish with just a good application of something like 18-46-0 or 11-52-0, and in some sites, where the soil test levels of phosphorus (and other nutrients) are high, Devine will flourish without any applied soil nutrients.

Pogue Agri Partners Inc in Kenedy, TX has been licensed by the Texas Agricultural Experiment Station to produce seed of Devine little burr medic. Pogue Agri Partners will be selling Devine pre-inoculated and coated. Our research shows that pre-inoculated and coated Devine seed can be seeded at the same or even lower seeding rates than uncoated seed with user applied inoculum. The coating protects the inoculum both before and after seeding, and eliminates the need for the user to apply the specific inoculum before planting. Good stands can be established with 3 to 5 lbs of coated seed per acre on a good seedbed. These plantings were broadcast seeded followed by dragging or rolling to get a good soil-seed contact and conserve moisture. When planting into sod, graze or mow the grass short and then run a disc or some other similar tillage tool over the pasture to bring up some bare soil. There is no need to try to eliminate the grass unless that is your objective, you just need some loose soil to cover the seed. After you disc, then broadcast the seed and drag the pasture. The best time to plant is in the fall after it has started to cool down and when

you expect to get some rain. The absolute earliest date will vary from late-September in the northern part of the range of adaptation to mid-October in the southern range of adaptation. The latest date to plant will range from late-November in the north to late-December in the south. With other medics we have worked with, we have determined that the window for planting on prepared seedbed is bigger than when planting into a sod. And this seems to be true on both ends of the planting window. So cut about 2-weeks off of both ends of the suggested window when planting into sod. The real advantage to planting this or any other medic is that it will likely reseed for you, and will come up each year for years to come as long as you manage your pastures for legumes. Managing for legumes, means paying attention to what and when you use herbicides, managing the grass in the fall of the year so the seedlings “can see the light of the day”, and keeping up with your phosphorus (and perhaps other nutrients) required to keep the legume competitive with grasses.

Remarks

During the month of August, the Department of Soil & Crop Sciences was fortunate to hire two outstanding new forage specialists. Located at the Texas A&M University Agricultural Research & Extension Center - Stephenville is **Dr. Yoanna (pronounced Joanna) Newman**. Dr. Newman comes to us from the University of Florida and started work on August 1. Dr. Newman can be reached by phone at 254-968-4144 or by email at YNewman@ag.tamu.edu.

Also new to our forage group is **Dr. Joao (Joe) Vendramini**. Dr. Vendramini is also out of the University of Florida forage program and is housed at the Texas A&M University Agricultural Research & Extension Center - Overton. Dr. Vendramini can be reached by phone at 903-834-6191 or by email at jvendramini@ag.tamu.edu.

If you have a chance to be at one of the two centers in the near future, drop by and help us welcome our two new forage specialists to the Texas A&M family. If, on the other hand, you have questions regarding forage production or utilization in their service areas, do not hesitate to give them a call.