

Annual Medic Evaluation for South Texas Pastures

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Summary

A number of annual medic species have been observed to grow throughout Texas. However, commercial seed is not available for these "wild" ecotypes. Seed of several cultivars have been imported from Australia and evaluated in South Texas. The annual medics have the potential to produce earlier than most of the true clovers now being evaluated. Total dry matter yields near 5,000 lbs/A were observed in the 1986 to 1987 growing season, with 25 to 40 percent available by early January.

Introduction

The medics evaluated were winter annual legumes of several species of the genus *Medicago*. The most commonly known annual medic in South Texas is "burr clover," and is observed to grow in pastures, in yards, and along roadsides. These medics have several characteristics that make them well adapted to South Texas. They grow well on high pH soils, have a high content of hard seed, and produce a vigorous seedling that establishes rapidly in the fall. Like other legumes, the medics are only productive with adequate levels of phosphorous fertilizer. The annual medics also have some weaknesses; mainly, a higher bloat potential than the true clovers and more susceptibility to tissue damage from periodic freezes that occur in South Texas. This report summarizes some of the current evaluation efforts at TAES- Beeville on annual medics.

Procedure

Cultivar Test

Seed for the cultivars evaluated was imported from Australia via Ramsey Seed in California and Kaufman-Seeds in Arkansas. Eight cultivars representing four species were planted on a prepared seedbed on October 20, 1986. The soil at this site is a Clareville sandy clay loam with a pH of about 7.1. The area had previously grown alfalfa for hay for 3 years, so the soil nitrogen levels were undoubtedly high. Seeds of some cultivars were provided by both seed companies, thus three cultivars were planted in duplicate. All cultivars were planted at 12 lbs of seed per acre with a plot drill in a randomized block design with four replications. Seeds were inoculated with a "Medic special" rhizobium using the "Pelinoc" system of the Nitragin Company. The area received 100 lbs/A of 0-46-0 and was treated with 3.5 pints/A of Eptam (pre-plant incorporated) on the day of planting for control of weeds. 'Tetragold' ryegrass was also planted in the experiment, but was planted at 35 lbs/A about 2 weeks later to avoid the potential damage from Eptam. Some apparent Eptam damage was observed on certain medic plots. There was a slight shriveling of leaves in two areas of the field, but there was no indication of any one cultivar being more damaged than another. Plots were

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harvested for yield on January 6, February 10, and March 18, 1987.

Plant Introductions

In an adjacent area, some 270 PIs representing 16 species of annual medics were planted for initial evaluation on November 6, 1987. This site received 100 lbs/A of 0-46-0 at the same time as the cultivar experiment, but was not treated with Eptam. These evaluations were conducted with a limited number of seed (less than 75 seeds) so were direct planted in a single row 5-ft long with a plot drill. The seeds were inoculated as described in the cultivar trial. Due to a limited number of seed, none of these PIs were replicated, but several of the medic cultivars used in the cultivar test were inserted periodically in this planting to be used for comparisons. These plots were not harvested, but were rated for forage potential on February 18 and April 17, 1987 using the cultivar 'Jemalong' as the standard.

Results and Discussion

Cultivar Test

The dry matter yields of the cultivar test by harvest and total for the season are presented in Table 1. In total yield, there are only small differences between the cultivars evaluated. 'Paraggio', the latest maturing cultivar ranked in the middle at the first harvest, and was either top or second from top in the last and second harvest, respectively. 'Jemalong', the second highest in total yield has been evaluated at Beeville in a previous test. 'Jemalong' was the top yielding cultivar in that test. In that previous test 'Jemalong' also suffered the least amount of tissue damage

following a severe freeze (9°F). 'Snail' and 'Serena' are two cultivars that were planted in duplicate in this test. They ranked highest in the first harvest and lowest in the last harvest. 'Snail' medic has a very large seed and it germinates and establishes very rapidly. However, it also has a very large stem and does not respond well to mechanical defoliation. In a previous test, 'Snail' and 'Paraponto' experienced the most tissue damage following a freeze.

Plant Introductions

Of the 270 PIs evaluated, over one third rated high at one or both of the rating times. PI 384665 rated higher than the check cultivars in both ratings. This PI is from the species *M. truncatula* which is the same species as 'Paraggio' and 'Jemalong'. Several PIs from *M. orbiculais*, *polymorpha*, and *M. scutellata* were rated as high or higher than the check cultivars in one or both of the ratings taken.

These data suggest that the annual medics need to be considered as one of the potential winter annual legumes for South Texas. They are more productive than the true clovers in the mid-winter period. The yields obtained from the medic cultivar study in early January were as good as or better than yields obtained from clover cultivar evaluations taken some 3 weeks later. These legumes need further evaluation in South Texas, particularly in areas south of Beeville where the potential for a hard freeze is minimal. A 5-acre planting of 'Jemalong' was made at La Copita Research Area (south of Alice) to observe growth and reseeding ability. It was planted in late November 1986 and has grown quite well. It produced seed, but only time will tell if it will re-establish and persist.

TABLE 1. SEASONAL PRODUCTION OF ANNUAL MEDICS AT BEEVILLE, 1986 TO 1987

Medic Cultivar	Harvest Dates			Total
	Jan. 6	Feb. 10	Mar. 18	
	Pounds of dry matter per acre			
Paraggio ^t	1,341bc*	1,816ab	1,841a	4,997a
Jemalong ^t	1,220cd	1,769ab	1,535ab	4,524ab
Snail ^s	2,107a	1,042d	1,034bcd	4,418ab
Paraponto ^r	1,085cd	1,475abcd	1,744ab	4,304ab
Sephi ^t	882d	1,958a	1,265abcd	4,105ab
Sapo ^r	998cd	1,331bcd	1,707ab	4,037abc
Circle Valley ^p	1,372bc	1,434abcd	1,204abcd	4,010abc
Serena ^p	1,691ab	1,447abcd	728cd	3,865abc
Paraponto ^r	854d	1,488abcd	1,402abcd	3,744bc
Snail ^s	1,743ab	986d	974bcd	3,704bc
Serena ^p	1,404bc	1,587abc	657d	3,648bc
Tetragold Ryegrass	340e	1,124cd	1,455abc	2,920c

t = *M. truncatula*, s = *M. scutellata*, r = *M. rugosa*, p = *M. polymorpha*.

*Yields followed by the same letter are not significantly different at the 0.05 level using Duncan's Multiple Range Test.