

# Clare Subterranean Clover for South Texas Pastures

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## Summary

'Clare' subterranean clover has received increased attention in South Texas over the last two growing seasons. 'Clare' is well adapted to the high pH soils of the region and has demonstrated a significant yield advantage over most of the standard subclover cultivars previously used. Pre-

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liminary observations indicate that it is similar in natural re-establishment ability to 'Woogenellup' subclover.

## Introduction

Subterranean clover is a winter annual forage legume that has been planted by an increasing number of cattlemen in Central and South Texas over the last few years. Subclover is popular because it is low growing, and the seed is formed in small burs near the soil surface allowing seed production under continuous grazing. Nearly all of the commercial cultivars available have been developed in Australia, and the majority of the commercial seed is imported from that country. The most commonly sold cultivar in Texas has been 'Mt. Barker', with a lesser amount of 'Woogenellup'. Both of these cultivars have been observed to show iron chlorosis on high pH soils. Most of the soils in Central and South Texas are pH 7 or above. The cultivar 'Clare', also developed and imported from Australia, has been reported in the literature to be better adapted to high pH soils. Previous evaluations of 'Clare' on neutral or acidic soils at Beeville and other locations in the south have not resulted in any substantial yield advantages. This report summarizes several plot and pasture evaluations comparing 'Clare' with 'Mt. Barker' as well as other cultivars on neutral to high pH soils.

## Procedure

All studies were planted with 10 to 12 lbs/A of seed that were inoculated with "Pelinoc" system using WR type rhizobium. Specific planting dates varied with each experiment from mid-October to mid-November. Sod plantings were made with a "Tye" no-till drill on 10-inch row spacing. All plots were planted on prepared seedbed using a Kincaid plot drill with 12-inch row spacings. Phosphorous fertilizer was applied as 0-46-0 if a soil test indicated a need. The minimum amount (if any was applied) was 100 lbs/A with a maximum of 200 lbs/A of 0-46-0. The soils were either Clareville, Parrita, and Weesatche sandy clay loams ranging from pH 7 at the Clareville sites to pH 8+ at the Parrita sites.

## Results and Discussion

The 1985 to 1986 plot study harvested on February 20, 1986 showed that 'Clare' outyielded 'Mt. Barker' and all the other subclover cultivars by about 200 percent (1,675 vs. 850 lbs/A). By the second harvest in April, 'Clare' yields were similar to the other cultivars. These plots were left undisturbed and allowed to re-establish in the fall and winter of 1986 to 1987. The stand ratings of 'Clare' and 'Woogenellup' were similar and also superior to all other entries. As has been previously observed, the reseeding stand of 'Mt. Barker' was inferior to 'Woogenellup'. No harvests were made on these plots in 1987, but height measurements taken on March 17, 1987 showed that 'Clare' was 5 inches taller than 'Mt. Barker' (16 vs. 11 inches). The soil at this site was a Parrita sandy clay loam and the pH was 8.1.

In fall 1986, 'Clare' and 'Mt. Barker' comparison studies were made at several sites on soils ranging in pH from near

7 to 8+. In each experiment, the cultivars were planted in four to seven replications. On a Clareville soil (pH 7), the first harvest yields taken on January 28 resulted in a small advantage to 'Clare' (1,450 vs. 1,125 lbs/A) compared to 'Mt. Barker'. A second experiment on this same soil but harvested February 12 resulted in a greater yield and similar advantage to 'Clare' (3,100 vs. 2,025 lbs/A). This experiment was weedy and resulted in a large variation in yield estimates. A third experiment planted on a Parrita soil (pH 8) resulted in a more decisive advantage to 'Clare' (3,850 vs. 2,900 lbs/A). A fourth plot experiment planted in an adjacent area but harvested on March 5 resulted in a more than 250 percent yield advantage to 'Clare' (5,450 vs. 2,100 lbs/A). Second harvests from these plots revealed small differences in forage yield between 'Clare' and 'Mt. Barker'.

'Clare' has never been observed to exhibit the classical symptoms of iron deficiency chlorosis in any of these studies. 'Mt. Barker', on the other hand, does exhibit symptoms of iron chlorosis on the high pH soils when soil moisture levels are high.

A grazing study was initiated in fall 1986 to compare 'Clare' and 'Mt. Barker' subclover planted in 'Kleingrass 75' sod to kleingrass alone. The kleingrass alone was fertilized with 50 lbs of nitrogen in the spring and again in the fall. There were two 5-acre pastures of each clover and of the N-fertilized kleingrass. The soils at this site were Parrita and Weesatche (pH 7.6 to 7.9). The study has not yet been in progress long enough to make definite statements on animal performance, but the (March, April, and May) carrying capacity of the 'Clare' pastures is superior to both the 'Mt. Barker' and N-fertilized kleingrass (five heifers versus three heifers/pasture).

Despite all the yield advantages of 'Clare' subclover on these high pH soils, 'Clare' does have some potential shortcomings. 'Clare' does not have the winter hardiness of 'Mt. Barker'. It did survive the winter of 1983 to 1984 and 1984 to 1985 at Beeville when the temperature dropped to 9°F (December 24, 1983) and similarly severe weather the following year. 'Clare' plots showed more tissue damage than all other subclovers evaluated in those winters. We have also observed some yet unidentified weaknesses in 'Clare' subclover speculated to be nutritional and/or viral. The literature indicates that 'Clare' subclover is not as efficient in the uptake of some micronutrients as is 'Mt. Barker' and other cultivars. We have observed what appears to be a virus on some plots of 'Clare' subclover. Adjacent 'Mt. Barker' plots seem to be resistant. In years to come, we will continue these evaluations; however, another "new" cultivar known as 'Koala' might be a possible substitute for 'Clare' on high pH soils.