



## BALL CLOVER

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**B**ALL CLOVER is a winter annual legume that has attracted attention in Alabama during recent years. Introduced into the United States from Turkey, this clover (*Trifolium nigrescens* Viv.) has shown promise as a reseeding winter legume for pasture and soil improvement.

### DESCRIPTION

Superficially, ball clover resembles intermediate white clover. Leaf size is similar and both clovers have smooth stems and leaves. However, other plant

characteristics of the two clovers are strikingly different. Ball has long, succulent branching stems growing prostrate to partially upright, as shown in title photo. Under good growing conditions these stems may reach 30 inches or more in length.

The three individual leaflets of each ball clover leaf have pronounced vein markings and are egg-shaped with small

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**Title photo—this dense stand of ball clover has long succulent stems that are characteristic of the variety. The photo was made May 1 at Auburn.**

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FIG. 1. This excellent growth of ball clover is on Coastal Bermudagrass sod.

teeth extending around the margins. Some of the leaflets may show the white markings characteristic of white clover, Figure 1. The long, pointed stipules at the base of each leaf are considerably larger than on white clover.

Ball clover produces many fragrant, white to yellowish-white flower heads. Individual flowers are loosely clustered within the heads, which are somewhat smaller than those of white clover.

Each of these flowers contains 3 to 4 seed. The seed are egg-shaped, dark brown, and slightly smaller than those of white clover.

## RESULTS of EXPERIMENTS

Ball clover has been tested at eight locations in Alabama by the Auburn University Agricultural Experiment Station since 1953. It has been cold hardy in all parts of the State. Since crimson clover is the leading winter annual clover in Alabama, it was compared with ball. Results of this comparison are given in the table. Forage yields of ball clover generally have been lower than those of crimson clover. However, in certain tests production of ball has exceeded that of crimson clover.

The luxuriant growth of ball clover, all coming within a relatively short time, often gives the appearance of much greater production than crimson clover. Because of the highly succulent nature of ball, dry matter content of the forage is somewhat lower than for crimson clover. Thus, when dry matter yields of the two clovers are compared

TOTAL DRY FORAGE YIELDS AND PRODUCTION BY APRIL 1 OF BALL AND CRIMSON CLOVER PLANTED ON PREPARED SEEDBEDS

Location	Year	Production per acre by April 1		Total production per acre	
		Ball	Crimson	Ball	Crimson
		<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
Gulf Coast Substation, Fairhope	1955	1,227	2,620	2,626	3,404
Brewton Experiment Field	1954	0	822	882	2,974
Wiregrass Substation, Headland	1954	766	1,784	1,414	3,062
Prattville Experiment Field	1954	54	1,010	2,010	4,250
	1955	367	1,847	3,070	1,847
	1956	581	3,731	581	3,731
Plant Breeding Unit, Tallassee	1954	1,023	2,546	1,394	2,764
	1955	1,519	1,148	2,968	2,056
	1956	0	1,041	1,408	1,983
Agronomy Farm, Auburn	1955	464	1,003	557	1,003
Alexandria Experiment Field	1954	470	3,025	4,361	4,915
	1955	0	667	0	1,009
	1956	1,014	1,700	1,014	1,700
Tennessee Valley Substation, Belle Mina	1954	436	1,736	3,855	2,852
	1956	0	0	1,760	2,478

for the entire season, crimson usually is more productive.

Ball is a late spring clover. Forage production of ball clover by April 1 usually is much lower than that of crimson (see table). Since this clover makes its major growth about 1 month later in spring than crimson, it may suffer severely during hot, dry spring weather. Thus, production from year to year will probably vary more for ball than for crimson, which matures earlier. This problem becomes even more acute on droughty soils. However, when soil moisture is adequate, ball clover can furnish high quality grazing to help bridge the gap in production between crimson clover and summer grazing crops.

Ball clover is best adapted on loam to clay soils. On sandy soils, crimson clover has performed better. Forage yields of ball clover at Brewton and Headland on sandy soil have been low both on prepared land and when seeded on a grass sod. However, ball will tolerate wetter soils than crimson. Like other clovers, it will not grow on extremely acid soil. Effect of soil acidity on growth of ball clover is shown in Figure 2.

Ball clover is an excellent reseeder. It produces an abundance of seed, with a high percentage having hard seed coats. Seed yields of 150 pounds per acre have been obtained by direct com-



**FIG. 2.** Ball clover is sensitive to soil acidity, as shown by these plots. Good growth at right was obtained at pH 6.0. With pH 4.8, left, growth was poor.



**FIG. 3.** Ability of ball clover to produce seedheads under close grazing is illustrated in above photograph.

binning of standing clover. In the fall of 1958 ball clover was seeded on Coastal Bermuda sod at the Wiregrass Substation, Headland. Forage yields were low the first year but the clover reseeded well in the fall of 1959 and second-year yield was higher. Dry matter forage yields of ball and crimson clover in the Headland test follow:

	Yield per acre, lb.	
	1959	1960 <sup>1</sup>
Ball clover	822	1,190 <sup>1</sup>
Crimson clover	661	1,674

<sup>1</sup> Second-year production of ball clover was from self reseeding, whereas crimson clover was replanted in the fall of 1959.

Plantings on farms have also shown that ball is an excellent reseeder. On a seed production field near Selma, ball has reseeded naturally for 5 years without the soil being disturbed. Thin stands tend to thicken in succeeding years.

Clover head weevil may be a problem on ball clover and can seriously reduce seed yields. Control measures are similar to those used on crimson clover.

This clover tolerates grazing well. Even under hard grazing the small plants make seedheads close to the ground, ensuring a seed crop for maintaining itself, Figure 3.

As with most clovers, bloat can be a problem. Several cases of bloat were reported on this clover in Alabama during 1960.

## SEEDING

Usually 2 to 4 pounds of ball clover seed per acre will give a good stand. Best planting date on prepared land is early September when moisture normally is available. On sods, ball clover is planted after the summer grass has ceased growth. Good seedbed preparation with lime and fertilizer applied according to soil test recommendations will help to ensure a stand and good growth. Seed should be inoculated with a true clover (*Trifolium*) inoculum.

Stand failures or poor stands of ball clover on sods of Coastal Bermudagrass and Pensacola Bahiagrass can be expected when a dense growth of un-

grazed grass is left in the fall. Under these conditions, insufficient light is available for growth of the small ball clover seedlings. Removal of grass by close mowing or grazing in the fall will increase chances for good stands.

## SUMMARY

Ball clover is a reseeding winter annual legume that is useful for pasture and soil improvement. This clover makes little growth early in the season when forage production is generally critical. It makes its greatest production during a relatively short period in late spring when crimson clover is normally on the decline. Total forage production is usually less than from crimson clover. When moisture is adequate ball may remain productive a month or more after crimson clover has matured.