

Forage Production of Winter Annuals Sod-Seeded on Dallisgrass-White Clover

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DALLISGRASS-WHITE CLOVER pastures are widespread throughout the Black Belt area of central Alabama. These pastures may be highly productive during late spring, summer, and fall months but contribute little or no forage in winter and early spring. At other locations, sod-seeding winter annuals on perennial warm season grass sod has been successful. These results suggested that this method might be useful in extending the grazing season and increasing total forage production on Dallisgrass-white clover sod in the Black Belt. Summarized in this publication are results of sod-seeding experiments at the Black Belt Substation during a 3-year period, 1958-60.

PROCEDURE

Oats, rye, wheat, ryegrass, rescuegrass, Caley peas, and vetch were planted in plots 6 x 30 feet on well established Dallisgrass-white clover sod. Test plots were arranged at random in a block design. The experiment was repeated three times to avoid differences resulting from soil variation between plots. The plots were

on Sumter clay during 1958 and 1960 and on Vaiden clay during 1959. A grassland drill was used to open the sod and the seed were planted by hand in rows 16 inches apart. A mower strip 38 inches wide and 26 feet 10 inches long was harvested for yield records.

Test crops were planted in October and fertilized with 600 pounds per acre of 0-14-14 and 40 pounds per acre of nitrogen. An additional 40 pounds of N was applied in February. Four clippings were obtained during the spring period in 1959 and three clippings each in 1958 and 1960.

RESULTS and DISCUSSION

Below normal rainfall during the fall of 1957 caused poor stands of the winter annuals. This resulted in extremely low forage yields during the spring of 1958, Table 1. Forage production was better during 1959 and 1960 but yields were below those usually obtained with these species planted on a prepared seedbed. Nevertheless, during these 2 years all sod-seeded combinations were more productive than the Dallis-white clover

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TABLE 1. FORAGE YIELDS OF ANNUAL FORAGE SPECIES SEEDED ON DALLISGRASS-WHITE CLOVER DURING A 3-YEAR PERIOD

| Species planted on sod | Weed-free oven dry forage per acre | | | Average as a percentage of Caley peas ¹ |
|--|------------------------------------|-------|-------|--|
| | 1958 | 1959 | 1960 | |
| | Lb. | Lb. | Lb. | Per cent |
| <i>Check plot (Dallisgrass-white clover)</i> | 172 | 0 | 988 | 30 |
| Caley peas..... | 885 | 2,480 | 2,491 | 100 |
| Hairy vetch..... | 1,042 | --- | --- | 118 |
| Vetch-Abruzzi rye..... | 1,989 | --- | --- | 225 |
| Abruzzi rye..... | 963 | 3,362 | 1,913 | 108 |
| Coker 47-27 wheat..... | 1,051 | 3,240 | 1,829 | 108 |
| Victorgrain oats..... | 995 | 2,695 | 2,278 | 104 |
| Common ryegrass..... | 127 | --- | 2,455 | 56 |
| Chapel Hill rescuegrass..... | 180 | --- | --- | 20 |
| Wheat-Caley peas..... | --- | 3,761 | 2,777 | 132 |
| Rye-Caley peas..... | --- | 3,567 | 2,819 | 128 |
| Oats-Caley peas..... | --- | 3,342 | 2,561 | 119 |

¹ Based on years in which the species was compared to Caley peas.

alone. Stands of white clover in these tests were not as good as desired. If excellent clover had been present, higher yields would have been expected in late spring from the grass-clover sod alone.

Small grains alone or in combination with Caley peas were more productive than Caley peas alone in 1959, but the following year Caley peas alone were as productive as any other species. In general, Caley peas alone gave nearly as much total forage as other species combinations tested.

Early spring forage is often more important than total production. Since Caley peas make the most growth in late spring, it would be desirable to obtain earlier production from other species. In these experiments, small grains gave considerably earlier production than Caley peas in 1958 and 1960, Table 2. However, the total forage available from these species in early spring of 1959 was low. Low temperatures delayed spring growth of all species in 1959 and there was little difference between any of them. Little or no forage was available from any species before March and then only in small quantities.

Weeds were a serious problem with all species tested, Table 3. Little barley

and annual canarygrass were classified as weeds, although they may furnish some grazing in early spring. As the forage plants matured, weeds followed until they were replaced by Dallisgrass. Rye matured early, resulting in heavy weed growth during April; weeds were not a problem in Caley peas until June.

All of the sod-seeded crops depressed the growth of white clover. Caley peas and ryegrass appeared to depress growth more than the other crops. These results

TABLE 2. EARLY COOL SEASON FORAGE PRODUCTION

| Species planted on sod | Proportion of total forage by early April | | |
|---|---|------|------|
| | 1958 | 1959 | 1960 |
| | Pct. | Pct. | Pct. |
| <i>Check plot (Dallisgrass-white clover)</i> .. | 57 | --- | 25 |
| Caley peas..... | 34 | 38 | 38 |
| Hairy vetch..... | 30 | --- | --- |
| Vetch-rye..... | 52 | --- | --- |
| Abruzzi rye..... | 87 | 45 | 75 |
| Coker 47-27 wheat..... | 77 | 40 | 59 |
| Victorgrain oats..... | 73 | 27 | 46 |
| Common ryegrass..... | 72 | --- | 44 |
| Chapel Hill rescuegrass..... | 16 | --- | --- |
| Wheat-peas..... | --- | 41 | 56 |
| Rye-peas..... | --- | 46 | 58 |
| Oats-peas..... | --- | 37 | 52 |

TABLE 3. BOTANICAL COMPOSITION OF FORAGE HARVESTED FROM SOD-SEEDING TESTS, 1960

| Species planted on sod | Composition of harvested forage | | | | | | | | |
|---|---------------------------------|--------------|-------|------------|--------------|-------|--------------|--------------|-------|
| | April 13 | | | May 13 | | | June 29 | | |
| | Caley peas | White clover | Weeds | Caley peas | White clover | Weeds | Dallis-grass | White clover | Weeds |
| Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | |
| <i>Check plot (Dallis-grass-white clover)</i> | --- | 33 | 67 | --- | 18 | 82 | 82 | 12 | 6 |
| Caley peas..... | 87 | 7 | 6 | 85 | 7 | 8 | 67 | 6 | 27 |
| Coker 47-27 wheat..... | --- | 10 | 12 | --- | 12 | 25 | 83 | 12 | 5 |
| Victorgrain oats..... | --- | 15 | 15 | --- | 10 | 32 | 81 | 12 | 7 |
| Rye-peas..... | 18 | 6 | 4 | 67 | 10 | 8 | 66 | 7 | 27 |
| Common ryegrass..... | --- | 12 | 7 | --- | 7 | 8 | 50 | 3 | 47 |
| Wheat-peas..... | 23 | 11 | 6 | 42 | 12 | 8 | 64 | 8 | 28 |
| Oats-peas..... | 23 | 13 | 7 | 45 | 10 | 7 | 70 | 10 | 20 |
| Abruzzi rye..... | --- | 10 | 8 | --- | 23 | 52 | 83 | 13 | 4 |

indicate that it is not advisable to sod-seed where a good stand of white clover is present on Dallisgrass.

Forage yields of Dallisgrass and white clover were obtained during the summers of 1958 and 1960, Table 4. The cool season species planted on the sod generally had no effect on total yield of grass-clover during the summer and fall

months. However, in 1960 ryegrass depressed the growth of Dallisgrass.

SUMMARY

Winter annual forage species were sod-seeded on Dallisgrass-white clover each year during 1958-60. During these years there was an excellent stand of Dallisgrass with only moderate white clover.

Total forage yields of small grains were only slightly better than Caley peas, but they gave considerably earlier production in 1958 and 1960. Results during this 3-year period indicate that sod-seeding on Dallisgrass-white clover growing on Sumter or Vaiden clay is of doubtful value where good stands of white clover are present.

Where good stands and growth of white clover are not being maintained with Dallisgrass, sod-seeding with Caley peas offers an opportunity to increase the total yield of forage and extend the grazing season. A less desirable alternative would be to seed small grains. Caley peas offer the advantages of natural re-seeding and furnishing nitrogen for the Dallisgrass sod.

TABLE 4. SUMMER PRODUCTION OF DALLISGRASS-WHITE CLOVER FOLLOWING ANNUAL WINTER SPECIES

| Species planted on sod | Oven dry forage per acre | |
|---|--------------------------|-------|
| | 1958 | 1960 |
| | Lb. | Lb. |
| <i>Check plot (Dallis-grass-white clover)</i> | 3,141 | 4,772 |
| Caley peas..... | 2,730 | 5,276 |
| Vetch-rye..... | 3,211 | --- |
| Hairy vetch..... | 2,745 | --- |
| Common ryegrass..... | 2,634 | 4,085 |
| Chapel Hill rescuegrass..... | 2,997 | --- |
| Abruzzi rye..... | 3,356 | 5,338 |
| Coker 47-27 wheat..... | 2,977 | 5,076 |
| Victorgrain oats..... | 2,888 | 4,874 |
| Rye-peas..... | --- | 5,104 |
| Wheat-peas..... | --- | 4,905 |
| Oats-peas..... | --- | 4,885 |

