COOL-SEASON ANNUAL PASTURES STUBBLE-SEEDED
(No-Till Drilled) FOLLOWING EARLY SOYBEANS
AND GRAZED BY GROWING BEEF STEERS

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SUMMARY

Growing beef steers of British breeding grazed a pasture mixture of
rue, ryegrass and crimson clover seeded by different methods following
early soybeans. Steers grazing stubble-seeded (no-till drilled) pastures
gained 0.78 kg per head daily for a 140-day period compared with 0.68 kg
per head daily for steers grazing conventional-seeded (prepared seedbed)
pastures. Because of the slightly higher daily gain, steers grazing
stubble-seeded pastures produced 30 kg more gain per hectare (446 versus
416 kg). The cost of gain was slightly lower ($0.37/kg) for steers grazing
stubble-seeded pastures. No-till drilling reduced the cost of establishing
cool-season pastures by reducing the use of land preparation equipment and
less labor and fossil fuel.

INTRODUCTION

Cool-season annual pastures work well in a double cropping system
with early soybeans in northwest Florida. Farmers are interested in
initiating the grazing of these pastures as early as possible in the fall.
Also, savings in time, labor, use of land preparation equipment and fossil
fuel are of primary concern. Stubble- seeding with a no-till drill elimi-
nates the preparation (breaking and disk ing) of a seedbed. Additionally,
seeding without breaking the sod is beneficial in the preservation of top-
soil because of less erosion from wind and water.

OBJECTIVE

The purpose of this study was to compare the animal performance and
economic data with growing beef steers grazing cool-season annual pastures
seeded on a prepared seedbed versus those stubble-seeded immediately after
harvest of early soybeans.

PROCEDURE

Thirty-two lightweight (average 217 kg) feeder steers of British
breeding, each implanted with a 36 mg ear implant of RALGROS® , were
utilized. Prior to initiation of the trial, the steers were allotted at
random from weight groups into four experimental groups of eight steers
each. Two groups (replicates) were assigned to each of two pasture treat-
ments.
The cool-season pastures consisted of a mixture of 'Wrens abruzzi' rye, 'Gulf' ryegrass and 'Dixie' crimson clover. Each group of eight animals grazed four 0.5 ha pasture plots in a rotational system as required for utilization of good quality forage.

The conventional-seeded (prepared seedbed) pasture plots were planted on October 29, 1981. First, the ryegrass and crimson clover seed were broadcast on the seedbed with a tractor-mounted spreader at the rates of 16 and 10 kg per hectare, respectively. The rye was then seeded in row widths of 18 cm with a grain drill at the rate of 101 kg per hectare. All plots were then cultivated to conserve moisture.

The stubble-seeded (no-till drilled) pasture plots were planted on October 28, 1981. First, the ryegrass and crimson clover seed were broadcast as stated above in the soybean stubble at the rates of 19 and 11 kg per hectare, respectively. The rye was then seeded in row widths of 25 cm with a no-till drill at the rate of 101 kg per hectare. All plots were cultivated to conserve moisture.

A complete fertilizer (280 kg/ha) was applied prior to planting. Three applications of 112 kg/ha each of ammonium nitrate were made during the grazing season to all pastures.

Grazing began on December 15, 1981 and was terminated when the forage was essentially depleted on May 10, 1982. Supplemental feed (corn silage and hay) was fed for a period of 13 days (January 14-27, 1982) because of inclement weather (sleet, ice and snow) and poor forage growth.

Individual animal weights were recorded after an overnight shrink (fast from feed and water) at the beginning and end of the trial period. Additional grazer animals of the same type and size were added and removed as needed to keep the forage uniformly grazed. A complete mineral mixture, common white salt and clean drinking water were available to the animals at all times.

RESULTS AND DISCUSSION

Performance and economic data with steers on pasture are presented in table 1. During the 146-day grazing period growing beef steers on stubble-seeded (no-till drilled) pastures had an average daily gain of 0.73 kg while steers grazing conventional-seeded (prepared seedbed) pastures had an average daily gain of 0.68 kg. Because of the slightly higher daily gain, steers grazing stubble-seeded pastures produced 30 kg more gain per hectare (445 versus 415 kg). Animal performance parameters were not significantly different between the two pasture treatments.

The cost of gain was slightly lower ($0.07/kg) for steers grazing stubble-seeded pastures when compared with that of steers grazing conventional-seeded pastures. This was due to slightly higher gains by steers grazing stubble-seeded pastures and the lower cost of establishing these pastures. Stubble-seeding rye with a no-till eliminated the breaking and diskng of soil necessary for preparation of a seedbed and thus required less labor, land preparation equipment and fossil fuel.
<table>
<thead>
<tr>
<th>Item</th>
<th>Conventional-seeded</th>
<th>Stubble-seeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial no. of animals</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Length of trial, days</td>
<td>146</td>
<td>146</td>
</tr>
<tr>
<td>Initial wt., kg</td>
<td>218</td>
<td>216</td>
</tr>
<tr>
<td>Final wt., kg</td>
<td>318</td>
<td>322</td>
</tr>
<tr>
<td>Gain/animal, kg</td>
<td>100</td>
<td>106</td>
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<tr>
<td>Daily gain, kg</td>
<td>0.68</td>
<td>0.73</td>
</tr>
<tr>
<td>Animal days/ha(^d)</td>
<td>610</td>
<td>610</td>
</tr>
<tr>
<td>Stocking rate/ha(^d)</td>
<td>4.18</td>
<td>4.18</td>
</tr>
<tr>
<td>Gain/ha, kg(^e)</td>
<td>415</td>
<td>445</td>
</tr>
<tr>
<td>Gain/ha/day, kg(^e)</td>
<td>2.84</td>
<td>3.05</td>
</tr>
<tr>
<td>Advantage (cost/kg gain)(^f)</td>
<td>------</td>
<td>$0.07</td>
</tr>
</tbody>
</table>

\(^a\) Rotational grazing of a mixture of rye, ryegrass and crimson clover.
\(^b\) Seeded on a prepared seedbed after harvest of early soybeans.
\(^c\) Stubble-seeded immediately after harvest of early soybeans with a no-till drill.
\(^d\) Additional grazer animals of the same type and size were added and removed as needed to keep the forage uniformly grazed.
\(^e\) The gain with grazer steers was considered at the same rate as that with experimental steers.
\(^f\) Cost of pasture plus supplemental corn silage and hay.