Effect of Row Width on Corn Silage Yield and Quality

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Objective
To evaluate corn row width on corn silage yield and quality.

Background
Crop Year: 2014  
Location: Archbold, OH  
County: Fulton  
Soil Type: Latty/Fulton clay  
Drainage: systematic with 40’ laterals  
Previous Crop: Soybeans  
Tillage: conventional  

Soil Test: pH 6.6, OM 3.2%, P 120 ppm*, K 456 ppm  
Fertility: 156 lbs N & 10 lbs S with pre-emerge  
Seeding Rate: 42,000 in 15”; 36,000 in 30”  
Harvest Date: September 10, 2014  
Rainfall April-Sept: 15.66”  
*Bray P1 extractant

Methods
This study was designed with two treatments replicated three times in an alternating strip plot. Harvested plots were field length (>2,000 ft) and the width of a 15 foot chopper head. Treatments were planted on May 6, 2014 at 42,000 seeds/acre in narrow (15”) corn and 36,000 seeds/acre in standard (30”) corn with a John Deere 1770 planter. Narrow row treatments were “double planted” 15” off center at a half rate of 21,000 seeds/ac. Seed used was Rupp T09-22 in all treatments.

Plots were harvested with a commercial John Deere 6810 forage harvester with a 15 foot Kemper rotary head. Each harvested treatment was weighed on certified scales and had samples sent in to Agri-King, Inc for nutrient analysis. Yields and nutrient analyses were shrunk to 100% dry matter. Data were analyzed using a simple ANOVA statistics procedure.

Treatments
1. Narrow row corn planted in 15” rows at 42,000 seeds/ac  
2. Standard row corn planted in 30” rows at 36,000 seeds/ac

Results
Table 1. Silage Yield and Quality Based on Row Width

<table>
<thead>
<tr>
<th>Row width</th>
<th>15”</th>
<th>30”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeding rate</td>
<td>42,000/ac</td>
<td>36,000/ac</td>
</tr>
<tr>
<td>Harvest stand</td>
<td>40,600/ac</td>
<td>35,500/ac</td>
</tr>
<tr>
<td><strong>Dry Yield</strong></td>
<td><strong>7.62 T/ac A</strong></td>
<td><strong>8.29 T/ac A</strong></td>
</tr>
<tr>
<td>Crude Protein (dry basis)</td>
<td>8.04%</td>
<td>7.61%</td>
</tr>
<tr>
<td>Net Energy for Gain (dry basis)</td>
<td>.40</td>
<td>.38</td>
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<tr>
<td>Net Energy for Lactation (dry basis)</td>
<td>.74</td>
<td>.72</td>
</tr>
</tbody>
</table>

LSD 4.17 (p > .05); CV 5.55; Not Significant
Summary
There were no significant differences observed in forage yield or forage quality between the narrow row corn and the 30” corn. If the cost of seed corn is $3.44 per 1,000 seeds ($275/bag), an additional $20.64 in silage value must be achieved and equipment modifications considered in order to offset the cost of this practice. Data contained in this report is from one year at one location and thus, further data in the form of multi-year replications are needed to validate these results.

Acknowledgement
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