Agronomic Practices for Corn Silage Production

Travis Harper
Regional Agronomy Specialist
University of Missouri Extension
Site Selection

• Ideal scenario is to include corn silage production as part of your regular corn/soybean rotation

• Other option is to plant into existing sod
Planting Into Sod

• Grass has to be killed (sometimes twice)
• Increased soil moisture/reduced soil temp
• Most hay and pasture fields are potassium deficient (soil test now)
• Extra weed control necessary
• Potential vole problem
• Probably will need a seed insecticide
• Generally takes a little more nitrogen
Impacts of Corn Silage Production on Sod Ground

- Reduced soil fertility
- Little crop residue left
  - High potential for erosion
- Decreased organic matter levels
- Potential increase in soil compaction
Hybrid Selection

• High grain yilder (also gives option to harvest grain)

• High sugar content (earless) varieties have slightly higher protein but are higher in fiber and lower in energy content

• Variety that matures slightly later than typical grain variety
  – Will dent about the same time
  – Lose moisture more slowly
Silage Varieties

• Special “silage” varieties are often tall growing, long season hybrids that may or may not contain as much nutrients as top grain producers.

• The best silage varieties are good grain producers as well.

• Don’t forget about disease/insect resistance and drought tolerance.

• Use high grain yielding and slightly later maturing varieties!
Planting Date

• Early vs. late planting (April/early May vs. late May/June)
  – Early planted tends to have higher grain content, lower stalk height
  – Late planted tends to have lower grain content, higher stalk height
  – Early planted corn produces a greater amount of higher quality silage (~1.5 tons)

• If you also grow corn for grain, plant it first
Plant Population

• Increase of 2,000 to 4,000 seeds/A over grain production

• 24,000 to 30,000 seeds/A

• 30,000 to 50,000 seeds/A
  – Sometimes recommended, but not on our soils
  – Less energy per acre + higher seed cost
  – Seeding rates that are too high will decrease yields, not increase them
Row Spacing

• 30-inch rows vs. 15-inch rows
  – 1-2 ton/A increase in yield in 15-inch over 30-inch
  – Little difference in silage quality

• Cost of switching machinery?

Research from Michigan, New York, Pennsylvania, and Wisconsin
Fertility Management
### Nutrient Removal

<table>
<thead>
<tr>
<th></th>
<th>Phosphate (lbs/A)</th>
<th>Potash (lbs/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grain</strong></td>
<td>40</td>
<td>31</td>
</tr>
<tr>
<td>(125 bushels/A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Silage</strong></td>
<td>82</td>
<td>200</td>
</tr>
<tr>
<td>(20 tons/A)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fertilizer Recommendations

• Grain (125 bushels/A)
  – 140 lbs nitrogen
  – 75 lbs phosphate
  – 60 lbs potash

• Silage (20 tons/A)
  – 140 lbs nitrogen
  – 90 lbs phosphate
  – 205 lbs potash

This is on a soil with “medium” fertility
Weed Control

• At least as good as on corn grown for grain
• Probably need to do a little better on silage corn
  – Johnsongrass and shattercane reduce digestibility
  – Horsnettle, hemp dogbane, others can produce toxic compounds
  – Weed seeds spread in cattle manure
Pesticide Residues

- Pesticides
  - Insecticides
  - Herbicides
  - Fungicides
- Make sure pesticide is labeled for corn silage production
- Check the preharvest interval (PHI) before using
Cover Crops

- Corn is harvested earlier so cover crops can be planted in a timely manner
- Reduce erosion
- Increase organic matter
- More nitrogen available for future crops
Corn Silage vs. Grain Production

- Little difference in hybrid variety or planting date
- Increased seeding rates
- Increased fertilizer inputs
- Potential increase in pesticide usage
- Likely increase in soil erosion
Questions?

Thank You!