Spring Forage Fertilization Considerations

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Spring Forage Fertilization Considerations

Abstract
Fertilization is just as important for forages as it is for row crops to maximize productivity. This article addresses spring fertilization considerations for forage crops and pastures.

Disciplines
Agricultural Science | Agriculture

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Spring Forage Fertilization Considerations

April 1, 2020

Fertilization is just as important for forages as it is for row crops to maximize productivity. This article addresses spring fertilization considerations for forage crops and pastures.

**Nitrogen considerations**

Nitrogen (N) applications can either be a one-time, annual application or can be split applied. Suggested N application rates for single application are in Table 1 and rates for split applications are in Table 2.

**Table 1. Suggested N application rates for a single annual application**

<table>
<thead>
<tr>
<th>Kentucky bluegrass</th>
<th>April: 60-100 lbs N/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tall cool-season grasses</td>
<td>April: 80-120 lbs N/acre</td>
</tr>
<tr>
<td>Warm-season grasses</td>
<td>Late April to early May: 80-150 lbs N/acre</td>
</tr>
</tbody>
</table>
Table 2. Suggested N application rates for split applications

<table>
<thead>
<tr>
<th>Grass Type</th>
<th>Early Spring (March-April)</th>
<th>Late Spring (May-early June)</th>
<th>Late Summer (August-September)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky bluegrass</td>
<td>60-80 lbs N/acre</td>
<td>30-40 lbs N/acre (optional)</td>
<td>30-40 lbs N/acre</td>
</tr>
<tr>
<td>Tall cool-season grasses (orchardgrass, smooth bromegrass, reed canarygrass, and tall fescue*)</td>
<td>80-120 lbs N/acre</td>
<td>40-60 lbs N/acre (optional)</td>
<td>40-60 lbs N/acre</td>
</tr>
</tbody>
</table>

*Note: For pastures or hayfields with tall fescue, high N rates increase the risk of fescue toxicosis.

For legume-grass mixed pastures or hayfields, if the stand is less than 1/3 legume, treat as a grass pasture or hayfield. If the stand is more than 1/3 legume, no nitrogen is recommended. Also note that for legume-grass mixed pastures or hayfields, high or frequent applications of N (particularly spring N applications) will make the grass component more competitive and limit the amount of legumes in the mixture. To encourage a greater legume presence, use modest N rates and limit application to summer or fall.

**Phosphorus, potassium, and lime considerations**

Forage plants also respond to added phosphorus (P) and potassium (K) when soils have low or very low P and K test levels. Taking a soil test is the only way to know what those levels are and to determine how much P and K is needed.

While pastures typically have little nutrient removal, that doesn’t mean that the redistribution of those nutrients is equal. Nutrient levels tend to be higher near shade and
watering sites. Additionally, how grazing is managed (continuously, rotational, strip, etc.) can impact nutrient redistribution. Taking these factors into account when soil sampling pastures is important.

For hayfields or pastures that have hay removed, it is important to put on additional P and K fertilizer based on crop nutrient removal. For instance, each ton of smooth bromegrass hay harvested at 15% moisture removes 7.9 pounds of phosphate ($P_2O_5$) and 41 pounds of potash ($K_2O$) per acre. More information on crop nutrient removal for other forage crops can be found in Table 3 of PM1688, *A General Guide for Crop Nutrient and Limestone Recommendations in Iowa*.

Timing of P and K applications can be flexible; however, it may be more convenient to fertilize in the fall or spring along with the N fertilizer application.

Soil pH can also impact forage productivity. It is recommended for grass-based hayfields and pastures to maintain a soil pH of around 6.0. To encourage and maintain legumes, try to maintain a pH of 6.5 for clovers and birdsfoot trefoil and a pH of 6.9 for alfalfa.

**Additional resources**

- Fertilizing Pasture (PM 0869)
- *A General Guide for Crop Nutrient and Limestone Recommendations in Iowa Decisions* (PM 1688)
- Take a Good Soil Sample to Help Make Good Fertilizer (CROP 3108)

**Category:** Crop Production

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**Crop:**

Biomass and Forage

**Tags:** spring forage Spring Fertilization nitrogen forage pastures

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