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Fall Application of Fertilizer

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FALL APPLICATION OF FERTILIZER

K. L. Wells

Fall application of fertilizer offers the advantages of (1) getting a job done which can delay early spring planting, (2) being able to get over fields when they are usually drier and less likely to compact, and (3) more often getting a price break from fertilizer dealers. Several crop-related advantages also apply and are discussed below.

In terms of nutrients which can be fall applied, phosphate and potash are well adapted. Both these nutrients react strongly enough with soil to resist overwinter leaching, and the requirements for next year's production can safely be applied in the fall. Fall use of nitrogen is a different situation. Under Kentucky's soil and climatic conditions much of the nitrogen applied during the fall is likely to be lost during the winter because of leaching, denitrification, and immobilization. Even when used with nitrification inhibitors, fall application of nitrogen has not performed as well as spring applied nitrogen in Kentucky research.

Fall Fertilization on Fallow Fields

All the phosphate and potash requirements for corn, soybeans, grain sorghum, and tobacco can be applied during the fall. If a cover crop is to be planted, it would be best to apply the fertilizer ahead of disking. For best economic efficiency, nitrogen should not be applied during the fall.

Fall Fertilization for Double Cropping

Phosphate and potash needs for both crops in the wheat (barley)-soybean rotation can be applied in the fall. In this situation, UK research indicates that the rate of phosphate should be based on the small grain and the rate of potash should be based on soybeans. These rates, based on soil test values are summarized below.
Soil Test Level

<table>
<thead>
<tr>
<th>Soil Test Level</th>
<th>P₂O₅</th>
<th>K₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (above 60 P, 250 K)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Medium (60-30 P, 250-165 K)</td>
<td>0-80</td>
<td>0-60</td>
</tr>
<tr>
<td>Low (30-10 P, 165-75 K)</td>
<td>80-120</td>
<td>60-120</td>
</tr>
<tr>
<td>Very low (below 10 P, 75 K)</td>
<td>-</td>
<td>120-150</td>
</tr>
</tbody>
</table>

Fields which are to be double cropped with corn and small grain for silage can have all the phosphate applied in the fall, but potash should be split between the crops since two silage crops per year remove large amounts of potassium. Corn silage fields should receive an additional 60 lbs K₂O/A as compared to corn harvested for grain.

Fall Application of Nitrogen for Small Grains

For best yields and nitrogen fertilizer efficiency, apply only enough nitrogen in the fall to start the crop growing vigorously and to encourage tillering. Fields on which seedings are made following soybeans, tobacco, or a highly nitrogen fertilized corn crop will likely provide enough nitrogen carryover for good fall growth of small grains. When fertilizer is applied, 30 lbs N per acre in the fall is enough to get the crop well established and promote tillering. Most of the N for small grains should be applied at green-up of the crop in late winter or early spring.

Fall Fertilization of Hay and Pasture Fields

Research in Kentucky and other states has shown fall application of phosphate and potash onto hay and pasture fields to be as effective as spring application. Fall application of potash also provides the benefit of increasing the winterhardiness of plants, particularly in alfalfa and clover hay fields. No nitrogen should be fall applied, even on grass fields (to increase fall grass production, nitrogen should be applied July 15-Aug. 15). It is of particular importance not to use nitrogen on fields to be renovated with legumes next spring.