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CC108 Revised 1951 General Fertilizer Recommendations on irrigated land in Nebraska

M. D. Weldon

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GENERAL FERTILIZER RECOMMENDATIONS
ON
IRRIGATED LAND IN NEBRASKA
1951

M. D. Weldon and W. R. Ridgway

Farmers trying commercial fertilizers for the first time should place an unfertilized strip a rod or two wide in the middle of the field, in order to observe by direct comparison whether it pays to use the fertilizer. A careful estimate of the yield of fertilized and unfertilized strips should be made, by weighing or measuring the crop harvested from equal areas if possible. An increase of 5 bushels of grain or 0.5 ton of hay is usually profitable, but is not easily seen in the field.

The drill or other implement used for applying fertilizer should be thoroughly cleaned and oiled at the end of each day's work. If this is not done, the working parts will rust and may become so caked with fertilizer that the machine will not work at all.

Soil tests will help you to find out the lime and fertilizer needs of a particular field or soil area. Supplies and instructions for taking soil samples should be obtained at the county agent's office.

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF AGRICULTURE
COOPERATING
W. V. LAMBERT, DIRECTOR
General Fertilizer Recommendations on Irrigated Land in Nebraska

Rate of Application

<table>
<thead>
<tr>
<th>Crop</th>
<th>Nitrogen</th>
<th>Phosphate</th>
<th>Potash</th>
<th>Nitrogen</th>
<th>Phosphate</th>
<th>Potash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn or grain sorghum</td>
<td>0-4</td>
<td>None**</td>
<td>None</td>
<td>40-120</td>
<td>None**</td>
<td>None</td>
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<tr>
<td>Small grains, legume*</td>
<td>None</td>
<td>20-40</td>
<td>None</td>
<td>20-30</td>
<td>40-80</td>
<td>None</td>
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<tr>
<td>Alfalfa</td>
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<td>60-120</td>
<td>None</td>
<td>None</td>
<td>60-120</td>
<td>None</td>
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<tr>
<td>Small grains</td>
<td>None</td>
<td>None***</td>
<td>None</td>
<td>30-40</td>
<td>None***</td>
<td>None</td>
</tr>
<tr>
<td>Potatoes</td>
<td>None</td>
<td>40-80</td>
<td>None</td>
<td>40-60</td>
<td>40-80</td>
<td>None</td>
</tr>
<tr>
<td>Sugar beets</td>
<td>None</td>
<td>40-80</td>
<td>None</td>
<td>40-60****</td>
<td>40-80</td>
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<td>New seeding</td>
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<td></td>
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<tr>
<td>brome-alfalfa</td>
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<td>60-120</td>
<td>None</td>
<td>15-30</td>
<td>60-120</td>
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<tr>
<td>Grass seed production*****</td>
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<td>None</td>
<td>None</td>
<td>40-80</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Old stands of bromegrass for pasture--apply 80-120 pounds of nitrogen per acre.

* Inoculation of the legume seed with reliable cultures is desirable.
** The application of phosphate to corn at planting time may be desirable on land high in free lime.
*** Small grain grown on high lime soils will respond to phosphate.
**** Ten to fifteen pounds of nitrogen at planting time plus 40-50 pounds at blocking and thinning or applied all at planting.
***** Applies especially to cool season grasses such as brome, intermediate wheatgrass, etc.
**Time and Method of Application**

**A. Phosphate Fertilizers**

1. **Small grains:** The phosphate fertilizer should be applied at the time of planting with a combination drill. Some kinds of superphosphate may be mixed with the seed and the mixture drilled with the ordinary grain drill. Broadcasting the phosphate fertilizer is not recommended for wheat, nor for spring grains seeded without a legume.

2. **Corn, sorghum, sugarbeets, potatoes:** Using an attachment on the lister or planter, place the phosphate in the row close to the seed but not in contact with it.

3. **Legumes:** Broadcast and disk into the soil just before planting. Stands of alfalfa which are up to three years old may be topdressed without tillage.

4. **Grasses:** Drill in with seed, or broadcast fertilizer and disk just before seeding. On established stands of grass it usually does not pay to apply phosphate except for the purpose of bringing in a stand of clover.

**B. Nitrogen Fertilizers**

1. **Corn or grain sorghums:** Best applied with an attachment on the cultivator at the second or third cultivation. The nitrogen fertilizer may be broadcast between the rows prior to the second cultivation. Nitrogen at planting time is much less effective than later, except that anhydrous ammonia at or just before planting seems to get good results.

2. **Sugarbeets:** Apply as mixed fertilizer in the row close to the seed but not in contact with it, followed by additional nitrogen at the time of blocking and thinning. Or apply all of the nitrogen at or just before planting time.

3. **Potatoes:** Apply at or just before planting time, either as mixed fertilizer or as straight nitrogen fertilizer. The phosphate should be placed in the row as recommended above. The nitrogen is effective, either broadcast or in the row, but not in contact with the seed.

4. **Wheat:** Broadcast in the fall before or after seeding or in the spring before the grain is 6 inches tall. Later spring application results in higher protein in the grain but smaller increase in yield.

5. **Oats and barley:** Broadcast at planting or before the crop is 6 inches high.

6. **Bromegrass pasture:** Broadcast in the fall (October or November) or early in spring, preferably before the end of March.

7. **Bromegrass seed production:**

   *Solid stands:* Broadcast in the fall (October or November) or early spring (before March 15).
Rows: Apply in the fall with an attachment on the cultivator or broadcast in the fall as a topdressing. Early spring broadcasting usually gets good results, but sometimes brings on serious weed competition. Early spring application with cultivator attachment would be all right if done early enough (before March 15).

C. Mixed Fertilizers

1. Small grains: Mixed fertilizers supplying the recommended amount of phosphate and 10 pounds or less of nitrogen per acre may be applied with the seed at planting time with a combination grain fertilizer drill. Additional nitrogen should be supplied either before seeding or before the grain is 6 inches tall.

2. Corn and sorghums: Experiments with phosphate or mixed fertilizers on corn at planting time show little or no increase in yield in most cases. But the starter fertilizer usually produces faster early growth. It may permit easier weed control. The phosphate in the starter fertilizer usually causes earlier and more uniform maturity. It may be worth while for these reasons. Therefore you should compare results with and without starter fertilizer on corn (20 to 30 lb. of available $P_2O_5$, with or without 6 to 12 pounds of nitrogen). The starter should be applied in the row close to the seed but not in contact with it, by means of attachments on the planter or lister.

3. Sugarbeets and potatoes: Apply at planting, in the row near the seed but not in contact with it.

D. Lime

Most irrigated land in Nebraska does not need liming. Much of it, particularly in the western half of the State, contains too much lime and therefore should never be limed.

Much of the flat uplands and bench lands, and some of the sandy bottomlands in the eastern half of the State, need lime for successful growth of legumes. Before seeding alfalfa or clover, soil samples should be tested, and lime applied if the test shows lime deficiency. The lime should be spread several weeks or months before seeding the legume. It should be disked in, or plowed under if not plowed too deep.

E. Potash

The soils of Nebraska are usually well supplied with potash. Experimental plots over the state with commercial fertilizers show that potash usually does not pay on most crops, except in isolated areas where the soil is sandy, acid, and deficient in potash.

Beans: Top yields can be obtained by planting the beans on land that has been in alfalfa or clover the past year or after the application of 6 to 12 tons of manure per acre. In past experiments commercial fertilizers usually have been much less effective in increasing yields than the use of manure or legumes.