ALFALFA NUTRIENT REQUIREMENTS

Mike Ottman
Extension Agronomist
University of Arizona, Tucson

Primary, secondary and micro-nutrients

Primary nutrients
NPK

Secondary nutrients
Ca Mg S

Micro-nutrients
B Zn Fe Cu Mn Mo Cl
ALFALFA FERTILIZER REQUIREMENTS IN ARID REGIONS

<table>
<thead>
<tr>
<th>Element</th>
<th>Symbol</th>
<th>Fertilizer required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorus</td>
<td>P</td>
<td>More than 25% of acreage</td>
</tr>
<tr>
<td>Potassium</td>
<td>K</td>
<td>Less than 25% of acreage</td>
</tr>
<tr>
<td>Sulfur</td>
<td>S</td>
<td>Less than 25% of acreage</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Mo</td>
<td>Less than 25% of acreage</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>N</td>
<td>Less than 1% of acreage</td>
</tr>
<tr>
<td>Boron</td>
<td>B</td>
<td>Less than 1% of acreage</td>
</tr>
<tr>
<td>Other</td>
<td>–</td>
<td>Never</td>
</tr>
</tbody>
</table>

(Source: Meyer et al., 2008)

NITROGEN DEFICIENCY

- **Conditions**
  - Poor nodulation
- **Diagnosis**
  - Few nodules on roots
- **Symptoms**
  - Small yellow plants mixed with tall green plants
PHOSPHORUS DEFICIENCY

- Conditions
  - Cold soils
- Diagnosis
  - Soil or tissue test
- Symptoms
  - Similar to slight water stress

POTASSIUM DEFICIENCY

- Conditions
  - Sandy soil
- Diagnosis
  - Soil or tissue test
- Symptoms
  - White spots around leaf margins
SULFUR DEFICIENCY

- **Conditions**
  - Sandy, low OM soil
  - Water low in S (i.e. from snowmelt)

- **Diagnosis**
  - Tissue test

- **Symptoms**
  - Yellowing esp. of upper leaves

BORON DEFICIENCY

- **Conditions**
  - Low OM soil

- **Diagnosis**
  - Tissue test

- **Symptoms**
  - Yellow and red upper leaves
MOLYBDENUM DEFICIENCY

- Conditions
  - Low pH soil
- Diagnosis
  - Tissue test
- Symptoms
  - Yellowing esp. of older leaves

ALFALFA FERTILIZER FAQs

- Should I apply N fertilizer?
- Do seed coatings on alfalfa have a value?
- Are liquid or granular P fertilizers better?
- What time of year is best to apply P fertilizers?
- Is it better to apply P fertilizer annually or several times during the season?
- How long does it take P fertilizer to become unavailable in the soil?
- What are the chances that I have nutrient deficiency other than phosphorus?
- Is manure good for alfalfa?