Prices are a compilation of Agent information and other area estimates.
N/A = prices and/or supplies not available at this time

### Fall Fertilization of Alfalfa

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A failure to replace nutrients used by alfalfa during the growing season will gradually deplete the soil reserves and reduce yields. Soil testing is a great way to determine if phosphorus (P) and potassium (K) are sufficient for alfalfa. However, it is very important that available soil phosphorus be determined with the Olsen-P method (a.k.a., sodium bicarbonate extractable P) for soils with a pH greater than 6.8 (i.e., most NM soils). The Mehlich and Bray procedures commonly used by commercial laboratories for phosphorus are meant for acidic soils. These extracts are acidic and dissolve minerals in high pH soils that are otherwise insoluble resulting in unrealistic P values. The critical level for Olsen-P is 7 ppm. No phosphorus would be recommended at planting if Olsen-P were greater than 30 ppm. Plant available potassium in soil is determined by extracting with ammonium acetate. Be sure the lab you use determines P and K with these procedures for alkaline soils.

For fall or spring planted alfalfa it is important to incorporate phosphorus into the soil prior to planting. It really doesn’t matter what source it is, but it is usually better not to include nitrogen fertilizer with the phosphorus. Fertilizers such as 10-34-0 and 11-52-0 are generally low enough in nitrogen as to not promote excessive grass growth.
or interfere with nodulation of the alfalfa. Phosphorus that is banded into the soil tends to stay available for plant uptake for a longer period of time. Generally, annual application of 115 lb P₂O₅/Ac in alkaline soils is an appropriate practice.

The need for sulfur is dependent on the location and presence or absence of sulfur in irrigation water. Sulfur deficiency most often expresses in the spring so a tissue sampling of the last harvest will help tell if this nutrient is needed in the fertilization program. Soil testing for sulfur is generally not a reliable method for determining a need to fertilize with this nutrient. However, by including a salinity assessment with the soil test it may indicate a need for sulfur in calcareous soil if the test comes back with a high sodium adsorption ratio.

Boron is an important micronutrient for alfalfa and is best evaluated in-season with a plant tissue test. Tissue levels of boron should fall between 20 and 40 ppm. If planting this fall then the soil should have a saturated paste boron level between 0.2 and 0.4 ppm as indicated by the soil test. Be careful with boron and all micronutrients as too much of any micronutrient will cause toxicity to the plant.

Molybdenum (Mo) is vital to the rhizobium (nodulation) in alfalfa that is responsible for N fixation. Deficiency symptoms look like nitrogen or sulfur deficiency. Tissue testing is the best method to determine its need. Plant Mo levels should be between 1 and 5 ppm. Alfalfa tissue levels less than 0.3 ppm would warrant application of a Mo fertilizer. The University of CA recommends applying Mo in the winter months or before regrowth begins. Molybdenum is not affected by high pH soils.

Iron (Fe) and Zinc (Zn) deficiencies in alfalfa do not occur very often. Iron deficiencies are observed when the soils are saturated with water as the form of iron is no longer available to alfalfa to use. Once air spaces in the soil drain deficiency symptoms go away. Soil test iron levels are sufficient at 5 ppm using a DTPA extract of the soil. Soil test Zn levels are sufficient at 1 ppm DTPA extractable and Zn fertilizer is suggested if Zn levels are less than 0.5 ppm. Iron levels in the plant tissue should be between 114 and 142 ppm. Zinc should be between 16 and 25 ppm.

Copper (Cu) concentrations in alfalfa have typically been in the 10-13 ppm range. Deficiencies are rare for this nutrient in alfalfa. Sufficiency level in the soil is 1 ppm. Fields that have had dairy effluent water applied to the soil can have elevated levels of DTPA-extractable Cu (plant available). If soil test levels come back higher than 10 ppm it is recommended that you contact a certified crop adviser or your county extension agent.

Tissue Sampling Protocol for Alfalfa: 1) collect 40-60 stems, including leaves from at least 30 plants. 2) cut stems into thirds. 3) Discard the bottom third. 4) Place top third in one bag for analysis of Boron, Molybdenum, and Copper. 5) Analyze the leaves from the middle third for sulfur and stems from the middle third for phosphorus and potassium.

For more information on forages in New Mexico, visit: http://forages.nmsu.edu/

***** Mark Your Calendars *****

The date has been set for the 2015 Southwest Hay & Forage Conference (January 15-16, 2015). As usual, the event will take place at the Ruidoso Convention Center, Ruidoso, NM. For more information, please contact Cassie Sterrett at 575-626-1688 or visit http://www.nmhay.com/.

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