

Alfalfa Pasture - Established Stand

Crop Highlights

- Best to use a grazing or rhizomatous alfalfa cultivar for grazing
- Always use freshly inoculated seed or apply fresh inoculum specific for alfalfa
- Rotational grazing works best with alfalfa

Yield Goal

A specific yield goal is not utilized for pastures. The goal of these recommendations is to ensure good pasture performance to meet the needs of livestock being grazed there.

Target pH: 6.8

Recommended Liming Source:

Table 1. Recommended type of lime as a function of soil test Ca and Mg concentrations.

Soil Test Levels	Recommended Lime Type
Soil Test Mg less than 50 FIVs	Dolomitic
Soil Test Mg between 50 and 100 FIVs AND LESS than Soil Test Ca	Dolomitic
Soil Test Mg greater than 100 FIVs	Calcitic
Soil Test Mg GREATER than 50 FIVs AND GREATER than Soil Test Ca	Calcitic

Nitrogen:

1. Nitrogen application is not recommended if the available forage contains at least 25% legumes. Applied N makes the grasses more competitive and can result in the loss of legumes.
2. If the available forage is less than 25% legumes, switch to a recommendation for grass/alfalfa mix.

Phosphorus

Table 2. Recommended phosphorus fertilizer rate to promote adequate pasture performance and productivity.

Fertilizer	UD FIVs										
	0	10	20	30	40	50	60	70	80	90	100
lbs P ₂ O ₅ /ac	150	125	100	80	60	50	40	20	0	0	0

1. If soil test P is “Low” (e.g., 25 FIVs or less), satisfactory growth is unlikely. The grazing manager should evaluate the stand density to decide if replanting is appropriate since broadcasting and plowing down the recommended rate of P₂O₅ will produce higher yields sooner than will topdress applications.
2. If soil test P is “Medium” or “Optimum” (e.g., 26 to 100 FIVs), topdress phosphorus after the first grazing cycle.

- If soil test P is “Excessive” (e.g., P-FIV’s >100), the application of phosphorus in fertilizers or manures is NOT RECOMMENDED.

Potassium

Table 3. Recommended potassium fertilizer rate to promote adequate pasture performance and productivity.

Fertilizer	UD FIVs										
	0	10	20	30	40	50	60	70	80	90	100
lbs K ₂ O/ac	180	165	150	135	120	105	90	75	60	45	0

- Topdress potash after the first grazing cycle.
- Application rates of 120 lbs K₂O /ac or higher should be split into two treatments. Apply ½ of the recommended rate from mid-May to mid-June and the remainder in late August or September.

Magnesium

- Magnesium is recommended when Soil Test Magnesium is less than 38 FIVs
- If Soil Test Mg is less than 38 FIVs and lime is recommended, use dolomitic limestone.
- If Soil Test Mg is less than 38 FIVs and lime is not needed, apply soluble Mg according to the rates in Table 4, below.

Table 4. Recommended application rates of soluble magnesium as a function of soil test Mg index value.

Soluble Mg	UD FIVs								
	0	5	10	15	20	25	30	35	40
lbs soluble Mg/ac	80	70	60	50	40	30	20	10	0

Sulfur

- Monitor forage for sulfur deficiency. If symptoms occur, contact your county agent for assistance with diagnosis and/or corrective recommendations.

Manganese

Manganese (Mn) needs are predicted by an Availability Index that includes M3 soil test Mn and soil pH. Interpretation is crop specific.

$$\text{MnAI} = 101.7 - (15.2 \times \text{soil pH}) + (2.11 \times \text{M3-Mn})$$

Where:

- MnAI = Mn availability index
- Soil pH = Soil pH measured in water (1:1 V:V)
- M3-Mn = Mehlich 3 soil test Mn in lbs/ac

Table 5. Interpretation of Mn availability index.

Mn Availability Index	Interpretation
Less than 12	Mn deficiency is possible. Monitor the crop for symptoms
12 or greater	Mn deficiency is unlikely.

- If Mn deficiency is predicted or was observed in the previous growing season, broadcast 20-40 lbs actual Mn/ac.

- Broadcast applications of acid forming fertilizers may correct Mn deficiency without the actual application of Mn in some cases, but may be less effective than applications of Mn.
- If Mn deficiency symptoms appear during the growing season or after an application of lime, a foliar application of 0.5 to 2.0 lbs/ac actual Mn as Mn sulfate or chelated Mn can alleviate the symptoms and restore yield potential. **Apply only when adequate growth is present to aid in adsorption of foliar Mn.**

Zinc

Zinc (Zn) deficiency is predicted by an Availability Index that includes not only M3 soil test Zn, but also soil pH and M3 soil test P.

Table 6. Interpretation of Zn availability index.

Soil Test Criteria	Interpretation
M3-Zn is less than 1.9 lbs/ac	Zn deficiency is predicted
M3-Zn is less than 3.1 lbs/ac AND soil pH is higher than 7.0	Zn deficiency is predicted
M3-Zn is less than 3.1 lbs/ac AND soil pH is 6.6 or higher AND M3-P is 100 FIVs or higher	Zn deficiency is predicted
M3-Zn is 3.2 lbs/ac or higher	Soil should be sufficient in Zn

If zinc deficiency is predicted by the availability index or was observed the previous year, one of the following treatments can be applied:

- Broadcast 10-12 lbs/ac actual Zn as Zn sulfate or Zn oxide. Broadcast applications should correct Zn deficiency for several years.
- Foliar application of 1 lb/ac actual Zn as Zn sulfate or Zn oxide or 0.5 lb/ac actual Zn as Zn chelate in 20 to 50 gallons of water. **Apply only when adequate growth is present to aid absorption of foliar Zn.** Application should be repeated if symptoms re-appear.

Boron

- Apply 2.0 - 4.0 lbs B/ac each year.
- If the available forage in the pasture is less than 25% legumes, application of boron (B) is not required.
- Boron can be applied in a blended, broadcast fertilizer, as a soil spray or applied in a foliar spray, generally in late May or June.
- Caution:** Although B is required for maximum productivity of hay fields containing legumes, even slight over-application can be toxic to the crop. When applying B as a foliar spray, be certain to apply the correct rate.