



University of Kentucky  
UKnowledge

---

Soil Science News and Views

Plant and Soil Sciences

---

10-1984

# Fertilizing Alfalfa for Optimum Yields

William O. Thom

University of Kentucky, [wthom@uky.edu](mailto:wthom@uky.edu)

**Right click to open a feedback form in a new tab to let us know how this document benefits you.**

Follow this and additional works at: [https://uknowledge.uky.edu/pss\\_views](https://uknowledge.uky.edu/pss_views)

 Part of the [Soil Science Commons](#)

---

## Repository Citation

Thom, William O., "Fertilizing Alfalfa for Optimum Yields" (1984). *Soil Science News and Views*. 181.  
[https://uknowledge.uky.edu/pss\\_views/181](https://uknowledge.uky.edu/pss_views/181)

This Report is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in Soil Science News and Views by an authorized administrator of UKnowledge. For more information, please contact [UKnowledge@lsv.uky.edu](mailto:UKnowledge@lsv.uky.edu).



Department of Agronomy

# Soil Science News & Views



Vol. 5, No. 10

October 1984

## Fertilizing Alfalfa for Optimum Yields

William O. Thom

Alfalfa is one of the most important forage crops in Kentucky. It is grown on a wide range of soil types, has the ability to produce high yields, and will respond to good management including a sound soil fertility program.

### Establishment

A soil test should be taken at least 6 months before a new field is to be seeded. If lime is required, the field should be limed to a soil pH of 6.8 at least 4-6 months ahead of seeding in order to give the lime sufficient time to correct any pH problem.

Apply recommended rates of phosphate and potassium as these two nutrients are very important in stand establishment and maintenance. For all seedings, apply 1.5-2 lbs of elemental boron per acre as either a borated fertilizer or as a fertilizer borate material. All fertilizer materials should be applied and incorporated into the soil before seeding. Do not mix seed with fertilizer as this will kill the inoculant bacteria on the seed.

Use a fresh source of recommended inoculant and a sticking agent to properly inoculate seed. Alfalfa can satisfy its nitrogen needs with well nodulated roots resulting from good inoculation procedures.

### Stand Maintenance

Adequate soil fertility will contribute to the longevity of vigorous alfalfa stands. After the establishment year, annual applications of phosphate, potash and boron should be applied. It is preferred that these materials be applied in the fall about 1 month before the expected freeze-down for winter dormancy. In Kentucky, the fertilizer can be applied following the late August to early September cutting.

The College of Agriculture is an Equal Opportunity Organization with respect to education and employment and is authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, national origin, sex, religion, age and handicap. Inquiries regarding compliance with Title VI and Title VII of the Civil Rights Act of 1964, Title IX of the Educational Amendments, Section 504 of the Rehabilitation Act and other related matters should be directed to Equal Opportunity Office, Kentucky Cooperative Extension Service, University of Kentucky, Room S-105, Agricultural Science Building North, Lexington, Kentucky 40546.



Alfalfa fields should be soil sampled every 2-3 years in order to monitor soil pH, P, and K that will determine annual topdressing rates. Since alfalfa removes large quantities of phosphate and potash (approximately 13 lbs of  $P_2O_5$  and 55 lbs of  $K_2O$  per ton per acre per year), it is important to monitor soil test levels so that soil fertility can be maintained at recommended levels. Also, frequent sampling allows producers to adjust their fertilizer and lime applications to avoid either nutrient deficiencies or over-application of nutrients. When yields of alfalfa exceed 4 tons per acre per year in a field, the University of Kentucky recommends an additional 30 lbs of phosphate and 60 lbs of potash per acre for each additional ton of hay above 4 tons per acre. The table below suggests rates for yield levels of 4, 6, and 8 tons per acre based on soil test.

Annual phosphate and potash application for alfalfa (lbs/acre)

Soil P (lbs/acre)	Test K (lbs/acre)	Alfalfa yield level (ton/acre)					
		4		6		8	
		$P_2O_5$	$K_2O$	$P_2O_5$	$K_2O$	$P_2O_5$	$K_2O$
0-30	0-165	60-120	160-240	120-180	280-360	180-240	400-480
31-60	166-250	0-60	0-160	0-120	120-280	0-180	240-400
61+	250-375	0	0	0	0-120	0	0-240

The recommended amount of boron should be applied annually and soil pH should be maintained in a range of 6.5-7.0.

#### Molybdenum

Research at UK has indicated that alfalfa stands following new seedings and yields of established fields can be increased with an application of 1.5 to 3.0 ounces of actual molybdenum per acre. If soil pH values at seeding are below 6.2 and the recommended lime was not applied 4-6 months before seeding, a broadcast molybdenum application is recommended. With established stands at a soil pH below 6.2, broadcast (30-40 gallons of spray) the molybdenum in late winter or early spring before new shoots reach 2 inches in height. This is necessary to avoid reaching molybdenum toxicity in the harvested product for the consuming livestock. Also, keep in mind that molybdenum is not a substitute for a good liming program.

SOIL SCIENCE NEWS & VIEWS  
 Department of Agronomy  
 College of Agriculture  
 University of Kentucky  
 Lexington, Kentucky 40546

U.S. POSTAGE  
 PAID  
 NON-PROFIT ORG.  
 PERMIT 51  
 LEXINGTON, KY

AG. LIBRARY                      S5NV  
 N-24 AG SCI NORTH  
 LEXINGTON KY                      40546