



# Forage Management

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## Nitrogen Fertilization for Early Pasture

West Virginia farmers may be able to reduce their hay needs by fertilizing pastures and getting animals on pasture earlier than usual in spring. Research at West Virginia University has shown that light applications of nitrogen fertilizers applied in March and early April will provide maximum response in five to six weeks.

### Planning

In order to get maximum benefit from a nitrogen fertilization program, several supplementary management practices must be followed. Spring fertilization is just one part of an overall forage plan. Pastures which are fertilized with nitrogen and grazed early must be permitted six weeks to recover, either in midsummer or early autumn. There is usually an abundance of grass in late May and early June on pasture where nitrogen was not used and this could be a convenient time to rest nitrogen fertilized pastures that were grazed during early spring.

### Procedure

If the fertilizer is applied in late March or early April, additional growth should be evident in about two weeks. In three to four weeks, the grass should have made enough response that cattle can be started on pasture. A stocking rate of two cows per acre should allow for a balance between available forage and animal needs for three to four weeks. Animals should be turned onto nitrogen fertilized pastures when bluegrass is four inches tall or when orchardgrass have reached a height of six inches. To start grazing earlier will result in reduced response to nitrogen fertilizer and failure of the grass to keep pace with the needs of the cattle.

### Allow Regrowth

After three to four weeks, the cattle will begin to get ahead of the grass and they should then be turned onto

other pastures. By this time, there should be enough growth on fields not fertilized with nitrogen to carry cattle well into summer. For the next four to six weeks, cattle should be excluded from the early spring pasture permitting it to recover top growth and develop its root system. A light application of nitrogen fertilizer (40-60 lbs. N) will have very little effect beyond six or seven weeks after application. Therefore, not much response from nitrogen can be expected during this regrowth period.

### Choosing a Fertilizer

Nitrogen topdressing should be done only if soil phosphorus and potassium are adequate. Any blanket recommendation without knowledge of a soil test should be for a complete fertilizer. The most commonly available fertilizers would probably be 19-19-19 or 12-24-24, and either would be satisfactory. On a previously untreated field, 12-24-24 would be the better choice, but on fairly good fields, the 19-19-19 would be more economical. If a soil test shows adequate levels of phosphorus and potassium, a straight nitrogen fertilizer such as ammonium nitrate should be used. Fertilizer should be applied at a rate to supply 40 pounds per acre of nitrogen.

### Choosing a Site

The best pasture on the farm with a southern exposure should be selected for fertilization. The best soil and the best grass will respond more to fertilization than unproductive sites and make the treatment more profitable. In all cases, the treated area should be fenced from untreated areas using temporary or electric fencing if necessary. It is never advisable to treat part of an area within an enclosure and leave the other part untreated. This results in uneven grazing and makes good management impossible.

An alternative that should be considered is to fertilize more acres of meadow or to fertilize them heavier than usual and use one for early grazing. A temporary fence could be used to control grazing. Using a grass

meadow in this way for one year should not impair its future productivity if it is properly managed for the remainder of the year. Research at West Virginia University has shown that early grazing of meadows reduces first harvest yields by the amounts consumed by animals during the grazing period. Early nitrogen fertilization should reduce this loss of first cutting yield.

### Acreage Required

In general, about one acre of pasture per two cows should be treated for early spring grazing. In any case, not more than one-third of the total pasture acreage should be treated with nitrogen fertilizer. Treating more than this will get the seasonal distribution of pasture severely out of balance.

### Grass Tetany Hazard

It should be pointed out that nitrogen fertilization and early grazing of the lush grass may increase grass tetany hazard. Farms with a history of tetany or

locations experiencing tetany in the past should supplement animals with magnesium. However, if a good magnesium supplementation program is followed, the risk of grass tetany should not discourage the use of nitrogen on pastures.

### Economics

Another question which must be answered is whether spring treatment is economical. Fairly reliable estimates of the response of grasses to nitrogen fertilization are available. Good orchardgrass or other tall growing grasses will produce 30 to 40 pounds of dry matter per pound of nitrogen applied (at rates below 60 pounds of nitrogen per acre); good bluegrass with mixed tall grasses 20 to 30 pounds of dry matter per pound of nitrogen; and thin bluegrass from 10 to 20 pounds of dry matter per pound of nitrogen. If the better pastures are treated, a response of at least 30 pounds of dry matter per pound of nitrogen could be expected. Thus, one could expect an additional 1200 pounds of dry matter from a 40 pound nitrogen application. How valuable this would be in comparison with other sources of animal feed could only be decided by the individual farmer. The following table may serve as somewhat of a guide:

Cost\* of Forage Produced by Fertilization

Fertilizer Treatment	Fertilizer Cost		20 lb Forage per 1 lb. N		30 lb Forage per 1 lb. N	
	Cost		Cost		Cost	
	Ton	Acre	Ton	Bale	Ton	Bale
333 lb 12-24-24	\$249	\$42	\$105	\$2.10	\$70	\$1.40
210 lb 19-19-19	\$245	\$26	\$ 65	\$1.30	\$43	\$ .86
120 lb 34.5-0-0	\$270	\$16	\$ 40	\$ .80	\$27	\$ .54

\* Does not include fencing or water costs.