

Get the Edge on Fertilization Management

Fall 2004

The Amazing and Humble Alfalfa Plant



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ALFALFA is one of the world's most versatile crops, growing in environments ranging from the cold northern prairies to the blistering western deserts. Alfalfa grows on soils ranging from beach sands to heavy clays. It can be grazed, fresh fed, baled, cubed, pelletized, or turned into silage.

Although this amazing crop is well suited to a wide variety of conditions, there are a few requirements that **must** be met to keep alfalfa growing vigorously. This includes having the basic mineral building blocks...including adequate phosphorus (P), potassium (K), and sulfur (S), for example...in the rootzone for growing each new leaf and stem.

Here's a brief review of some of the benefits of alfalfa production. It serves as a reminder of the benefits of keeping the crop in top shape with optimal nutrition this fall and year round.

- A healthy alfalfa stand provides **excellent soil cover** to protect soil from erosion and the extensive root system holds soil in place, too.
- Since no soil cultivation is required after planting, alfalfa fields have much **less water and wind erosion** than many other crops
- Alfalfa roots can **penetrate very deeply** (frequently beyond 10 ft.) in many soils. This extensive root system holds soil in place, creates channels that aid water infiltration, and recovers nutrients from deeper soil layers.

- **Water runoff from alfalfa fields is much less** than from bare soil or many other types of cropland. Minimizing loss of sediment and chemicals is beneficial to surrounding waterways.
- **Many weeds are suppressed by alfalfa** production. A combination of the thick vegetative growth and frequent mowing minimizes many weed problems for alfalfa and may reduce the need for chemical treatment of following crops.
- The extensive root system of an alfalfa stand provides an **excellent environment for soil microorganisms and improves soil physical properties** as the soil becomes better aggregated.
- The ability of **alfalfa roots to support specialized rhizobia bacteria** to produce its own nitrogen (N) means there is virtually no need to add this nutrient for optimal growth when certain conditions are met, such as adequate soil supplies of other plant nutrients.
- Alfalfa can meet its own N need and also **provide an important source of N** to subsequent crops such as corn, wheat, or cotton, thereby reducing the need for purchased N.
- Alfalfa produces a very **high quality, high protein feed** without the need for N fertilizer. To produce the same amount of protein from corn or other grains would require millions of additional acres of cropland at significantly increased cost.
- Alfalfa fields provide valuable **perennial habitat and cover for many wildlife species.**
- Although alfalfa is a major water user in many western states, the crop is actually **one of the most efficient crops for overall water use efficiency** (due to its high yield, high harvest index, perennial nature, and deep rooting).

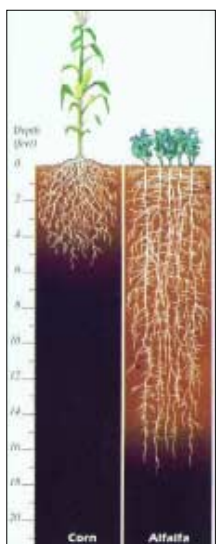


Figure 1. Roots of alfalfa plants will reach much deeper in the soil than will roots of crops such as corn. Source: Univ. of Minnesota Extension Service.

Harvested alfalfa removes large quantities of nutrients from the soil. Each ton of alfalfa removes about 15 lb P_2O_5 and 60 lb K_2O , which can rapidly deplete nutrient reserves and cause a loss in yield and quality.



Alfalfa harvest removes large amounts of nutrients, particularly K, from fields. Photo source: AGCO.

Research conducted throughout North America has repeatedly demonstrated that alfalfa is a truly remarkable crop...when managed properly. Maximum production of alfalfa begins with proper fertilization before planting and then regular maintenance of adequate nutrition through fertilization each year.

The fall of the year is an excellent time to replace harvested nutrients and keep alfalfa fields in top shape. ■

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