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### FUELING THE GROWTH OF ALFALFA

**Perpetual motion? Change straw into gold? Who does not want to get something from nothing?** One of the first lessons taught in chemistry class is that elements are always “conserved.” Economists teach us that “there is no free lunch.” When the gas tank in the car gets low, you’d better fill up again or get ready to walk. No matter how you put it, the proper building blocks need to be in place for us to get the desired result...and there are no shortcuts.

**For plants to produce sugar from air and water, they require sunshine and the proper mineral building blocks.** When any of these essential components are lacking, the plant simply lacks the **fuel** to reach its growth potential.

**Alfalfa is the most important forage crop grown in the western U.S., with over 35 million tons produced each year in the region!** Harvesting this huge amount of hay requires that all the essential building blocks are in place to keep up with the plant demand over a long growing season. One ton of alfalfa dry matter contains an average of 60 pounds of  $K_2O$  and 15 pounds of  $P_2O_5$ . This means that over 2 billion pounds of  $K_2O$  and half a billion pounds of  $P_2O_5$  are removed by western-grown alfalfa fields each year.

**Determining the nutrient need of alfalfa is important to sustain profitable hay yield and quality.** Even though huge quantities of nutrients are extracted from soil with each cutting, it is improper to over-generalize about fertilizer recommendations. A number of factors...including soil type, historic fertilization practices, yield levels, and crop rotation...can be quite variable and interact to influence the nutrient requirement of alfalfa. Using tissue and soil testing is the best way to identify deficiencies and make accurate recommendations.

**A well-managed nutrition program is essential for profitable alfalfa production.** In cases where production costs are high and profit margins are slim, special attention to proper fertilization is more important than ever. For alfalfa, most commonly this means supplying adequate amounts of phosphorus, potassium, sulfur, magnesium, boron, and watching the soil pH to optimize yield, hay quality, and economic return.

**Based on the soil test, the recommended amounts of phosphorus and potassium fertilizers should be broadcast and incorporated before planting.** Soil samples collected each fall can then be used as a guide for amounts of fertilizer required for nutrient replacement.

**In a recent report from Utah State University, Dr. Rich Koenig documents the alfalfa yield boost that can result from proper fertilization with phosphorus, potassium, and sulfur fertilizers.** In his experiments, fluid and granular forms of phosphate were equally effective at increasing hay yield. Dr. Koenig noted that potassium deficiencies are a relatively recent occurrence in many western alfalfa fields. A long history of harvesting high-yielding crops has depleted much of the naturally occurring potassium and has led to a growing number of deficiencies and yield loss.

**Fertilizing alfalfa is not a particularly glamorous thing to do.** But harvesting the profits from high-yielding crops depends on it. Investing in the **fuel** for alfalfa growth means maintaining adequate nutrients in the rootzone to help the plants keep the “pedal to the metal.”

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