

## Less Inputs Lower Field Results

MUNDELEIN, III. — Fertilization tops the list of critical inputs for alfalfa yields in relation to desirable percentages of crude protein, digestible protein, and TDN (total digestible nutrients) in dairy herd rations.

Therefore, pounds per acre, nutrient content and longevity of stand, which add into the profit equation for dairy producers, are directly related to the amount of soil nutrients available on alfalfa acres.

Sam Kincheloe, Ph.D., director of agronomic services with IMC Fertilizer, Inc., said the need to maintain a quality stand demands nothing short of proper fertilization.

"Reducing fertilizer inputs places alfalfa yields in a vulnerable position, impacting protein content and eliminating the objective to meet nutrient requirements in dairy rations," he said. "This lowers quality to where costly protein supplements must be added into the feeding program, increasing costs and reducing production efficiency."

He said that once crop stress from nutrient deficiencies affects the crop at an early growth stage, little can be done to reverse the potential damage.

"Nutrient stress slows early growth, reduces the number of tillers per crown, and limits root development, which becomes a compounding problem during the entire season," said Kincheloe.

"On the other hand, a well-executed program promotes vigorous growth to shorten the time to first cutting. It hastens regrowth and possibly allows for one additional cutting."

Where periods of water shortages occur, Kincheloe said healthier root systems will also reduce the stress effects on growth and quality of the forage.

Potassium is the most vital nutrient for top alfalfa production in terms of pounds of nutrient needed for each ton of yield. Each ton of harvested alfalfa removes more than 60 pounds of potash. Where yield goals exceed four tons of alfalfa per acre, 250 to 300 pounds of potash per acre are necessary to replace the nutrients utilized or removed by the crop.

Where potassium soil tests show medium to low levels, Kincheloe recommends applying at least 400 pounds of potash to produce six to eight tons of forage per acre.

Stands that are potassium-deficient are more likely to face severe competition from grasses, and stand failure is common, said Kincheloe. Therefore,

maintaining an adequate fertility level on alfalfa produces a vigorous, deep root system that resists heaving during freezing and thawing cycles.

As a note, potassium deficiencies can be particularly limiting in areas of heavy rainfall and light textured soils. Phosphate demands are less in total pounds

(13 to 15 P<sub>2</sub>O<sub>5</sub>) of actual utilization per ton produced, but are just as critical for healthy stands. "This is especially true during early growth when roots are

small. High levels of phosphorus should be built up before stands are established," said the agronomist. Deficiencies can occur during periods of

drought when part of the rooting zone may be inactive and during cool periods when uptake of the nutrient slows down.



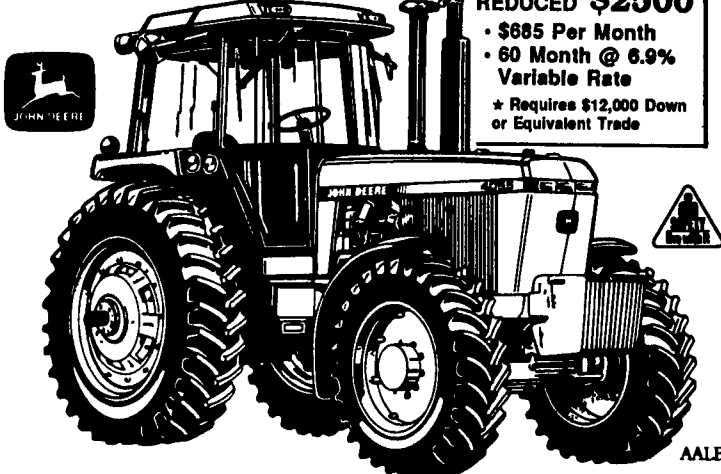
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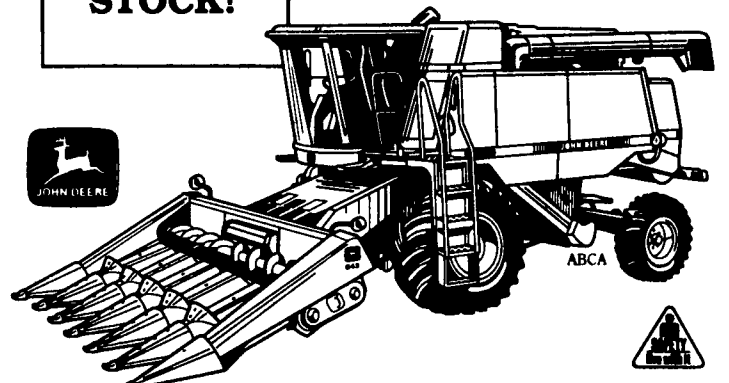
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