

## GROWERS TARGET FERTILITY

*“The placement of elements close to the plant to take advantage of the efficiencies of reduced time and distance.”*



### THE 3 MAIN POINTS OF THE PROGRAM

1. Provide a good growing medium by ensuring adequate calcium in the soil.
2. Supply necessary nutrients to the plant by applying balanced high quality soluble plant nutrients at the correct time.
3. Put in comparison plots and yield check to verify profitable results.



### THE FARMERS SOLUTION

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GrowersMineral.com

Your local Growers Representative is:

## THE GROWERS PROGRAM

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## ALFALFA, GRASS & PASTURES



*Baling forage grown with the Growers Program.*

Since 1955, Growers Mineral, Corp. has helped farmers increase their profit by raising high quality crops with lower overall costs. This is accomplished by creating a superior rooting media, and stimulating plants with smaller amounts of balanced nutrition (GMS) at stress points during the plant's life. This is a farming philosophy known as “The Growers Program.”

Milan Ohio

# GROWERS MINERAL

THE FARMERS SOLUTION

## THE GROWERS PROGRAM



The three main elements of The Growers Program are:

**CALCIUM**—A check of calcium levels in the soil and recommendations for additional applications (if necessary)

**GMS**—Use of Growers Mineral Solutions at planting, during maximum growth, and reproduction. GMS was originally developed for use in hydroponic production. In these situations, the plant's total mineral nutrition had to be provided.

**RESULTS**—Yield check to verify profitability.

### MANAGEMENT TOOL

The unique feature of the Growers Program is that Growers Mineral Solutions can be used as a very effective management tool. Under periods of stress (too wet or dry), GMS can provide extra nutrition for plant survival. Under favorable conditions, GMS can help maximize yield and/or take advantage of varying market conditions.

We recommend feeding alfalfa plants with GMS at maximum stress periods:

**SEED TREATMENT** - directly on the seeds (in cold, wet soils especially).

**FOLIAR SPRAY** - after each cutting to replenish energy in the plant.

This basic approach can have many different variations depending on the soil type, the yield potential, and the farm's past history.

**WATER CONSIDERATIONS** - Anytime GMS is foliar sprayed, if water is used for dilution its quality has a very big impact in the effectiveness of GMS. When diluting GMS with water, consult with the GMS sales representative.

Sometimes there are certain methods and crops meant for each other—a special beneficial relationship not to be duplicated in any other way. And so it is with the Growers Program and forages. In fact, many farmers have converted grain acreage into forage acreage because of the many positive results they have seen using the Growers Program on their forages. The reason farmers are growing more forage with the Growers program is

simple: Quality.

Farmers feeding forages raised according to the Growers Program nearly always claim to have better animal health, plus a very competitive production using lesser quantities of feed than they ever thought possible. Even with the increased amount of animal or milk production achieved, the dry matter intake of the Growers grown crops is usually significantly less than those of other competing programs.



*Always use limestone sources high in calcium and low in magnesium.*

# Quality Forage

## CALCIUM & LEGUMES

To thrive, legumes need calcium for a good rooting environment. Because legumes are very heavy feeders of calcium, it is important to examine the soil's calcium content. Soil with a proper balance between calcium and magnesium will have calcium levels of about 81/2 times the level of magnesium in per cent base saturation, or will have calcium in pounds available of about 15 times that of magnesium. Soil scientists have long known that the interaction between plants and soil bacteria depends on the movement of calcium in plant root cells. Many experts recommend significant applications of potassium to legume crops, but this only serves to release calcium from the soil to the plant, or as a substitute to the plant for calcium that is not present or available in the soil. Calcium is the real key to ensuring a successful legume crop both in quantity and quality.

## SEED TREATING

For improved germination and early growth, alfalfa and other legume forages can be seed treated with GMS at the rate of 6 to 12 ounces per 60 pounds of seed. Softer grass forage seeds should be treated at 3 ounces of GMS per bushel of seed. It is important that the treated seed has dried before placing it in the seed box, so allow about 12 hours of drying time before seeding. Mixing the GMS-treated seed with powdered high calcium limestone will speed drying and prevent caking.

Seed treating can be very effective because seeds of all grain crops will absorb approximately 30% of their dry weight in moisture. When nutrients as found in GMS are added as seed treatment, they become part of the seed and will be ready for use by the seedling after germination.



Use a fine mist when foliar spraying forage.

## FOLIAR FEEDING

Legume and grass forage experience their greatest stress shortly after cutting, so this is the best time for them to be foliar sprayed. It is important to spray as soon as possible after cutting, waiting only for the appearance of a small amount of new growth to receive and aid in the absorption of the nutrients. Because the crowns of the alfalfa will absorb nutrients, it and other legumes can be sprayed a little sooner than grass forages which need a little more growth for efficient absorption of foliar-applied nutrition.

Many farmers have also found that foliar feeding is a very effective tool during periods of environmental stress such as drought or excess rainfall. In these situations, plant roots often have been injured and cannot take up nutrition properly, but putting nutrients into the plant through foliar absorption can usually help overcome stress problems.

Foliar sprays should be applied in the early morning, late afternoon (evening), or overcast days in the summer. Spring or fall foliar sprays can be made during a higher percentage of daylight hours. In very early spring and very late fall, there may be times it would be prudent to wait for warmer temperatures. Plants will not absorb minerals through the foliage during the heat of the day or in bright sunlight. Foliar sprays are generally applied by ground equipment utilizing boom sprayers, mist blowers, and high boy sprayers, while some are made by helicopters or spray planes.

The rate of GMS applied at one time for foliar spraying will vary from one to four gallons per acre depending on the potential yield and environmental conditions. Most farmers follow the standard recommendation of two gallons per acre per cutting.

Foliar feed at the stress point after every cutting so as to introduce nutrition and to ensure proper energy for growth.

A crop receiving two to four cuttings will not be provided with enough nutrition for continuing plant success with only one foliar spray. Spraying a forage after the last cutting of the season helps to prepare the plant for the winter, and the extra energy stored in the plant's system will help the plant break dormancy with more vigor. An early spring spray may help a stand not sprayed the previous fall, or it may help a stand which has endured an exceedingly harsh dormancy period.

## QUALITY VS QUANTITY

In our opinion, the biggest problem growing quality forage is the quest for quantity. We realize that when people are raising commodity crops for sale, they receive no premium for higher quality. Because quantity is of greater importance, little attention is given to the crop's quality factors. This also can be true of forages raised for sale. If, however, the grower intends to feed his forage with a goal of producing healthy livestock economically, quality becomes important and several issues need to be addressed.

**LEGUMES:** In general, legume forages, particularly alfalfa, are receiving too much potassium. An imbalance in the plant occurs when the level of the element potassium becomes too high. This can affect the performance of the animal consuming that forage. An example is the dairy industry's milk fever which has been shown to be associated with the high potassium content in legume forages.

Many growers have reduced or eliminated the potassium problem by adding sufficient amounts of high calcium liming products to the soil, and by applying a high quality mineral solution to the legume plant. Implementing this program results in the legume quality becoming more beneficial for feeding.

We employ a different yardstick when testing and evaluating feed quality. Rather than using relative feed value as a standard of quality, we prefer to compare the percentage of calcium on a dry matter basis. We want the potassium to calcium ratio to be 2 to 1 or less. As potassium levels come down in the forage and this ratio is achieved, other components in the forage balance out and are able to become more effective and useful naturally. One benefit is that the energy in the legume seems to improve which significantly lowers the consuming animal's need for supplemental energy from non-forage sources. This is important because certain health and performance problems in ruminant animals are increasingly and rightfully being charged to the excessive use of high energy supplements in their feed rations.



Solid stemmed alfalfa is, in our opinion, a good visual measure of high quality. Hollow stemmed alfalfa, on the other hand, usually indicates a lower quality alfalfa.

**GRASSES:** In order to promote high quantities of grass forages, excess nitrogen is being applied to the soil. Overly large applications of nitrogen fertilizers and/or manure can result in high plant nitrate levels. High nitrate levels in forages contribute to the accumulation of nitrates in the rumen and, eventually, in the bloodstream where it combines with hemoglobin to form methemoglobin. Methemoglobin cannot carry needed oxygen to body tissues which causes varying degrees of oxygen starvation. To ensure the highest quality grass forage for nutritional feed, we feel it is important that the smallest possible amounts of nitrogen are used. Nitrogen is a necessary ingredient for grass production, but using too much can cause imbalances in the forage and can create environmental problems besides.

There are three primary sources of nitrogen: commercial products, manure, and that which is naturally occurring in the soil itself. The amount of soil-generated nitrogen is related to the viability of the soil's microbiological life. The most important and controllable factor contributing to the soil's life and balance is its available calcium. As the soil's calcium needs are met, maximum amounts of nitrogen are manufactured by its microbiological life. It follows that, if fewer applied nitrogen inputs are used to create quantity success, there will also be less risk of too much applied nitrogen causing quality and environmental problems.

Therefore, it is very important to apply nitrogen to grass forages at a rate that strikes a balance between quantity and quality.

## PASTURES

Any pasture, whether permanent or rotationally grazed, requires four to six gallons of GMS for the growing season. Spray permanent pastures once or twice with two gallons per acre in the spring, April through June, and again with two gallons per acre in the fall, September through November. Rotationally grazed pastures may be sprayed at the rate of two gallons per acre after the animals have been removed and as the forage starts to regrow. Lesser amounts could be applied after every pasture move, but be sure the total used for the season is four to six gallons per acre. Also, it is important to address the pasture's soil calcium needs (see *Calcium & Legumes*).