

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.



P.O. BOX 1750 • MILAN, OHIO 44846

Our Research is Your Profit

800-437-4769

www.GrowersMineral.com

Your local Growers Representative is:

THE GROWERS PROGRAM

& TOBACCO



South Carolina: Tobacco grandfather and grandson, using only GMS.

Since 1955, Growers Mineral Solutions 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."



GROWERS Program

GMS

GMS is a 10-20-10 liquid fertilizer with a perfect balance of micro-nutrients incorporated. All of the raw ingredients used in its manufacture are very high quality, meaning that most of the impurities have been removed. This allows GMS to be used as an in-furrow treatment directly on a seed and/or as a foliar spray, among other techniques. It also means that GMS is incredibly efficient, with upwards of 90% of the solution being available to drop uptake, and even more with healthy soil microbiology.

Since it is clean and complete, GMS promotes quality in a crop while not sacrificing yield. On top of this, it can be used in lesser quantities than traditional fertilizers, further saving the farmer money. GMS can be used to effectively grow any plant, and forms one of the legs of The Growers Program.

TOBACCO & CALCIUM

Calcium (Ca) is an extremely important element for any growing plant. It is very nearly required in similar amounts to the three macro-nutrients (N, P, and K), and is arguably just as important as they are. It is used in many physiological functions of a plant, but is especially important for cell growth and stability, a vital characteristic of a healthy plant. On top of that, it conditions the soil for better aeration and infiltration, buffers out salts and heavy metals, and provides a needed food source for soil microbiology.

Unfortunately, many soils have been depleted of calcium by modern farming practices. Furthermore, most fertilization programs neglect calcium since soils will often test enough for what they think the crop needs. When a crop cannot absorb enough calcium, it will replace it with nitrogen or potassium (among other nutrients), which do a much poorer job in cell function than calcium does.

Growers believes that adding calcium to the soil, in the form of limestone, is vitally important for growing tobacco. Having a base saturation of at least 85% of calcium on a soil test throughout the soil profile will bring a large return on investment. Since tobacco is a crop where quality matters, adding high calcium limestone to the soil is that much more important. When combined with a high quality fertilizer such as GMS, the results are

a crop with balanced nutrition uptake, better disease and pest resistance, better resilience, quicker drying time, and overall higher quality.

There are many variables that effect the need for high calcium limestone, including soil type, tillage program, limestone availability, economic capability, and type of crops grown. The best way to determine how much limestone is needed is to apply it in test strips of increasing amounts. Only then can the perfect balance of cost and benefit be realized. Limestone forms the second leg of the Growers Program, while test strips and otherwise hands-on testing forms the third.

For more information on calcium and limestone, please contact your local Growers representative or the main office.

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Quality Tobacco

PRE-TRANSPLANT

Germination is a significant stress period for any crop, including tobacco. Providing a clean fertilizer at this and other stress points can help give the crop the nutrition it needs to thrive through the stress period. In the greenhouse, Growers has seen success with two methods: spraying GMS on the seedbed and foliage, and mixing it into the float bed water. This can be done by mixing GMS with the water in a 30 gallon garbage can (or whatever size works) and pumping it under the beds. Please refer to Application Timing and Rates for recommended rates.



May 10: 33 days after transplant.

TRANSPLANTING TOBACCO with GMS

Ideally, tobacco should be treated with a GMS transplant solution before it is moved out of the greenhouse and into the field. If there will be only one treatment of GMS, it is most effective when used in a transplant solution.

Transplanting is a significant stress period for the tobacco

plant, and as such, it will be in a poor condition to be efficiently absorbing nutrition. Coincidentally, this is also a period when it needs nutrition in order to recover from the stress. Therefore, it is vital that clean efficient nutrition be applied in an available manner. GMS provides for all of these needs.

When transplanting, be sure to immerse the root ball into the transplant solution completely. Furthermore, Growers does not recommend mixing any other chemicals into the transplant water, as they could react with the GMS and cause root burn. Please refer to Application Timing and Rates for recommended rates.

ALTERNATIVE TRANSPLANTING OPTION

For operators who wish not to use a transplant solution, we recommend instead applying GMS 2 by 2 (2 inches beside and 2 inches below the root ball) when it is being transplanted into the field. While the nutrition is not as immediately available as it is in transplant water, this option still provides clean nutrition at a significant stress period.

Furthermore, since the nutrition is not right next to the root, it encourages the root to extend in search of it, giving better root coverage. In well limed soil, a small root system will rarely be an issue to begin with. Growers recommends a rate of 3-5 gallons per acre of GMS, depending on those conditions listed in Application Timing and Rates.



May 24: 44 days after transplant.

PRE-LAY-BY TREATMENT

As the tobacco crop grows, the root system tends to outgrow the ridge that was prepared for it. In order to address this problem, operators will cultivate in between the rows of tobacco and build up the ridges with said soil. This has the added benefit of destroying any weeds. It is also a great opportunity to side-dress GMS in a 3 by 3 or 4 by 4 method in the ridges. Please refer to Application Timing and Rates for recommended rates.

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.

POST-LAY-BY TREATMENT

Once the final cultivation has occurred, the grower can begin foliar feeding the tobacco with GMS. Foliar feeding is an efficient method of fertilization when using a clean fertilizer. GMS should be sprayed every 7-10 days in a fine mist over as much of the surface of the plant as possible. Furthermore, GMS can be applied to help a plant thrive through unexpected stressful periods, such as bad weather conditions or too much water. Please refer to Application Timing and Rates for recommended rates under both normal and stressed conditions.

Foliar feeding relies on the plant leaf being open. This is when the fertility is most easily absorbed and the risk of burn is the smallest. The leaf opens during the cooler, moister parts of the day, so as such, GMS should not be sprayed during the heat of the day or

when the sun bearing directly on the plant. Ideal spray times are early morning, later evening, and on overcast days.

END OF SEASON

If there is a lack of barn or storage space for the tobacco, it can be foliar sprayed with GMS to keep it from degrading. Please refer to Application Timing and Rates for recommended rates.

APPLICATION OPPORTUNITY

Though there are many times that GMS can be applied, the grower need not apply at all of the times described in this brochure. Pre-transplant, transplant, and pre-lay-by treatments can be mutually exclusive, meaning that a grower may choose to do it at the expense of the other types depending on their type of operation and personal preferences. Regardless of choice, it is important that tobacco receives foliar sprays starting at lay-by.

APPLICATION TIMING & RATES	
Application Timing	Recommended Rate
Pre-Transplant	Spray: 4-5 GPA (gallons per acre) Irrigation: 1 part GMS to 100 parts water
Transplant	2GPA
Pre-Lay-By	3-5 GPA in a 3x3 or 4x4 formation per cultivation
Post-Lay-By (Foliar)	½-3 GPA per spray
Stressed Conditions	2-3 GPA/spray
End of Season Storage	2-3 GPA
Total for Season	20-30 GPA

The variation in recommended rates reflects the different variables affecting fertilizer necessity. This includes soil type (lower rates on sandy soil and higher rates on clay soils), soil temperature (lower rate on warmer soils and higher rates on colder soils), soil moisture level, and additional application opportunities. Please defer to your local Growers representative for specific recommendations.