PRODUCT SUMMARY
FOR

Agri-Gro®

Liquid Concentrate

All Natural Bio-Stimulant and Plant Growth Activator
Manufactured by:

Agri-Gro Marketing, Inc.
HC 4 Box 333
Doniphan, MO 63935-9312

573-996-7384
FAX 573-996-4769
www.agrigro.com
info@agrigro.com

2006

Agri-Gro® – Overview

Agri-Gro® is a unique product that has been improving the yields and soil health of producers worldwide for over 20 years. **Agri-Gro**® has been university tested and proven under field conditions to improve the quality and yield of grain, fruit, vegetable and horticultural crops while decreasing fertilizer requirements and the need for other chemical inputs such as pesticides, herbicides and fungicides. Agri-Gro's unique formulation is a derivative of plant extracts and a proprietary blend of naturally occurring bacteria and fungi. **Agri-Gro**® is 100% environmentally safe, non-toxic, non-carcinogenic and contains no pathogenic microorganisms.

In the 1990's, Agri-Gro Marketing, Inc., took the same technology that was benefiting commercial growers worldwide and transferred it to the "playing field" with the development of products like **Turf Formula**® and **Super-Cal**®. These products have enabled turf growers, sports field managers, lawn care companies and landscape contractors to reduce production time and grow healthier, more durable turf grasses while lowering costs and the environmental risks that are so common in the industry.

After years of success in the industry, it was discovered that the same principles which make **Agri-Gro**® and **Turf Formula**® effective in the soil, hold great promise in the treatment of wastewater and other sources of bio-solids. This led to the development of **Indigo**®, a new, proprietary formulation which accelerates the breakdown of volatile bio-solids and controls odors in waste treatment facilities, waste lagoons, drying beds, feedlots, etc.

Agri-Gro® Development – Joe C. Spruill, PhD.

Dr. Joe C. Spruill (1935 – 1983), a Biochemist, was the originator of the Agri-Gro® concept. Dr. Spruill is best known for helping develop the stabilization process for Aloe Vera but was also heavily involved in the study of symbiotic microorganisms in human health and agriculture.

"The next great advances in agriculture will be in the utilization of plant and soil microbes."

Dr. Robert J. Kremer, Soil Microbiologist
USDA Agricultural Research Service

As a result of his research, Dr. Spruill was able to isolate and stabilize a broad spectrum of beneficial soil microbes. He developed a sophisticated culturing process that produced a consistent, effective biological growth activator that contained no detectable living organisms in its concentrated state. When diluted with water and applied to the soil or plant foliage, it would accelerate microbial activity in the soil, improve plant and root growth and reduce the need for other chemical inputs commonly used in agriculture.

Agri-Gro® – A Unique Product

Agri-Gro® is a unique product that offers numerous benefits to commercial growers.

- Agri-Gro® has been used in commercial agriculture for over 20 years. Test results are available from growers as well as universities and other independent bodies.

- Agri-Gro® can increase the healthy indigenous microbial activity in the soil or growing medium by as much as 2000% within 3 days after application.
- Agri-Gro® increases soil tilth, friability and porosity while decreasing sodium levels making previously anemic or unproductive soils more productive.
- Agri-Gro® stimulates root development by 30-50% further improving nutrient uptake and overall water efficiency.
- Agri-Gro® is a source of essential micronutrients, proteins, enzymes, amino acids and complex carbohydrates not available in ordinary fertilizers.
- Agri-Gro® is a liquid product that can be easily applied in conjunction with most pesticides, herbicides, fungicides and fertilizers through ground or aerial spray rigs or fertigation systems.
- Agri-Gro® is derived from many different types of beneficial bacteria; including aerobic and anaerobic microorganisms, making the product effective in oxygen rich as well as oxygen deprived environments.
- Agri-Gro® when stored properly has a shelf life of 4 years without losing effectiveness.

Agri-Gro® – Effects on Nutrient Uptake and Availability

Agri-Gro® triggers natural biological processes in the soil that convert tied up[1] nutrients into a soluble form that plants can utilize. Agri-Gro® accelerates the break down and conversion of organic matter and crop residue into humus; an extremely beneficial source of nutrition for plants. Agri-Gro® also provides plants with several micro-nutrients and vitamins, enzymes, amino acids, complexed carbohydrates, and other growth stimulants not found in ordinary fertilizers. The graph to the right illustrates Agri-Gro®'s impact on nutrients in the soil and plant tissue.

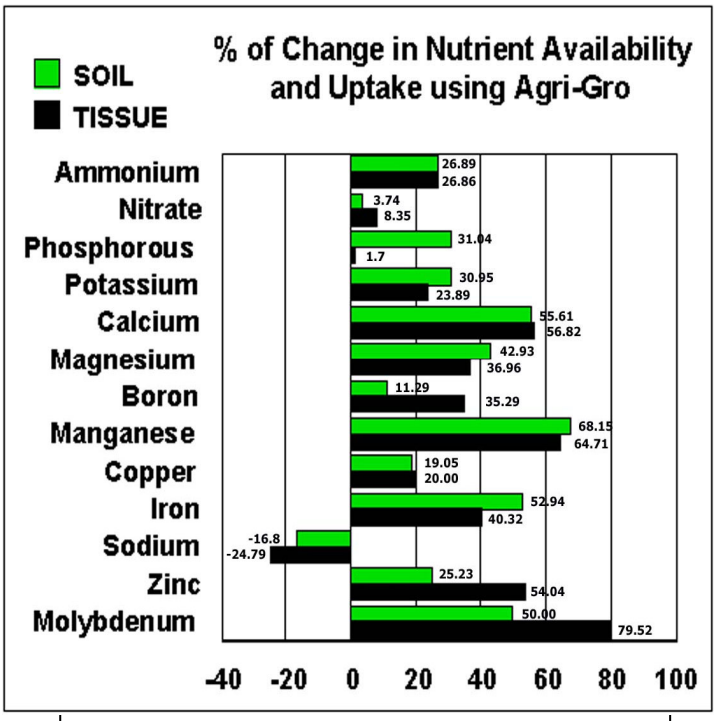


Figure 1: Research performed by Lincoln University

Testing conducted by Lincoln University proved the application of Agri-Gro® created significantly higher soil available concentrations of nitrogen, calcium, copper, potassium, magnesium, manganese, phosphorus, boron, iron and zinc in the growing media compared to the untreated soil. Agri-Gro® also boosted the concentration of these same nutrients in the vegetative tissues as well, having a positive result on yield production and quality.

Benefits of Foliar Application

Applying Agri-Gro® to the foliage of plants increases photosynthesis and the plant's ability to metabolize carbohydrates, proteins and other growth compounds contained in the leaves. These compounds are then transferred to the root system. From the root system they move out into the rhizosphere (the soil zone that surrounds the roots), feeding bacteria, algae, fungi and protozoa which in turn produce beneficial enzymes, organic acids, antibiotics and other beneficial growth stimulants. These compounds are then re-absorbed by the roots and transported back through the plant system increasing yields and producing healthier, nutrient enriched crops.

Natural Microbial Activity & Humus

In nature, when plants and animals expire, over time they decay when exposed to water, sun, air and the family of naturally occurring microorganisms called ***decomposers***[2]. Agri-Gro® stimulates the production of decomposing organisms in the soil, which in turn results in a greater production of ***humus***[3]. In addition, the castings, excretions and other byproducts from these decomposing microbes result in the production of a number of beneficial substances including humic acid; a primary ingredient to humus and one of the best sources of nutrition to plants. The production of humus in the soil combined with Agri-Gro®'s micronutrients and other growth stimulants provides the following benefits:

- Improves water management within soil.
- Improves soil structure; tilth, porosity and friability.
- Assists in seed germination and early plant growth.
- Improves natural chelation of resident soil minerals and fertilizer materials.
- Aids in the detoxification of pollutants (toxic residues, heavy metals and salts).
- Increases permeability of plant membranes for better water/nutrient absorption.
- Improves development of roots systems.
- Stimulates vegetative growth.
- Improves crop quality and increases yields.
- Improves natural resistance to disease, pests and drought, reducing the need for chemical pesticides and fungicides.
- Stimulates plant metabolism.
- Improves pH-buffering capacity - minimizing the impact of pH extremes.
- Enhances cell division and elongation.

The creation of humus in the soil allows plants to grow in the way nature intended and provides the most optimal growing conditions for plants. Soils with low levels of microbial activity will not be as productive as those with elevated levels of beneficial microorganisms, regardless of the amount of applied fertilizers.

---

[2] Decomposer: Bacteria or fungi that derives nourishment by breaking down the remains or wastes of other living organisms into simple organic compounds.

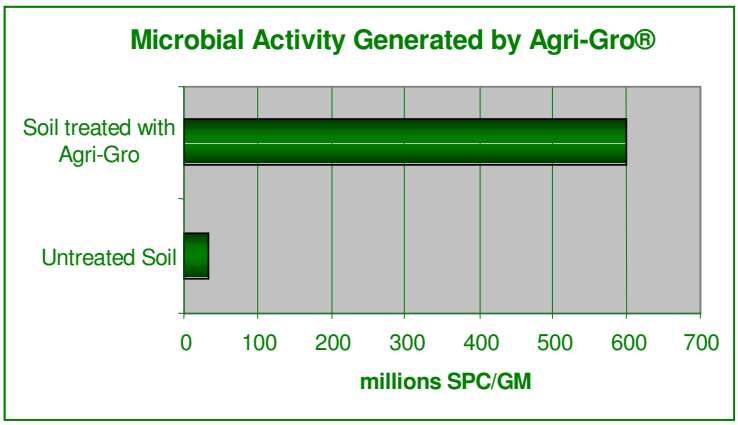
[3] Humus consists of partially or wholly decayed vegetable/animal matter that provides one of the best sources of nutrition to plants and increases the ability of soil to retain water.

Agri-Gro® Increases Microbial Activity

When natural biological activity in the soil is low, partially decomposed organic matter can accumulate, minimizing the soil's effectiveness and increasing the dependence on fertilizers to sustain favorable growing conditions. Agri-Gro® can re-invigorate the natural *biological* process by increasing the populations of indigenous microorganisms in the soil.

"Soil microorganisms stimulate the rebuilding of the soil and often have been observed to do so at a more rapid rate than many other known methods such as crop rotation, mulching, and other soil treatments."

Morning Star Laboratories of Moorpark, California tested soils before and after the introduction of Agri-Gro®. Test results on the untreated soil sample showed microorganism populations to be 31.8 million species per gram (SPC/GM). The soil was then treated with one application of Agri-Gro® and was re-sampled three days later. Microbial activity on the treated sample showed a 2000 percent increase in microbial activity after three days.



Natural microbial activity improves healthy bio-degradation which allows the earth to recycle itself and results in the production of humus; one of the best sources of plant nutrition. The result is increased availability of minerals nutrients as well as proteins, enzymes, antibiotics, hormones and other growth promoting substances that are beneficial to plants. The plant/soil system becomes healthier and requires less fertilizer, less water and produces healthier plants with higher crop yields. .

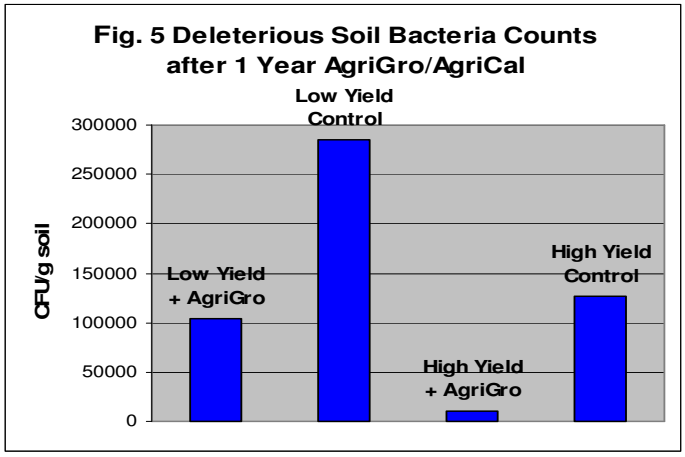
3400% Increase in Microbial Activity

The microbiology division of EMSL Analytical in New York, NY recently investigated the effects of **Agri-Gro®** bio-stimulant and **Agri-Cal®** liquid calcium when applied to soil media. The soil was tested for colony forming units (CFU) before treatment and then ***24 hours later*** after treatment. The CFU/gram of soil went from 5,500,000 to 187,500,000. That is over 34 times more colony forming units per gram than the untreated soil.

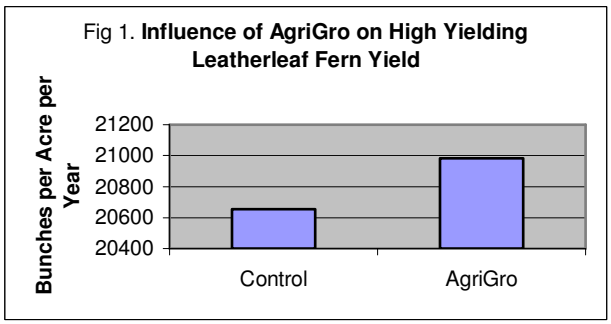
Agri-Gro® Reduces Deleterious Microbes

The numbers of total microbes in a growing environment are not as important as the types of microbes that are involved. Another component of the microbial effects of Agri-Gro® is the ability of this product to reduce diseases. After one year of application, AgriGro®/AgriCal® resulted in a suppression of several groups of bacteria that have been identified to include deleterious microbes. Figure 5 shows the effect of

AgriGro®/AgriCal® on the populations of one group of deleterious Pseudomonas bacteria. These changes represent a 63% reduction in these microbes for the low yielding fernery and 92% reduction in the high yielding fernery. These results are similar for other groups of microbes identified. The average reduction for all bacteria groups evaluated was 76% and as high as 97%. The statistical significance for the effect of the AgriGro®/AgriCal® treatments is $p > .003$, meaning that there is less than 0.3% chance of error in these results.



With leather leaf fern, growth problems have been associated with certain genera of bacteria, primarily Pseudomonas sp., that have been demonstrated to have the potential to produce growth regulators and poisons. Anthracnose is a real problem with leather leaf ferneries throughout the world. Because of severe economic costs of this disease to the leather leaf fern industry, the single greatest potential for AgriGro® may be in the control or reduction of this disease, especially since there are few fungicides available that are effective in controlling it.



Agri-Gro®: Lower Sodium Levels

Testing has revealed that the only mineral to decrease in both soil and plant tissue that was treated with Agri-Gro® is sodium. Since sodium competes with potassium for uptake, high sodium levels can greatly reduce plant growth and yield. The addition of Agri-Gro® can prove extremely valuable in high sodium soils.

Agri-Gro® vs. other Bio-Stimulants

There are several bio-stimulants on the market that range from formulations containing beer, soap, seaweed extract and apple cider, to more sophisticated solutions that actually contain live microorganisms. Some are effective, some are not; however, none are able to compete with Agri-Gro® from a cost / performance stand point. Agri-Gro® utilizes a proprietary stabilization process which allows it to be tank mixed with other fertilizer and chemical compounds, saving the grower on application costs. When stored properly, Agri-Gro has a guaranteed shelf life of 4 years which further separates it from other bio-

stimulants on the market today. .

Performance

Field tests conclude that Agri-Gro® combined with lower amounts of fertilizer consistently outperform full rates of fertilizer alone. While additional competitive research is being performed, consumer testimonials indicate that Agri-Gro® is also more effective than other bio-stimulant technologies, especially when comparing plant health, crop yields and the cost savings associated with lower requirements for water, fertilizers, fungicides, pesticides and herbicides.

Improved Germination and Root Development

Agri-Gro® enhances the germination of most any seed and increases root growth and penetration by up to 50%. The images below display results of a 3 day germination tests on both Alfalfa and Wheat seed.

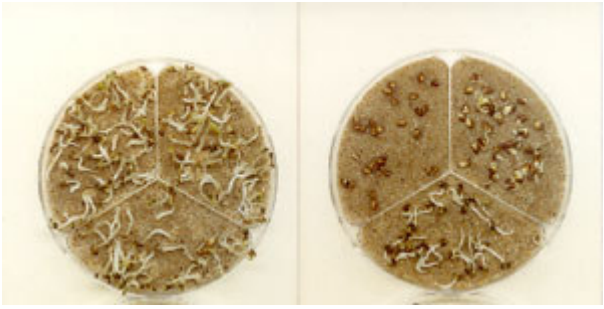


Figure 2 *Alfalfa Sprouts - 3 Day test.*
Dish on the left was treated with Agri-Gro®.

Figure 3 *Wheat Sprouts - 3 Day test.*
Dish on the left was treated with Agri-Gro®.

Cost-Effectiveness

Agri-Gro® is produced in mass quantities and is affordable to growers of any size. Commercial growers often pay for Agri-Gro® with the cost savings realized from their reductions in fertilizers, pesticides, herbicides and fungicides alone.

Shelf Life

While Agri-Gro® is derived from naturally occurring bacteria and fungi, it is stable and has a long shelf life thanks to a sophisticated stabilization process proprietary only to Agri-Gro®. When properly stored in a sealed container, out of direct sunlight, Agri-Gro® will stay in solution for over 4 years without losing its effectiveness. Other bio-stimulants containing live microbes or other organic materials will break down and lose their effectiveness in a short period of time. Agri-Gro® will not!

Field Results with Agri-Gro®

Turf

Agri-Gro®'s Turf Formula® doubled the root mass of **Brigham Young University's** turf in 60 days. Turf Formula® was applied weekly for 60 days to the practice field sod and main football field turf at **BYU's** Lavell Edwards Stadium. The root zone at the beginning of the test measured 1.5" on the football field but increased to 3" within 45 days. The practice field sod, planted in April of 2002 was ready to be harvested by the end of July, 2002. BYU reported a significant decrease in gestation time, improved sod recovery and 100% enhanced root development.

Cotton

Cotton - Agri-Gro® plot produced 119 pounds additional lint/acre over check plot (test replicated 4 times). University of Missouri**.**

Cotton - A single in furrow application of Agri-Gro® produced 77 pounds additional lint/acre over check plot (test replicated 4 times). University of Arkansas.

Corn

Corn — In a five year study, the Agri-Gro® plot with a 15% reduction in N and 33% reduction in P & K rates, increased corn yields by an average of 9 bushels/acre compared to the check plot which received full rates of NPK. Missouri research.

Corn— Agri-Gro® increased corn yields by 14 bushels/acre at University of Missouri's Management System Evaluation Area (MSEA) University of Missouri

Rice

Rice — In a five year study, Agri-Gro® increased rice yields by an average of 11.4 bushels/acre despite a 25% reduction in fertilizer rates compared to the check plot which received full rates of NPK. This represents an average of $55.81/acre more net profit each year. Missouri research.

Soybeans

Soybeans — In a five year study, Agri-Gro® increased soybean yields by an average of 8 bushels/acre despite a reduction in P & K fertilizer rates by 33% compared to the check plot which received full rates of P & K. This represented an average of $51.03/acre more net profit per acre each year. Missouri research.

Cantaloupes

2002 Arizona research involving the # 2 and #3 largest growers in USA showed an increase of 152 more boxes per acre (19%), and 87 more boxes per acre (9%) respectively with additional improvements in size and fruit quality. Del Monte Fresh Produce Inc., Dresick Farms, Inc.

Watermelon

Watermelon — In 'Jubilee' and 'Crimson Sweet' varieties, Agri-Gro® produced 243

more melons/acre weighing an additional 5,940 pounds over the check plot (test replicated 6 times). University of Tennessee.
Watermelon – Fertilizantes Tepeyac – Mexico: In a replicated study, the Agri-Gro® treated plot increased watermelon yields by 22% compared to the control plot receiving no Agri-Gro®.

Tomatoes

Tomatoes — Agri-Gro® increased yields by 122% in weight and 104% in numbers in "Husky" tomatoes (test replicated 4 times). SEMO State University.

Tomatoes – Fertilizantes Tepeyac – Mexico: In a replicated study, The addition of Agri-Gro® increased tomato yields by 68% compared to the control plot. 4 applications of Agri-Gro® applied.
Conclusions: The Agri-Gro® plot out yielded the control plot resulting in a significant increase in grower revenue. The Agri-Gro® treated tomatoes also had a longer shelf life compared to the non-treated.

Carrots

Carrots— Agri-Gro® increased yields by 113% in weight and 16% in numbers in 'Fullback' Carrots over the check plot (test replicated 4 times). SEMO State University.

Ornamentals

Decreased insect pressure, quicker root growth, reduced water & fertilizer requirements, with more vigorous plants, Emerald Ridge Nursery and Tree Farm - Stephen Miller- Lake Wales, FL

Potatoes

Potatoes — Agri-Gro® increased premium potato yields by 36.8% and grade A potato yields by 26% compared to the check plot. This represented an increase of $815.00/acre more profit.. Agri-Gro® was applied @ 1 quart/acre with regular spray program. Regular fertilizer and crop protection program was reduced by 25%. A total of 1-gallon Agri-Gro® was used on the crop. Conclusions: Agri-Gro® plot produced 5,500 lbs./acre more potatoes. Cooperator stated that the check plot was historically the best potato bed. Records for this plot dated back to 1946. Wetumpka Fruit Co, Florida

Potatoes- 2002 Fertilizantes Tepeyac, Mexico - In a replicated study, Agri-Gro® increased potato yields by 21% over the check plot. The Agri-Gro® plants were more vigorous, uniform, and produced more uniform tubercles." At $4.00/cwt. the grower would have made $284.00 more profit per acre or $710.00 at $10.00 /cwt.

Onions

Onions — Agri-Gro® increased yields by 93% over the check plot (test replicated 4 times). SEMO State University.

Onions

Onions — In a study comparing 16 different growth additives, Agri-Gro® came out on top in all areas, producing the highest yield, grade and profit of $633/acre more than the check plot (test replicated 6 times). Oregon State University.
List of other companies and products tested:

- Ag Concepts— Agzyme, Humaide, Jump Start, Kelp Treat
- Dynamite Marketing — Humi-Zyme RX
- Horizon Ag-Products — Agri-Plus, Quantum-H
- Huma Gro — Blend, Superphos, S, Cu, Ca, Pop-Up, Vitol
- Kozgro — Kozgro
- RSA Microtech — RSA Humic Acid
- UAP Northwest — Awaken

Garbanzo Beans

Garbanzo Bean- In a replicated study, the Agri-Gro treated plots yielded 20.8% more (402 lbs./acre) with better vigor and plant health. Tepeyac Agronomist, Hector Coronado B.

Snap Beans

Snap Beans — In Roma II and Hialeah varieties, Agri-Gro® increased yields by 17.4 bushels/acre over the check plot. This represents an increase of $144.25/acre in net profit (test replicated 6 times). University of Tennessee.

Squash

Squash – In a replicated study, Agri-Gro® increased squash production by 6,428 pounds per acre resulting in a 53% yield increase over the untreated check plot. Fertilizantes Tepeyac - Mexico

Peppers

Chile Peppers – Fertilizantes Tepeyac, Mexico – In a replicated study, Agri-Gro® improved quality and increased pepper yields by 27.5% over the control plot.
Cayenne Peppers – Fertilizantes Tepeyac, Mexico – In a replicated study, Agri-Gro® improved quality and increased pepper yields by 32% over the control plot.
Sweet Peppers - In a replicated study, Agri-Gro® improved fruit size and increased pepper yields by 21% over the control plot. Northern Valley Farms – Jamaica W.I.

Pecans

Stuart Pecans – 83% increase in production over two year period compared to standard Auburn University recommendations, Byrd's River Bend Farms, Inc., Lowndesboro, AL.

Sugar Cane

Sugar Cane – By making only 2 applications of Agri-Gro®, sugar cane yields were increased by 27.5% over the control plots receiving no Agri-Gro®. Holland Estate Ltd. St. Elizabeth, Jamaica W.I.

Coffee

Coffee – Variety: Geisha – Mount Airy Farms, St. Andrews, Jamaica W.I.
By making 4 foliar applications of Agri-Gro®, coffee yields were increased by 34% compared to the control plots receiving no Agri-Gro®.

Agri-Gro®'s Impact on Water

Real world experience has shown that the addition of Agri-Gro® as part of a comprehensive fertilization program may help reduce water consumption in some cases by as much as 30%. While the exact water reduction will be affected by many variables, this report reveals Agri-Gro®'s ability to enhance the "water use efficiency" of plants.

Agri-Gro® is able to improve the water efficiency of plants in the following ways:

- ✓ **Increase in root mass; improving water uptake and absorption.**

  Agri-Gro® increases the availability of phosphorus and other essential plant nutrients in the soil. Phosphorus is important in root growth and development. With increased root growth, there is a larger root surface with which to take up water and other nutrients, making the plant more efficient. With a more extensive root system, the roots occupy a larger volume of soil, which in turn, increases the volume of water available to the plants.

- ✓ **Better water regulation and retention within the plant.**

  Agri-Gro® influences other essential plant nutrients making them more available to plants. For example, Agri-Gro® increases potassium levels in the plant. Potassium regulates water uptake by controlling transpiration through the leaves. Potassium also helps to move nutrients into and within the plant. Other plant nutrients, such as calcium, influence the thickness of cell walls and also the thickness of the cutin layer on leaves, stems and fruits. The cutin layer is the waxy surface on plants that reduces water loss. This effect can readily be observed by comparing the dew retention of plants treated and untreated with Agri-Gro®.

- ✓ **Improved porosity, friability and drainage in the soil.**

  Agri-Gro® increases the porosity of many soils and makes the soil looser. Roots have difficulty penetrating heavy clay soils. Agri-Gro® increases the friability (looseness) of soils and allows roots to be longer, deeper, and more branched. This increased root growth increases the surface area of the roots and the volume of soil and amount of water available to the plant. Another aspect of increasing friability is that with increased air space, the water holding capacity of the soil also increases. Thus, there is more water available to the roots in a given volume of soil. As the soil becomes more porous, water drains from the soil more easily.

While this would appear to have a negative effect on water conservation for lawns and gardens, it does not. Plant roots require oxygen to grow and thrive. They require oxygen to be able to take up plant nutrients AND water. If the soil around the roots is too wet (a condition called "wet feet"), the plants do not have enough energy (from respiration) to take up water. That is why over watering can cause a plant to wilt! Poorly drained clay soils tend to become wet and stay wet, making it difficult for plants to take up water. What is needed is a balance between water and air in soil pores. Agri-Gro®, by increasing friability, porosity, and good drainage helps increase the water efficiency of plants and contributes to water conservation.

- ✓ **Reduction in sodium levels; increasing water retention and absorption.**

Another issue related to water conservation involves water quality. Research findings have validated that Agri-Gro® reduces sodium levels in soils and in plants. Additional research has shown that Agri-Gro® reduces the SAR (sodium absorption ratio) of water. This is important in the arid or coastal parts of the country where water high in salts is used to water lawns and gardens. High salt concentrations in the soil reduce the ability of plants to take up water. Reducing sodium levels in the soil will help plants better utilize available water, and may even allow the plants to tolerate water that is higher in sodium levels. More research is needed on this interesting aspect of Agri-Gro®, but the use of Agri-Gro® in this way is very promising.

Summary

Agri-Gro® is designed to safely promote plant growth and health, improve soil conditions and enhance water conservation.

Mfg. by:

Agri-Gro Marketing, Inc.
HC 4 Box 333
Doniphan, MO 63935-9312

573-996-7384
FAX 573-996-4769
www.agrigro.com
info@agrigro.com