



## **GWT Series Agro-Z<sup>(tm)</sup> Agricultural Applications**

Zeolite based fertilizers are known to be "smart fertilizers" due to the high cation exchange capacity (CEC) and porous crystalline structure.

Zeolite is the only negatively-charged mineral in existence in the world, for these purposes it has therefore has significant uses across a wide range of applications and in particular in Agriculture applications. Zeolite has a known ability to act as a natural slow release mechanism of nutrients to the root zone of new plant seeds thereby increasing the strength and performance of the plants.

Our unique GWT series Agro-Z<sup>(tm)</sup> medium provides the following benefits for agriculture users which leads to significant improvements to overall crop yield:

- Enhances alkali metal equilibrium
- Improves root development
- Ability to hold soil moisture
- 100% natural with no inherent nutritional value which can be used for organic farming operations
- Enhances plant germination and consistent growth of grasses and grains.
- Captures and regulates the release of nutrients from either compost or fertilizer into the soil
- Capability of Absorbing or trapping toxic contaminants within its molecular structure
- Provides buffering capacity by balancing the pH in soil
- Lowers effects of alkalinity
- Improves soil aeration
- Provides an good medium for microbiological activity

The process listed above assists in providing an environment for a healthy seedling reducing the necessity to apply pesticides in the soil.

There have been many studies that have shown that zeolite enhancement of contaminated soils can actually promote healthy germination and growth that has even exceeded the growth rates of the uncontaminated control soil in the studies.

Nutrients are provided to the root through the slow-release mechanism and the plant derives the nutrients from the root in this demand relationship. The absorption of nutrients from the soil solution by plant roots drives the dissolution and ion exchange reactions, using nutrients as needed. The media is then regenerated by the addition of more dissolved nutrients. Using our particular Agro-Z medium in an agriculture application can increase nutrient retention, reduce nutrient loss and contamination by fertilizer nutrients into

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the ground water and surface water supplies. Additionally, fertilizer requirements are reduced by established a balanced nutrient supply in the plant root growth zone.

GWT Agro-Z medium has one of the highest cation exchange (CEC) capacities of all zeolites available today. This ability improves the structure of the agricultural soil by its particular enhanced uptake for potassium and ammonium. The large surface area and the selectivity for potassium and ammonium assists to provide a soil buffer and prevent toxicity which can occur with excessive levels of ammonium. This (CEC) capability can also allow the agricultural user to purchase a less expensive strength of nitrogen and use it in larger applications with less frequent dosage intervals during the growing seasons.

In summation, the retention and slow release mechanism of our GWT series Agro-Z medium enhances the utilization of nutrients provided by the fertilizer which reduces frequency of fertilization and improves overall agricultural crop yield. Increased usage of manure and bio-organics can be also be well matched with our product as well.

The utilization of Agro-Z combined with fertilizers drastically reduces the loss of nutrients to ground and surface water sources, thereby reducing pollution of lakes and other surface water sources causing harmful algae blooms, etc.

### **Typical Application Dosages**

GWT Agro-Z medium is easily applied at a rate of about 4.5 to 11% (by weight) along with the current fertilizer used by the grower. Therefore, the grower would simply replace 4.5-11% of the total quantity of fertilizer with our product for this application.

This dosage process will typically reduce operational costs and increase yield for the growers per acre farmed.

For conditioning of the top of the soil, approximately 31 to 61 pounds should be applied per 1,000 square feet or about 1,240 to 2,550 pounds per acre. To enhance soil aeration after plugging of plants, apply 65 to 155 pounds per 1,000 square feet or 2,550 to 6,550 pounds per acre.

Another approach would be to mix our Agro-Z medium in the top 4 inches of the soil layer with a farm tool or similar device. The medium does not need to be plowed into the soil, this is not necessary and is not optimum.

For grasses and crop, successful results have been actualized with as little as 2000-2200 pounds per acre. Typically, from 2 to 10-11 tons per acre are used based on the composition of the specific soil being treated. Our Agro-Z medium can be dispersed by a typical soil spreader, hand spreading or by another similar device.

After treatment, the area must be irrigated, because a new application of our Agro-Z product will absorb moisture from the adjacent soils and can lead to water dehydration of plant or grasses of surrounding areas.

This media is sold and shipped in 55 US pound bags on pallets of 40 bags per pallet or in 2200 US pound super sacks per pallet. The minimum bulk order is 1 container or truckload of 10 pallets or 20 pallets.

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