

## Frequently Asked Questions

### General

**Why use Liquid “Gypsum” (LG) instead of other calcium amendments?** There is no other calcium amendment that uses a water soluble polyacrylamide to enhance the effectiveness of the calcium by three times. The calcium and polyacrylamide along with a wetting agent and soil penetrant will create the pore space needed for leaching salts, root growth, aeration and improve turf quality.

*Three different chemistries... make an immediate difference*

**Why should I use LG instead of tradition dry gypsum?**

Because the calcium in LG is in a liquid form it will start to work immediately unlike dry gypsum which can take months and years to see the effects. It does not require aeration and over watering to work it into the soil. Due to its water solubility, LG contains 120,000 ppm of free exchangeable divalent calcium cations in comparison to about 1,000 ppm in dry gypsum.

**I have already applied dry gypsum this year.** The common application rates for dry gypsum do not provide enough free calcium to make a substantial difference in soil structure. Because it is a liquid, LG can be applied at rates that can make an immediate difference.

**What if I am currently using organic amendments?** LG can be used in conjunction with other soil amendments. Organic material tends to be slow release while LG will start to work immediately.

**How does LG leach salts?** Once the soil structure has improved and the pore spaces have increased, the water movement through the soil will carry the salts down past the root zone.

**Can I fertilize at the same time I apply LG?** Although LG cannot be tank mixed with phosphate or sulfur fertilizer, it can be applied over the top of a granular fertilizer.

**When should LG be applied?** It can be applied any time of year as long as the ground is not frozen.

**Can I apply LG to bare dirt before I lay sod?** LG can be applied directly to bare ground in preparation of sod or seed. It does not need to be tilled in for it to be effective. Using LG is very beneficial to the initial rooting that takes place.

*Top Performer in recent ongoing research*

**My turf looks fine. Why should I use LG?** Even if the plant is green, using LG will improve root growth and soil structure therefore reducing the amount of water and fertilizer requirements. In times of drought and water restrictions, the improved root growth can allow the plant to thrive under stress.

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**Will LG help my avocado grove?** Yes, besides improving root growth, LG will decrease the root rot associated with the avocado plant. The calcium in LG has many benefits for fruit, berry and vegetable growers.

**Would a soil test be helpful in determining how many applications would be needed?** A soil test showing either SAR (sodium adsorption ratio) or ESP (exchangeable sodium percentage) would be a great tool in determining the current soil condition.

### Application Methods

**How is LG applied?** Any type of sprayer will work – backpack, handheld, or boom sprayer. For small areas or spot treating, the convenient quart RTS can be attached to any hose. LG can also be applied through fertigation systems.

*A true liquid—  
no clogging of  
filters or nozzles*

**What is the recommended water dilution rate?** Ideally, at least a 1 part LG to 2 parts water but LG will be effective at as long as recommended coverage rates are used.

**Can I microfeed LG through a fertigation system and tank mix a fertilizer?** Using a fertigation system is an ideal way to apply the product. LG can be mixed with a nitrogen fertilizer but should NOT be mixed with any phosphates or sulfates.

**Can a garden hose proportioner system be used?** Yes, it would be best to set at the highest ratio to get the product applied in a timely manner.

**Will LG clog the emitters on my drip system?** No, LG is a true liquid and will not clog emitters or screens.

**Do I need constant agitation or mixing?** LG easily mixes with water and does not require extra agitation for application.

**How can I apply LG to my tree plantings?** LG can be mixed in a bucket at 2 fluid ounces per gallon of water and poured around the base of trees.

### Application Rates

**What is the application rate?** The application rate is 32 ounces per 1000 square feet. Monthly applications are recommended until the optimum soil structure is achieved.

**I apply dry gypsum only once a year after aeration. Why do I need monthly applications?** The key to achieving good soil structure is to provide enough calcium to overcome the sodium that is present in the soil. Depending on the initial condition

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of the soil, the use of LG monthly will provide enough calcium to increase pore space. This allows for better root growth, efficient fertilizer use, and increased water and air movement. The improvement in overall plant health will be noticeable in a short time.

**What if I have heavy clay soil?** For severe soil problems, the application rate can be doubled or even tripled with no harmful



Available in 1 gallon,  
2.5 gal., 55 gal. 275 gal.

## Polyacrylamide (PAM)

### Is Liquid "Gypsum" and PAM new to the landscaping industry?

The formulation of Liquid "Gypsum" is relatively new to the landscape industry although different forms of PAM have been used as a soil conditioner for around two decades. The water soluble PAM in Liquid "Gypsum" is the latest improvement in polymer technology and improves the ease and uniformity of application when used as a soil conditioner. The one-two punch of calcium and PAM along with a wetting agent and soil penetrant has made Liquid "Gypsum" the most effective and fast-acting soil conditioner available.

### Will PAM swell up in the soil?

The PAM in Liquid "Gypsum" is a linear water soluble form that reacts with clay and works as a soil conditioner. It will not swell up in the soil and should not be confused with cross linked polymers or gels that are commonly used in soil to hold water.

### Does calcium and PAM do the same thing to improve soil?

The calcium and PAM in Liquid "Gypsum" complement and work together synergistically in conditioning the soil. PAM will not replace the need for calcium and calcium cannot replace the need for PAM. The calcium requirement should not be reduced when PAM is used because PAM cannot replace exchangeable sodium when it is high but PAM can add to the effect of the calcium to flocculate the soil. If calcium is underused, however, PAM will still improve the sodic soil. The first use of calcium is to decrease the effect of too much sodium. The next use is to decrease the bicarbonate in soil and water. The third use is to help aggregation and to maintain a favorable salt balance. PAM can help aggregation (and aeration) but it cannot make a better salt balance by itself. That is where calcium comes in to magnify the effect of the PAM.

*Research shows that calcium and polyacrylamide used together increase the effectiveness of each other by three times.*

# Research Findings



Urban Landscape Irrigation with Recycled Wastewater:  
Water Quality and Salinity Issues

Yaling Qian  
Colorado State University

Research Project at CSU

**Management Options for Mitigating Sodium Stress in Effluent Irrigated Turfgrass Systems**

Sponsored by the City of Westminster, Denver Water, Plum Creek Water Authority, and Castle Pine Golf Club

Treatments:

	1	2	3	4	5	6	7
Treatment	Gypsum	Calcium chloride	Humate	Mycorrhizae (VAM)	Humate + Gypsum	VAM + Gypsum	Control
Application Rate	50 lb/1000 ft <sup>2</sup>	1qt/1000 ft <sup>2</sup>	15 lb/1000 ft <sup>2</sup>	1.4 lb/1000 ft <sup>2</sup>	1+3	1+4	No amendment

**Preliminary Findings**

- Soil texture is playing a dominant role;
- Mycorrhizae treatment did not help to reduce sodium problems and improve turf quality, but enhanced soil redox status;
- Gypsum (CaSO<sub>4</sub>) treatment enhanced leaching of Na, but did not improve turfgrass quality;
- Calcium chloride treatment helped to reduce Na accumulation and increased turf quality in both greenhouse and field studies.

**Salinity Guidance**

Presented by: Nicole Adams, PE  
Plum Creek Wastewater Authority

**Study Summary**

- Directed by Dr. Yaling Qian from CSU
- In its 2<sup>nd</sup> Year. 3yrs Total

**Objective of Study:** To compare the effectiveness of several different management options in reducing soil sodium content, improving turf grass growth and quality, and increasing soil aeration and percolation.

**Study Progress**

- From greenhouse experiment: Soil texture appears to play a dominant role in experiment. Sandy soils appear to exhibit much greater turf grass quality under reuse irrigation. Clay soils tend to have poor trigrams quality under reuse irrigation.
- After several months of study cores treated with calcium chloride exhibited better turf quality than gypsum treatment and mycorrhizal inoculation.

**Study Progress**

- Results from field experiment:
- During mid-summer months humate treatment had higher turf quality than the control. Several months after initiation of the experiment, plots treated with calcium chloride exhibited better turf quality than gypsum and gypsum+humate treatments.
- Final results will be available for public review.