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*The Official Publication of the Texas Nursery & Landscape Association*

# WATER IQ



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# Got Clay? Well I got the cure!

**EXPANDED SHALE? NEVER HEARD OF IT? WELL, YOU BETTER ADD IT TO YOUR VOCABULARY BECAUSE I GUARANTEE IT WILL BE AN INTEGRAL PART OF TEXAS HORTICULTURE FOR MANY**

years. A few years back I inherited some truly nasty soil in test gardens at the Dallas Arboretum. One of our contractors had filled my beds with that bane to Texas horticulture, clay! Sticky, glue-like when wet and hard as concrete when dry, black-land gumbo clay. My choices were limited, either dig the whole area out or add an amendment. My first choice for ANY soil problem is to add well-composted organic matter, but in this case the soil really needed something more to help it drain. Also, compost breaks down quickly in our high heat and humidity; was there something that I could add once and solve the problem?

By  
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Turner

I had heard about a new amendment called expanded shale while visiting my friends at the Texas A&M experiment station in Dallas, Texas. Dr. Steve George and Dr. Wayne MacKay were testing the material for improved drainage in clay soils. They had great results, and I believe Dr. George's quote was, "Even though I dearly love fully finished, plant-derived compost, if I were limited to only one application of one soil amendment with which to open up heavy clay soils, I would take expanded shale and never look back!" According to the research from TAMU, expanded shale not only increases soil porosity, but also reduces compaction, insulates from temperature extremes, and absorbs 38 percent of its weight in water to release later during drought periods.

Well I had to try some! Expanded shale sounded like just what I needed. A soil amendment that improved drainage, slowly released water, and didn't break down! I added it to our sticky gumbo-clay beds and my problems were solved. Immediately after tilling, I had friable, soft soil that drained exceptionally.

Not only did my plants grow better, but I have to say that there is just something wonderful about being able to slip a shovel easily into Texas soil, an experience I haven't had many times in my life. Even after torrential flooding of 11 plus inches of rainfall, the beds with expanded shale incorporated into them are easy to dig in.

## So just what is expanded shale?

Shale is fine-grained sedimentary rock formed from clays or mud. When heated to 2,000 degrees Celsius it expands, or puffs, and is called expanded shale. This leaves a porous, lightweight material roughly the size of pea gravel. When expanded shale is added to soil, there is no net change in pH or nutrient levels. Due to the porosity of the material and the large 1/2-inch aggregate size, it improves soil drainage as well as holds water during periods of drought.

Since expanded shale is basically stone, it does not break down like organic matter, thus it is a long-term investment compared to compost. A lifetime of 10 years in the soil is the conservative estimate—not a bad investment for the cost. According to Dr. George, "Based on a two-year research study and six years of field trials, I feel that expanded shale will open up and aerate heavy, sticky clay soils faster than any material that I have ever tested. Due to its porous nature, it provides aeration from within the shale particles and, in poorly aerated clay soils, resulted in a more extensive and healthier root system than did other treatments being tested."

## How do I use it?

An optimum recommendation in clay soils is to add a minimum of 3 inches. The easiest method is to till the area, till in 3 inches of expanded shale to a depth of 6-8 inches, then additionally till

in 3 inches of well-composted organic matter on top of that. The addition of the expanded shale and organic matter should raise the bed, which will also increase drainage. So you want to be cheap and only add 1 inch of expanded shale? In my opinion you should never short yourself on soil amendments. It would be like cutting back costs on the foundation of your house. Future plants grown in that soil will be directly affected by the initial "foundation" you built. Do not make the mistake of spreading expanded shale over the soil surface like mulch, and expecting improved drainage. If it is not incorporated into the soil it will not improve drainage. If you have sandy or loam soils, expanded shale will not be a necessary addition to improve drainage, but its water holding capacity may be an added bonus.

Another use for expanded shale is in large containers. It increases drainage and also reduces weight. The recommended rate is 50 percent mixed with potting soil. I have found that this is one of the most effective methods for growing cactus or agaves in pots, which suffer from slow draining soils.

Expanded shale is available in bulk or 40 pound bags from your local nursery or soil supplier. To make installations easier, expanded shale is also available pre-mixed or custom blended.

Over-watering and poor drainage are most likely the cause of more plant death in Texas than any other cause. If you have poor draining soil then expanded shale is a miracle cure! Finally, we have a good solution for sticky clay soils that isn't temporary. It has performed so well that it is now an indispensable component of our standard soil improvement regimen at the Dallas Arboretum. ☺

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