Polyacrylamide (or PAM as it is also known) is marketed in many areas as a soil additive used to increase a soil’s water holding capacity. It is a synthetic compound that is typically sold as soft, translucent granules or beads. PAM is usually incorporated into the soil to the depth of the root zone. When the amended soil is irrigated, PAM absorbs water, expanding slightly as it does so. PAM releases water back into the soil as the soil dries out, extending the amount of time in which water is available to plants. This may allow irrigations to be applied less frequently.

PAM does not reduce the water requirement of landscape plants. Amending the soil with PAM simply helps the soil capture more water – it does not affect the plant physiology in any way.

### Application Rates & Costs
Typical application rates for PAM are 5 to 9 pounds per 1000 square feet for sandy soils, 12 to 16 pounds for loamy soils, and 20 pounds for clay soils depending on product. Granular PAM costs $2.00 or more per pound. The material cost would be approximately $10 to $40 per 1000 square feet ($435 to $1,742 per acre) depending on soil type. PAM breaks down over time and will need to be reapplied every three to five years. A cost analysis on application expense (product and labor) versus watering costs (with and without PAM) will determine if PAM would be a good investment for a landscape. These costs should be compared to other amendments, especially organic matter since sufficient quantities of organic matter will increase soil water holding capacity as well as increase the cation exchange capacity of the soil. While PAM is most effective when incorporated into the root zone, sometimes this is not possible (for example, existing lawns and established ornamentals). Instead, these areas may be top-dressed with PAM at labeled rates.

PAM is commonly used as an amendment in contained plantings such as trees placed on city squares, raised beds, beddings in medians, and potted plants. For ease of use, bags of potting soil amended with PAM are available at many stores in which garden supplies are sold. Regardless of its use, always follow instructions on the product’s label to ensure maximum performance.

### Summary
PAM increases the water holding capacity of the soil, and therefore may reduce the frequency in which irrigations need to be applied. PAM can potentially reduce the amount of water leaching past the root zone if more water is historically applied than the soil type can hold. It is most effective when incorporated within the soil to the full depth of the root zone. PAM is not permanent, but will degrade over time. PAM will not change the actual water use of plants in the area.

Adapted from the 2007 South Carolina Master Gardener Training Manual.
This information is supplied with the understanding that no discrimination is intended and no endorsement by the Clemson University Cooperative Extension Service is implied. All recommendations are for South Carolina conditions and may not apply to other areas. Use pesticides only according to the directions on the label. All recommendations for pesticide use are for South Carolina only and were legal at the time of publication, but the status of registration and use patterns are subject to change by action of state and federal regulatory agencies. Follow all directions, precautions and restrictions that are listed.