# Result Demonstration Report

**Ornamental Landscape Grasses-Heat & Drought Tolerance**

**Texas A&M AgriLife Extension-Fort Bend County**

**Cooperator: Fort Bend County Master Gardener Association**

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## SUMMARY

As part of our Statewide efforts in Earth-Kind Landscape practices, which focuses primarily on landscape water conservation, this ornamental grass trial searched to find out which commonly available ornamental grass selections perform well, even under extreme heat and drought pressure with no or limited applied irrigation. Secondary outcomes from this project also provided us with information on each selection's ability to overwinter in the landscape, and as well, whether or not they have the tendency to reseed in the landscape. Phase one of this trial began in 2014. We collected continual data as we moved into phase 2 and 3 of this project. Now, in July of 2018, we have constructed our final report and local result publication.

## OBJECTIVE

Following the predefined Earth-Kind Landscape Practices, we tried to isolate the top landscape performers (top 75% highest rated). These principles that guide our decision-making included site selection, use of compost at planting, efficient irrigation (in our case, drip), and the use of a thick organic mulch on the surface. In defining "top performers", we use two main variables of heat and drought tolerance to lead the decision making process. The site location that we chose, which is on a west facing view between a metal building and an asphalt parking lane, allowed us to maximize the visual effects of heat and drought stress. An unintended variable was the weeks of rain brought about by Hurricane Harvey, which tested all of our Ornamental Grasses.

## MATERIALS AND METHODS

Prior to the beginning of this project, the site needed to be prepared. There was a large mixture of existing plant material that was removed and all debris and root material discarded. Once the bed was cleared, we added a layer of finished compost and had it cultivated into the existing soil. The previous planting bed utilized stationary spray head irrigation at the back of the bed. This was converted to a low volume irrigation system. We chose half inch rigid drip line to convert to, as it holds up well and is easy to maintain. Conversion heads were installed, as well as pressure indicators and flush valves. Once the drip irrigation installation was complete, we planted our Phase 1 ornamental grasses. Among these

were 72 different types or cultivated varieties. Most of the selections were donated by our partner growers both Greenleaf Nursery and The Color Spot Growers. Each plant was given a 2 foot by 2 foot area. Once the plants were installed, a 4 inch layer of native wood mulch was applied to the surface, covering the drip lines. Each plant was labeled with a sign that stated the common name, scientific name, and a web link for more information on that particular species or variety. The trial beds were irrigated two days a week, while they were establishing. Once established in about 4 weeks, the irrigation was shut off and no additional supplemental watering was done.

**RESULTS AND DISCUSSION**

We chose the top 12 Ornamental Grasses from the 2014-2016 study and moved them to a place where they became a demonstration garden.

1. Melinis nerviglumis (Ruby Crystals Grass)
2. Pennisetum alopecuroides 'Hameln' (Fountain Grass)
3. Pennisetum 'Princess Caroline' (Purple Fountain Grass)
4. Andropogon Scoparius (Little Blue Stem)
5. Panicum Virgatum, 'Shenandoah' (Switchgrass)
6. Cymbopogon sp. (Lemongrass)
7. Muhlenbergia capillaries (Pink Muhly Grass)
8. Miscanthus sinensis (Maiden Grass selections)
9. Dianella tasmanica variegate (Variegated Flax Lily)
10. Carex phyllocephala (Sparkler Sedge)
11. Anthericum saundersiae (Shooting Star Lily)
12. Chrysopogon zizanioides (Vetiver Grass)

In the area where we did the original trial, we used the same process we used in phase 1 to study 42 Ornamental Grasses gathered from nurseries here and beyond our county.

## Grass Trial Project Results Excel File

PHASE II RESULTS AND DISCUSSION

These grasses had variables which tested them beyond drought tolerance. In a procedure intended to establish the quality, performance, and reliability through heat and drought, we had variables we had not considered. We had an unusually hard freeze in 2017 and weeks of rain due to Hurricane Harvey, which subjected them to cruel circumstances. Though grasses tend to be disease resistant in normal circumstances, some were lost to Scale, perhaps weakened by the extremes. Our favorite phase 2 grasses which thrived, despite the extreme conditions are below.

1. Juncus effuses (Common Rush) 

2. Panicum virgatum (‘Dallas Blues’ Switchgrass)

3. Cortaderia selloana (Pink Pampas Grass)

4. Miscanthus sinensis ‘Variegatus’ (Variegated Maiden Grass)

These 4 grasses will be added to our demonstration garden.

The top 12 performers in the original 72 grasses tested are still showing their resilience, even after the extreme weather conditions.

## CONCLUSIONS

Beyond examining this selection of ornamental grasses for heat and drought tolerance, many secondary landscape traits came forth from the investigation. As noted, several of these selections tended to reseed in the beds the following year. For some, this may be a positive attribute, but for others, not, as they tend to become nuisance weeds. Many tended to lodge, which means they grow tall and begin to fall over onto

surrounding plants. As well, a large percentage tended to develop winter thatch that needed to be removed prior to spring growth.

As we progress with this ongoing project in to Phase 3, we will be experimenting with different plant spacing to allow more room for all plants. As new species and selections continue to become available from growers, we will work to add new introductions to the trial. This is in an attempt to include all available ornamental grasses, as well as 'grass-like' plant material.

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