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RESEARCH NEWSFLASH

"Amazing"88-Day Drought Hardiness Found in Bluegrass

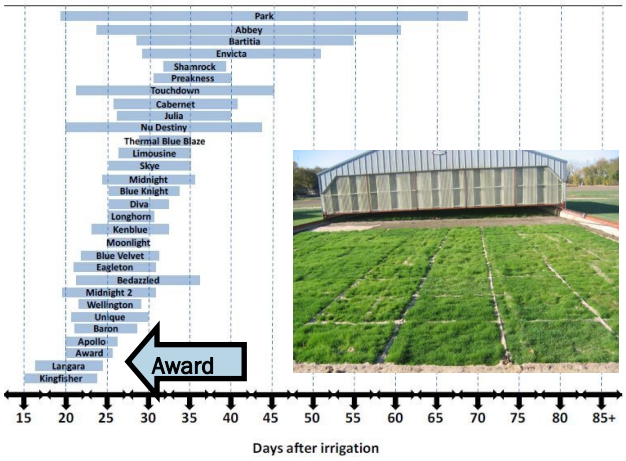
by Doug Brede, Ph.D.

Researchers Tony Goldsby, Dale Bremer, Jack Fry, and Steve Keeley at Kansas State University used an automated movable greenhouse on wheels to discover that Kentucky bluegrass has the capacity to fully recover after an 88-day drought, and completely fill in within a month. Their findings fly in the face of other turf species claiming to be superior in drought hardiness. When it comes to long-haul endurance and survivability, Kentucky bluegrass is unmatched.

"Overall, the amazing recuperative ability of all 30 bluegrasses was noteworthy, because all entries eventually recovered even after severe, prolonged drought in both years," the researchers concluded.

"In both years [2010 and 2011 when drought was imposed], green coverage declined the fastest in 'Blue Knight,' 'Cabernet,' 'Kenblue,' 'Limousine,' and 'Touchdown,'" they wrote.

Perhaps more important was how fast the grass recovered once moisture arrived, or *Continued page 2*



2011 results from Kansas State University rainout shelter of 30 Kentucky bluegrasses exposed to drought for 88 days in 2010 and 60 days in 2011. Results show speed of recovery after drought; smaller numbers indicate quicker recovery once moisture was replenished. Overlapping blue bars indicate where entries are statistically identical at the 95% level of confidence. 'Award' greened-up in half the time as some other bluegrasses.

2015/16 Grass Seed Forecast

by Glenn Jacklin and Rick Dunham

Moisture in most areas of the Northwest is marginal, as we experienced minimal rainfall in the fall and minimal snow pack. Timely rains through June will be needed to bring the crop along. The following is a species breakdown of what to expect for 2015:

Kentucky bluegrass. New seedings of bluegrass from low-end to elites look very good in our irrigated production area of the Columbia Basin. With an extended fall and open winter, growth was more than normal and for that we are experiencing early disease problems of rust and mildew. Acres of production should be similar to 2014, however yield is shaping up to be good, and hopefully better than the down years of 2013/14.

In our unirrigated areas, fields that were burned look very good, but maybe 50% of the production had marginal regrowth and growers are now assessing what fields to keep in and which ones to take out due to slow or no recovery. Acres appear to be about the same as 2014. Expect crop to be average at best in this production area with higher prices. Field conditions are dry coming out of winter, and timely rains will be key to bringing this crop along.

Due to successive years of low acres and poor yields, look for supplies to continue to be very tight as inventories will be hard pressed to keep up with demand and look for pricing to continue to stay firm on into new crop and go higher.

Turf type tall fescue. With plantings up in 2014, acres for 2015 are estimated to be up 10%. Crop yields from 2014 crop were good.

Fields coming out of winter in Oregon look good at this time, however like the other production areas, spring is early and winter moisture was light. The fields will again be relying on very timely rains to bring them along and finish them out in July/August. *page 2*

what the scientists called "recovery of green coverage after drydowns." 'Award,' one of the biggest selling varieties in Jacklin Seed's 80-year history, was one of the three fastest at drought recovery.

But no experiment is without its difficulties, especially when it involves tons of moving metal. In 2011, the scientists were attempting to break their own 88-day record from 2010 when mechanical troubles hit: "39 mm [1.5 inch] of precipitation [was] inadvertently received by plots when the rainout shelter failed." The movable greenhouse on rails was supposed to roll into place covering the plots whenever its precipitation sensor felt rain, but something went wrong with the mechanics. Despite the setback they were able to get 60 days of usable drought data in 2011. They will have to wait for another year to determine bluegrass' actual endpoint in terms of drought.

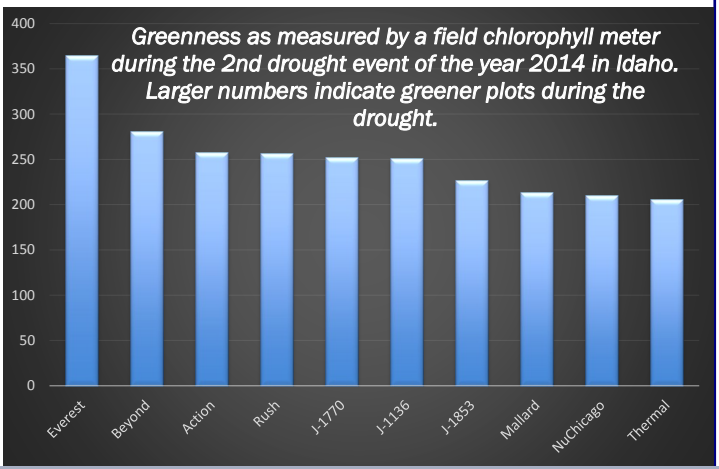
Idaho drought study

In 2012, Christian Baldwin planted a replicated bluegrass drought study on a gravelly silt loam soil in Post Falls, ID – minus the movable greenhouse. Idaho has very reliable summer drought periods, often extending 2 to 3 months in length. It is a great place to study drought.

According to project lead, Margaret Childers, the first drought period of 2014 began July 1 and ended July 25 when a rainstorm came by. It was during this time that we experienced some of the hottest days of the summer, with 12 consecutive days over 90°F beginning on the 6th. During this high stress period J-1136, Rush, Everest and J-1770 (Rush II) had the highest quality ratings. The same four also had the highest green cover as determined by photographic analysis. Plants lose chlorophyll when entering drought dormancy as a survival mechanism.

Annual averages for 2013 show J-1136, J-1853, and Everest had the highest chlorophyll, while Mallard and Action had the lowest. In 2014 Everest and Beyond had the highest yearly chlorophyll, while Mallard and Thermal had the lowest. The latter result is curious because both Mallard and Thermal were marketed for their supposed drought hardiness.

Everest had its own interesting response to drought. During the high temperature period it went dormant and had lower chlorophyll and quality, however when irrigation was applied it recovered quickly and was able to perform best over the second drought period. This same pattern held true in 2014, and Everest had the highest chlorophyll readings for the greenup period and during the second drydown period.



Greenness as measured by a field chlorophyll meter during the 2nd drought event of the year 2014 in Idaho. Larger numbers indicate greener plots during the drought.

Perennial ryegrass. With the softening of other competitive crops, ryegrass acreage appears to be up 10% from previous years. Seedling fields came along well in the fall and most acres coming out of winter look fairly good. Slugs continue to be a real nemesis for growers in the winter, and this year was no exception causing damage to older and younger fields alike. Look for average to good yields if mother nature is cooperative along the way. Supplies seem to be in line with consumption, so we expect pricing to remain firm through the spring into new crop.

Fine fescue. Inventories have come in line with demand, so prices have firmed up, and we look for this species to continue to tighten up on supply and for pricing to remain firm. Some of the fine fescue species are already sold out.

Production levels are tight again going into 2015 crop, so we look for a normal crop to keep pace with consumer consumption levels. These species are predominately produced unirrigated, so we will anticipate normal spring rains to carry them to crop. Fields are dry coming into spring.

Bentgrass. Inventories have stabilized after golf course construction came to a halt in 2008. That sector of the trade has now begun to perk up. Consumption of bentgrass continues to pick up as the trade recovers, and supplies are limited. Some varieties are almost sold out.

New plantings of bent have been on the rise the last couple years as inventory moved out. Fields looked good going into winter, and we look for an average to good crop.

Bermuda. Market is stable to soft due to cold weather in the Southeast and lack of usage. New crop is expected to be flat and may be around 7 million pounds, which means that demand and prices will remain high.

Zoysia. Crop is very small and price very high with zero carryover due to a limited number of seed producers. We expect the 2015 harvest to be similar to the 2014 crop.

Paspalum. Seashore paspalum seed is available. Demand has been increasing because of its performance in high salt and droughty areas.