

A-LIST Research Protocols and Variety Approval

Description of trial/research protocols and variety approval process for the Alliance for Low Input Sustainable Turf

PROTOCOLS FOR A-LIST TRIALS

The following protocols describe the initial A-LIST trials for Kentucky bluegrass, tall fescue, fine fescue and perennial ryegrass.

Trial Cooperators

- Dr. James Baird, University of California-Riverside
- Dr. Cale Bigelow, Purdue University
- Dr. William Meyer/Dr. Stacy Bonos, Rutgers University
- Dr. Grady Miller, North Carolina State University

Trial Establishment and Management

Initial trials consisted of 3 x 5 ft. or 4 x 6 plots. The fine fescues were sown at 3.7 lb. per 1000 ft², Kentucky bluegrass sown at 2.2 lb. of seed per 1000 ft², tall fescue sown at 5.9 lb. per 1000 ft² and perennial ryegrass was sown at 7 lbs. of seed per 1000 ft². Plots were replicated three or four times in a randomized complete block design.

Initial trials were planted in the open. Later trials may be planted under rainout shelters. In the Western USA rainout shelters are not needed because of low summertime rainfall.

Trials for all cool season turfgrasses were planted in the fall, except for the West Coast perennial ryegrass trial which was established in spring 2015.

Fungicides: No fungicides were used except for Pythium control if necessary at establishment to prevent seedlingtamping off.



3x5 trial plots are laid out at Rutgers farm in Adelphia, New Jersey. Seed bed preparation was key to establishment and provided ideal turf plots for evaluation.

Herbicide: No herbicides were used except a single application of mesotrione at establishment if necessary to prevent weeds in seed bed.

Fertility: Minimal inputs. 1.5 lbs. of Nitrogen/1000 sq. ft./yr. to start, 1 lb/1000 sq. ft following spring unless Best Management Practices for low input turf in the state differ (as determined by the university cooperator). The potential number of months of active growth at each location helps to determine this.

Mowing height: Appropriate for species and region.

Evaluation of summer stress tolerance was initiated approximately July 1 (cooperator's discretion regarding local climatic conditions). This timing will allow for evaluating the combined effects of both heat and drought. Withheld irrigation until the last plot(s) have reached 25% green cover then the trials will be re-watered. In the Western US plots were maintained at 60% ET during the summer months.

Trials will be terminated after the second season. New A-LIST trials for each species will be typically begin the year after a trial is completed to continue testing new varieties. A third season may be included by agreement between cooperators and the Alliance.

Data Collection and Analysis

Record of temperature and evapotranspiration (ET) rates.

Turf Quality: Monthly visual rating throughout the year on a scale of 1 to 9, where 9 represented the most desirable turf quality.

Density: Recorded digitally every month after turf is established.

Percent Green Cover: Recorded digitally every month after turf is established during dry-down period % green cover will be recorded a minimum of once per week. Withhold irrigation until the last plot(s) have reached 25% green cover then re-water with an initial 2 inches of water followed by one inch per week watering.

Recovery time: Time to 100% green-up recorded digitally a minimum of once per week.

Additional Data Collection: Other data like disease ratings, etc. was collected at the discretion of the cooperator.

Analysis: All data were subjected to analysis of variance and means were separated using Fisher's protected least significant difference (LSD) test at $p < 0.05$.

Initial Trials

Tall fescue and Kentucky bluegrass: established fall 2013 - 3 sites

- NCSU, North Carolina
- UC-R, Riverside, CA
- Rutgers University, Adelphia, NJ

Fine fescue trials: established in fall 2014 - 2 sites:

- Rutgers University, NJ
- Purdue University, Indiana

Perennial ryegrass trials: established spring 2015 - 3 sites:

- Peak Plant Genetics, Albany, OR
- DLF, Philomath, OR
- UC-Riverside, Riverside, CA

Second Trial: established Fall 2015 - 2 sites:

- Rutgers University, NJ
- Purdue University, Indiana

Trials and data collection run typically run for two years.

Control Varieties for initial tests:

Kentucky bluegrass: Kenblue, Midnight, Merit, Volt

Tall fescue: Avenger, Picasso controls (high drought tolerance in 2001 NTEP), Crossfire II control – 1996 NTEP

Finefescue: Boreal and Pennlawn

Perennial ryegrass: Linn, Divine and Charismatic



PROTOCOL FOR APPROVAL OF A-LIST VARIETIES

The following protocols describe approval process for A-LIST Varieties

Approved Varieties

To become an “A-LIST Approved Variety”, a variety must:

- Have demonstrated superior performance in A-LIST trials as defined by:
 - The top LSD group for drought tolerance as measured by percent green cover for each of two years in at least two locations
 - Acceptable or better turf quality for each of two years in at least two locations
- Have been entered into an NTEP trial for the species. For new cultivars that have met the approval standards for performance in A-LIST trials, final approval will be withheld until the cultivar(s) have been entered into an NTEP trial.

Promising Varieties

Varieties denoted as ‘promising’ are grasses that did well for both drought tolerance and turf quality in the first year of the trial(s) by meeting all of the standards for approval except two seasons of field data i.e. they lack two years of field data at at least two locations as required for full approval. Status as a ‘promising variety’ does not guarantee final approval. Promising varieties are reevaluated after the second season of field data and must meet all of the standards of approval.

Approved Blends

All blends that carry the A-LIST approval must be comprised of:

- A minimum of 65% approved varieties.
- The remainder must be bonafide turf varieties (no forage varieties, no ‘variety not stated’ material, no uncertified common varieties).
- Must include the A-LIST approved tag.

Left: Light box, camera, and portable power source used to collect images for digital image analysis.

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