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# Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. SPRING 2013.

In the spring, at the end of the day, you should smell like dirt. ~Margaret Atwood



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## Inside this issue...

### REGULAR COLUMNS, DEPARTMENTS & SMALL FEATURES

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Opinions expressed in articles published in Sports Turf Manager are those of the author and not necessarily those of the STA.

Deadline for Summer 2013 Sports Turf Manager: May 24

Your email address must be registered with us to log-in to the Members Only Section

- STA Membership Directory  
Like changing your clocks in Spring, routinely check to see if your contact information is up-to-date.
- STA Highlights 2012 presented at the Annual General Meeting February 20, 2013
- Michael J. Bladon Educational Link – Search the Michigan State University's Turfgrass Information Centre

# Sports Turf Manager

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# President's Desk

BY PAUL GILLEN

**A**s I write this, according to the calendar tomorrow is the first day of Spring. It sure doesn't look or feel like it! Does anyone else feel like a great big pot of groundhog stew? I must admit, though, that your association activities have certainly made the time pass quickly.

We've just concluded the annual Ontario Turfgrass Symposium and the program was excellent. If you weren't able to make it this year, we are pleased to bring you some of the highlights in this and upcoming issues of your magazine. Take the time to read the articles as they are both interesting and educational.

During the conference, we were pleased to announce the establishment of the association's Sports Turf Manager of the Year Award sponsored by the Guelph Turfgrass Institute and the GTI Solutions Group. See all of the details in this issue and start thinking about your nominations for submission before the December 1 deadline.

We also held our Annual General Meeting during this time. For those of you unable to attend this year, the details are contained in the "members only" section of the website. During the meeting we recognized and said goodbye to



### Supporting OTRF.

STA Vice President Tennessee Propedo presents our annual donation to the Ontario Turfgrass Research Foundation's Brenda Nailor at the Ontario Turfgrass Symposium.

Dennis Wale, our long serving member and director now retired from the City of Brantford. Thank you, Dennis, for all of your valuable input and contributions during your time on the Board of Directors. At the same time we welcomed Tab Buckner, Past President of the Western Canada Turfgrass Association and Manager of Parks Operations and Cemetery Services for the Township of Langley, BC as a new member of the Board of Directors. Your Board now has representation from coast to coast across Canada.

There will be two presentations of the Sports Turf Management and Maintenance Course this Spring, one for the Town of Midland April 15 to 18, and the second during ORFA's Annual Professional Development Program April 29 to May 2 at the University of Guelph.

The initiatives that we're working on include a complete review and revamping of our branding and marketing effort. This is a huge undertaking, but absolutely necessary and you should start to see some of the results later in the year. As well, work is progressing on Field Days in Halifax, Nova Scotia, Langley, British Columbia and Mississauga, Ontario this year. Details will be released as they become available. The committee is also making good headway on the Synthetic Turf Maintenance Course. Watch for the release of this new program.

As you can appreciate from all of the above, the workload on our association directors and staff is huge, and it's not getting any easier. If any of you have any interest in working on one of the committees, please contact Lee Huether. We could sure use the help.

That's it for me for now. Like all of you, I'm looking forward to the end of the cold weather and getting back on to some green grass.





## 2013-2014 STA Board of Directors

Back row (L-R) Dave Warden, Ken Pavely, Bill Clausen, Tennessee Propedo, Jason Inwood, Gord Dol, Gord Horsman, Terry Henderson, Tab Buckner, Bob Kennedy.  
Seated (L-R) Ben Tymchyshyn, Lee Huether (Executive Manager), Andrew Gaydon, Paul Gillen, Paul Turner.  
Absent from photo: John D'Ovidio.

## NEW & RETURNING MEMBERS

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# Event Calendar

ASSOCIATION EVENTS ARE HIGHLIGHTED IN GREEN

## April 29 – May 2

### Sports Turf Management & Maintenance Course

University of Guelph, ON

[www.sportsturfassociation.com/STMMCourse](http://www.sportsturfassociation.com/STMMCourse)

## May 1

### Robert W. Sheard Scholarship

Application Deadline

[www.sportsturfassociation.com/Awards&Scholarship](http://www.sportsturfassociation.com/Awards&Scholarship)

## June 10 – 11

### Canadian Recreation Facilities Council

### National Leadership Forum

Toronto, ON [www.crffc.ca](http://www.crffc.ca)

## June 18

### Sports Turf Field Day

Dartmouth Sportsplex and Dartmouth Commons

Halifax, NS

[www.sportsturfassociation.com/Events/FieldDays](http://www.sportsturfassociation.com/Events/FieldDays)

## August 29

### Sports Turf Field Day

Willoughby Community Park

Langley, BC

[www.sportsturfassociation.com/Events/FieldDays](http://www.sportsturfassociation.com/Events/FieldDays)

## September 19

### Sports Turf Field Day

Mississauga Valley Community Centre

Mississauga, ON

[www.sportsturfassociation.com/Events/FieldDays](http://www.sportsturfassociation.com/Events/FieldDays)

## December 1

### Sports Turf Manager of the Year Award

Nomination Deadline

[www.sportsturfassociation.com/Awards&Scholarship](http://www.sportsturfassociation.com/Awards&Scholarship)

## Sports Turf Association Elects 2013/2014 Officers and Directors

Members of the Sports Turf Association elected the 2013/2014 officers and directors at the annual general meeting held during the recent Ontario Turfgrass Symposium.

Returning to the board for a new term are vice president Tennessee Propedo/City of Hamilton, treasurer Ben Tymchyshyn/MMM Group and directors Bill Clausen/University of Guelph, John D'Ovidio/City of Mississauga, Gord Horsman/City of Moncton, Jason Inwood/City of Vaughan and Dave Warden/City of Mississauga. Joining the board is Tab Buckner/Township of Langley, past president of the Western Canada Turfgrass Association. Continuing to serve the association are president Paul Gillen, past president Gord Dol/Dol Turf Restoration, secretary Andrew Gaydon/Vanden Bussche Irrigation, together with incumbent directors Terry Henderson/City of Guelph, Bob Kennedy/Sports Turf Management Solutions, Ken Pavely/Lawn Life, and Paul Turner/G.C. Duke Equipment.

## Sports Turf Manager of the Year Award Introduced



The Sports Turf Manager of the Year Award, launched with the cooperation and sponsorship of the Guelph Turfgrass Institute and the GTI Solutions Group, was introduced at the recent Ontario Turfgrass Symposium. The award is intended to recognize a sports turf manager for his or her professional ability and contribution, and show appreciation for their proactive and progressive efforts within the profession and the industry in one of many key categories including community outreach, environmental stewardship, professional development, health and safety, sports turf management techniques, project management, promotion of the profession, stewardship of interns or students, and workplace improvements or innovations.

“With our continuing education programs, sports turf focused research, and outreach through the GTI Solutions Group we are most pleased to forge this new partnership with STA,” suggested Rob Witherspoon, Director, GTI.

The nomination deadline is December 1 with announcement of the first Sports Turf Manager of the Year in early 2014. Additional information is available at [www.sportsturfassociation.com](http://www.sportsturfassociation.com).

# Which Kentucky Bluegrass Cultivars Perform Better with Less Water?

*Continued from page 1*

**OTS HIGHLIGHT**  
Presented February, 2013  
Guelph, Ontario.

**Table 1.** Phenotypic groups and cultivars of Kentucky bluegrasses and hybrid bluegrasses.

Group†	Cultivar
Aggressive	Limousine Touchdown
BVMG‡	Baron Envicta Abbey
Common	Kenblue Wellington Park
Compact	Diva Skye Moonlight
Compact America	Langara Bedazzled Apollo Unique Kingfisher
Compact Midnight	Midnight Midnight II Blue Velvet Nu Destiny Award
European§	Blue Knight Bartitia
Hybrid Bluegrasses	Thermal Blue Blaze Longhorn
Julia	Julia
Mid-Atlantic	Eagleton Preakness Cabernet
Shamrock	Shamrock

† Kentucky bluegrass classification groups as described in Bonos et al. (2000).

‡ BVMG, Baron, Victa, Merit, and Gnome.

§ Blue Knight and Bartitia have since been reclassified as “Other Type”.

acceptable quality in KBG (for example, for a moderately-maintained lawn or golf course rough with in-ground sprinklers) by irrigating when at least 50% of a given cultivar showed signs of wilt. Two hybrid bluegrasses (*P. arachnifera* Torr. x *P. pratensis*) were also included in the study.

### Methods

This study was conducted at the Rocky Ford Turfgrass Research Center near Manhattan, Kansas, USA. Data were collected for 105 days in 2007 (June 19 – October 1) and 108 days in 2009 (June 22 – October 7). Turfgrasses included 28 KBG cultivars and two hybrid bluegrasses (Table 1). Commercially available cultivars of KBG were selected to include representatives from major KBG phenotypic groups (Note: In the results section, only groups with three or more cultivars were used when comparing groups). Also, because visual quality was of interest, cultivars were selected based on performance in National Turfgrass Evaluation Program (NTEP) trials.

The plots were maintained well watered until the study began each year. Thereafter, water was withheld until

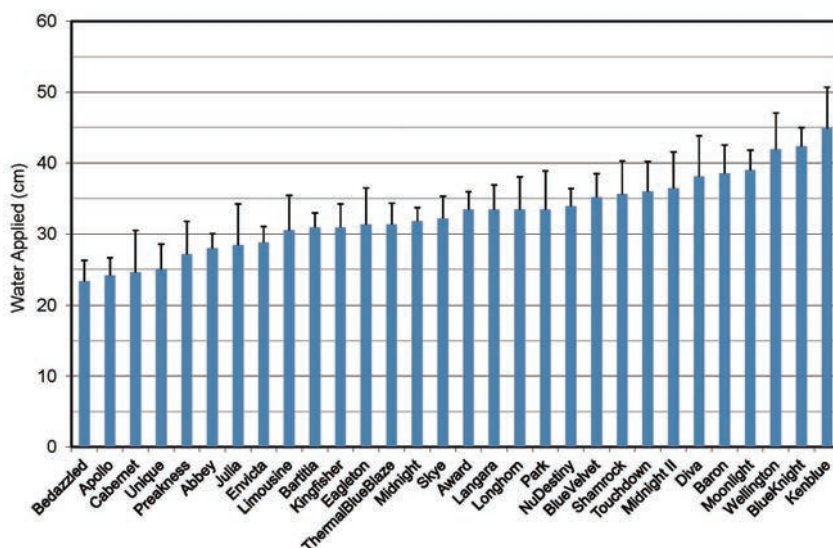
50% or more of a plot displayed drought stress. Water (2.54 cm) was then applied by hand to the individual plots. Turfgrass quality and drought stress symptoms were evaluated daily. This process continued until the end of the study, after which all plots were re-watered and allowed to recover. Plots were mown weekly at 7.6 cm.

Turfgrass quality evaluations, based on colour, density, and uniformity of the canopies, were made using a visual rating scale of 1 to 9, with 1 = brown turf, 6 = minimally acceptable for a home lawn or golf course rough, and 9 = optimum turf. Drought stress was defined as the turf displaying wilting, failure of the canopy to remain upright after foot traffic, and a general darkening colour of the turf. Because changes in drought stress were sometimes rapid from day to day, particularly under conditions of high temperatures, it was not unusual for irrigation to be applied when greater than 50% of a plot (for example, up to 70 or 80%) displayed drought stress.

### Results

#### Total Water Applied and Days to Wilt between Irrigation Cycles

Water applications, averaged over the



**Figure 1.** Water applied to Kentucky bluegrass cultivars and hybrid bluegrasses, averaged over the periods 19 June to 1 Oct. 2007 (105 days) and 22 June to 7 Oct. 2009 (108 days), at Manhattan, Kansas. Error bars denote standard error.

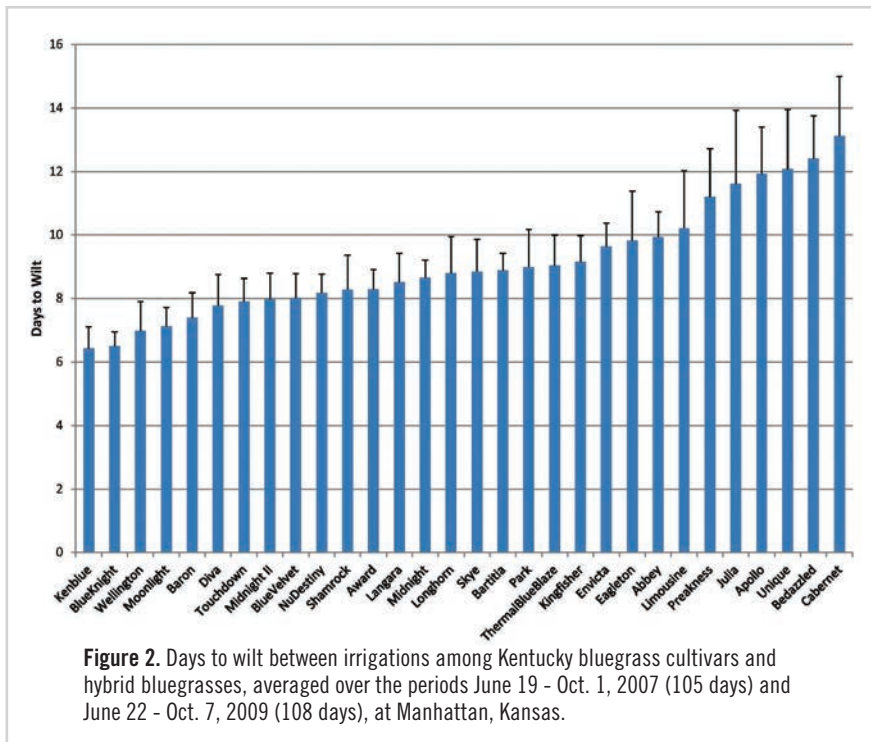


~3.5 month period in each year of the study, ranged widely from 23.3 cm (mean=2.2 mm/day) in Bedazzled to 44.9 cm (4.2 mm/day) in Kenblue (Fig. 1). In Bedazzled, Apollo, Cabernet, and Unique, 25.0 cm (2.3 mm/day) or less of water was applied, which was significantly less than Kenblue, Blue Knight, Wellington, Moonlight, Baron, Diva, Touchdown, Shamrock, and Blue Velvet; in the latter 10 cultivars, 35.1 cm (3.3 mm/day) or more of water was applied. However, there were no statistical differences among the 15 cultivars that received the least amount of water (Fig. 1, Bedazzled through Skye).

Days to wilt between irrigations, which was roughly inverse the amount of water applied ( $r=-0.91$ ), ranged from 6.4 d in Kenblue to 13.1 d in Cabernet, a difference of nearly one week (Fig. 2). Days to wilt was greater in Cabernet, Bedazzled, Unique, and Apollo (11.9 to 13.1 d) than in the 18 bluegrasses with the least days to wilt (6.4 to 9.0 d; Kenblue through Park in Fig. 2). These intervals provide the practitioner with an estimate of irrigation frequency required to maintain the various KBGs at a performance level similar to this study, at least in the transition zone of the U.S. In addition to less frequent irrigation,

cultivars with more days to wilt have a greater likelihood of receiving rainfall between irrigations; this could result in further water conservation and reduced irrigation costs.

Notably, all cultivars in the phenotypic group Mid-Atlantic (Cabernet, Eagleton, and Preakness) and four of five in the Compact America group (Apollo, Bedazzled, Kingfisher,



**Figure 2.** Days to wilt between irrigations among Kentucky bluegrass cultivars and hybrid bluegrasses, averaged over the periods June 19 - Oct. 1, 2007 (105 days) and June 22 - Oct. 7, 2009 (108 days), at Manhattan, Kansas.



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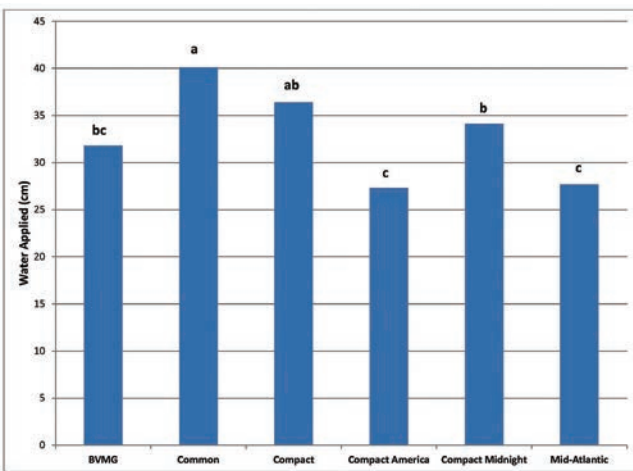
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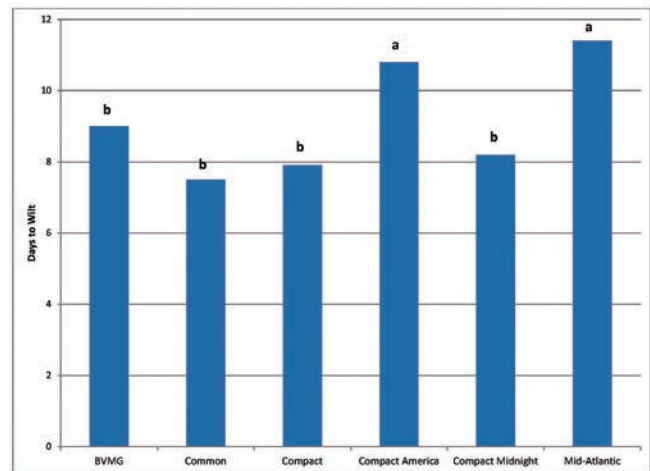
**Figure 3.** Water applied to Kentucky bluegrass phenotypic groups, averaged over the periods 19 June to 1 Oct. 2007 (105 days) and 22 June to 7 Oct. 2009 (108 days), at Manhattan, Kansas. The same letter above bars denoting different phenotypic groups indicates no significant difference.

and Unique) were among the 15 cultivars that received the least amount of water (Table 1; Fig. 1). When averaged over all cultivars within each phenotypic group, 27.3 cm of water was applied to Compact America types and 27.7 cm to Mid-Atlantic types (both about 2.6 mm/day), which was less than the Common, Compact, and Compact Midnight groups (Fig. 3). The Common types received more water (40.1 cm, 3.8 mm/day) than all other groups except Compact. Days to wilt was also greater in Mid-Atlantic and Compact America than in all other groups (Fig. 4), indicating cultivars in Mid-Atlantic and Compact America could generally go longer without irrigation.

#### Visual Quality

With the exception of the Common types in 2007, the visual quality of all bluegrasses was acceptable (>6) at the beginning of the study in each year (Fig. 5). In all bluegrasses and in both years, however, visual quality declined to below what was considered minimally acceptable (Fig. 5). This indicates waiting until 50% wilt to apply irrigation was insufficient to maintain acceptable visual quality in KBG, at least for homeowners or superintendents who desire a moderate standard of quality in the stressful climate of the transition zone. Perhaps visual quality could have been maintained at acceptable levels by applying water when only 25% of the plot exhibited symptoms of drought stress; further research is required. Our method may be appropriate, however, for the typical homeowner with no in-ground sprinklers or superintendents with low-maintenance roughs on their golf courses, or where the primary concern is water conservation and some dormancy is acceptable. Visual quality in all bluegrasses generally remained above four and recovery was rapid in the fall after resuming irrigation (data not shown).

Although visual quality declined to less than six in all cultivars, the time required to do so ranged widely from 8.1 d in Kenblue to 44.8 d in Blue Velvet (data not shown for all cultivars; see Bremer et al. or Lewis et al., 2012 for greater detail). The decline was slower in Blue Velvet, Award, Midnight, Cabernet, Unique, and Nu Destiny (36 to 44.8 days) than in Park, Baron, Wellington, and Kenblue (8.1 to 14.2 days). Thus, four of five cultivars in the Compact Midnight group maintained quality



**Figure 4.** Days to wilt between irrigations among Kentucky bluegrass phenotypic groups, averaged over the periods 19 June to 1 Oct. 2007 (105 days) and 22 June to 7 Oct. 2009 (108 days), at Manhattan, Kansas. The same letter above bars denoting different phenotypic groups indicates no significant difference.

longer than all cultivars in the Common group (Table 1). As a group, the Compact Midnight types remained above a quality of six for longer than the Common as well as the BVMG types, but also received more water than the Compact America and Mid-Atlantic groups (Fig. 3).

#### Relationships between Water Applied and Visual Quality

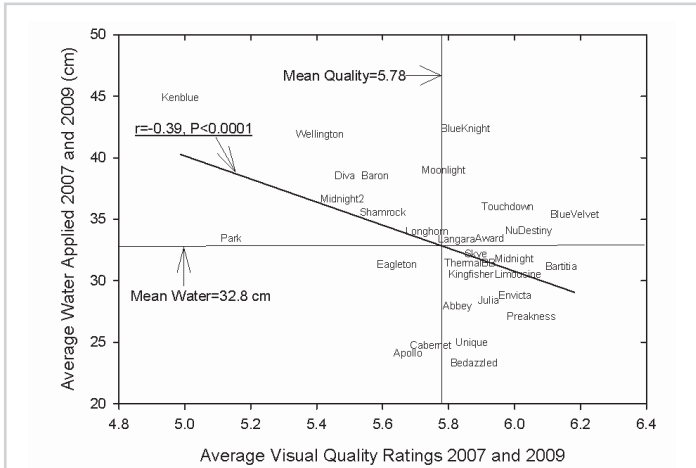
Ideally, cultivars or groups that require the least water would also have the highest visual quality. Those relationships are illustrated in the scatter biplot in Figure 6, in which cultivars with the most favorable characteristics appear in the lower right section. In general, irrigation applications were greater in bluegrasses with poorer quality (Fig. 6). This pattern probably resulted from improved cultivars with morphological properties that both enhanced turf quality and reduced evapotranspiration (water use). Such improved properties include compact or dwarfed growth habits, horizontal leaf orientation, and greater shoot density.

All 15 bluegrasses with the lowest water applications were also ranked among those with the highest visual quality (Fig. 6; there were no statistical differences among cultivars with average visual quality greater than 5.5). The amount of water applied to these 15 cultivars with superior turf quality was also below the mean water applied to all 30 bluegrasses (32.8 cm). Similarly, visual quality in 12 of the 15 bluegrasses that received the least water



**Figure 5.** Well-watered plots at beginning of dry-down study (June 4, 2007)(left). Kentucky bluegrass plots at two months into the study (August 4, 2007), in which drought stress is evident (right). Plots were sheltered from precipitation by the rainout shelter (upper left in each photo), which automatically moved on the tracks to cover the plots during rainfall. (Photos by Jason Lewis)





**Figure 6.** Water applied to Kentucky bluegrass cultivars and hybrid bluegrasses versus average visual quality ratings on a 1-9 scale with 9=optimum and 1=brown turf. Data were averaged over the periods June 19 - Oct. 1, 2007 (105 days) and June 22 - Oct. 7, 2009 (108 days).

### Conclusions

Cultivar selection in KBG had significant impacts on water requirements and visual quality ratings. Among cultivars, differences in seasonal water applications were as great as 21.6 cm and differences in days to 50% wilt between irrigations were as great as 6.7 days (i.e., nearly one week). Based on statistical range tests, only 15 of the 30 cultivars were in the group that both received the least water and had the greatest visual quality. Results indicated that, under conditions similar to those in our study, KBG in the Compact America and Mid-Atlantic phenotypic groups can be selected for their lower irrigation requirements without sacrificing visual quality, and types from those two groups may represent the best selections for breeding efforts to achieve such goals. More detailed results from this study can be found in Bremer et al. (2012) and Lewis et al. (2012).

### Acknowledgements

This research was funded by United States Golf Association (USGA), Turfgrass Producers International (TPI), and the Kansas Turfgrass Foundation. The technical assistance of Tony Goldsby was greatly appreciated. •

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was greater than the mean of all 30 bluegrasses (5.78), although all 15 were statistically similar.

In contrast to the 15 top performers, six cultivars were ranked within the group that received the most water and had the lowest visual quality (Fig. 6). Those six cultivars, which included Kenblue, Wellington, Midnight II, Baron, Diva, and Shamrock, had neither the high visual quality nor low water requirement traits we were screening for in this study.

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