

SCANTURF - Evaluation of turfgrass varieties for lawns and sports grounds in Scandinavia

(www.scanturf.org)

Lars T. Havstad, Markku Niskanen, Anders S. Larsen & Trygve S. Aamlid

Background

- SCANTURF is a joint Nordic programme for turfgrass variety testing, set up in 2005 and funded by variety entrance fees only. It replaced and simplified the former government-funded national evaluation programmes in Finland, Sweden, Denmark and Norway.
- The programme includes testing of all cool-season grasses on lawn/fairways at 15-20 mm mowing height ('lawn trials') and optional testing of *Poa pratensis* L. and *Lolium perenne* L. on simulated football pitches with wear, mowed at 30 mm ('wear trials').
- Since 2013, the program has regarded the Nordic countries as one trial zone with three test sites: Tystofte Denmark ($55^{\circ}15'$ N, $11^{\circ}20'$ E), Landvik, Norway ($58^{\circ}21'$ N, $8^{\circ}32'$ E) and Ylistaro, Finland ($62^{\circ}57'$ N, $22^{\circ}31'$ E). Wear trials are carried out at the intermediate location Landvik only.

Test sites:



Objective:

- This study is based on results from SCANTURF variety testing trials established in 2015 (evaluated in 2016-2018) and 2017 (evaluated in 2018-2020). Our objective was to clarify which varieties are best suited for use on lawn and sports grounds in the Nordic countries.

Materials and methods

- Candidate varieties of *Lolium perenne*, *Poa pratensis* and *Festuca rubra* ssp. *commutata*, *Festuca rubra* ssp. *litoralis* and *Festuca rubra* ssp. *rubra* (only in 2018-2020) were tested for three years against two reference varieties of the same species or subspecies.
- In the lawn trials, candidate varieties were evaluated for visual merit (overall turfgrass quality), winter damage, winter colour, diseases and daily height growth at all three locations and for tiller density, fineness of leaves, in-season (genetic) colour, at Landvik only.
- In the wear trial, wear treatments started in late April/early May and continued until 1 November. There were 2-3 wear treatments per week. A trailer with two rollers with football-shoe studs fixed on the surface was used to simulate football (soccer) wear (Photo 2).



Photo 2. Trailer with two rollers, both with football-shoe studs fixed on the surface, and mounted to a small tractor, used for wear treatments at Landvik. Photo: Lars T. Havstad



Results and discussion

Table 1. Comparison of candidate and control (c) varieties of *Lolium perenne*, *Poa pratensis* and *Festuca rubra* in lawn trials during the evaluation periods 2016-2018 and 2018-2020 with regard to overall turf quality (visual merit). Mean of 3 sites and 3 observation years.

	Overall turf quality (visual merit, 1-9, 9=best)							
	<i>Lolium perenne</i>		<i>Poa pratensis</i>		<i>Festuca rubra</i> ssp. <i>commutata</i>		<i>Festuca rubra</i> ssp. <i>litoralis</i>	<i>Festuca rubra</i> ssp. <i>rubra</i>
2016 - 2018	TetraStar (4x)	6.2	Becca	5.7	Lystig	6.9	Cezanne (c)	6.4
	Monroe	6.0	Harmonie	5.7	Musica (c)	6.8	Barcrown (c)	6.3
	Annecy	6.0	Traction	5.6	Rubicus	6.3	Sprinkler	6.1
	Bargold (c)	5.9	Limousine (c)	5.6	Aureline	6.2		
	Vesuvius (c)	5.7	Conni (c)	5.5	Joanna	6.2		
			Dakisha	5.5	Calliope (c)	6.1		
	P-value	<0.01	P-value	0.2	P-value	<0.0001	P-value	<0.0001
	LSD (P ≤ 0.05)	0.2	LSD (P ≤ 0.05)	-	LSD (P ≤ 0.05)	0.2	LSD (P ≤ 0.05)	0.2
2018 - 2020	Eventus	6.5	Limousine (c)	6.1	Musica (c)	6.6	Cezanne (c)	6.6
	Mandalay	6.3	Bowinta	6.0	Siskin	6.5	Barcrown (c)	6.6
	Bargold (c)	6.3	Conni (c)	5.7	Annalena	6.2	Pinafore	6.6
	Vesuvius (c)	6.2			Calliope (c)	5.9	Cathrine	6.5
	Zurich	5.9					Archibal	6.5
	Turfsun	5.6					Merveille	5.9
	P-value	<0.01	P-value	<0.01	P-value	<0.01	P-value	>20
	LSD (P ≤ 0.05)	0.2	LSD (P ≤ 0.05)	0.1	LSD (P ≤ 0.05)	0.3	LSD (P ≤ 0.05)	-
							P-value	<0.01
							LSD (P ≤ 0.05)	0.2

The highest ranked candidate varieties were 'TetraStar', 'Anney', 'Monroe', 'Eventus' and 'Mandalay' (*Lolium perenne*), 'Becca', 'Harmonie', 'Traction' and 'Bowinta' (*Poa pratensis*), 'Lystig' and 'Siskin' (*Festuca rubra* ssp. *commutata*), 'Pinafore', 'Cathrine' and 'Archibal' (*Festuca rubra* ssp. *litoralis* and 'Hastings' (*Festuca rubra* ssp. *rubra*) (Table 1). These varieties were all recommended for lawns in the Nordic countries

In the wear trials (Table 2), 'Anney', 'Monroe', 'Zurich' and 'Eventus' (*Lolium perenne*) and 'Harmonie' (*Poa pratensis*) were highest ranked and recommended for sports grounds.

Table 2. Wear tolerance (1-9, 9=best) of candidate and control (c) varieties of *Lolium perenne* and *Poa pratensis* in wear trials at Landvik, Norway, during 2016-2018 and 2018-2020. Mean of three years.

	Wear tolerance (1-9, 9=best)			
	<i>Lolium perenne</i>		<i>Poa pratensis</i>	
2016 - 2018	Anney	7.9	Harmonie	5.5
	Monroe	7.7	Limousine (c)	4.7
	Vesuvius (c)	7.5	Dakisha	4.6
	Bargold (c)	7.0	Traction	4.3
			Becca	4.0
			Conni (c)	3.1
	P-value	<0.0001	P-value	<0.0001
	LSD (P ≤ 0.05)	0.3	LSD (P ≤ 0.05)	0.5
2018 - 2020	Zurich	6.1		
	Vesuvius (c)	5.9		
	Eventus	5.7		
	Bargold (c)	5.4		
	P-value	>20		
	LSD (P ≤ 0.05)	-		
			(no variety entries in 2018-2020)	

More use of the recommended varieties will have a positive effect on quality of lawns and sport grounds in the Nordic countries. Less winter injury and increasing relative performance with increasing latitude of the perennial ryegrass varieties 'TetraStar' and 'Eventus', in addition to the formerly tested 'Fabian' (2014-2016), may possibly lead to more use of perennial ryegrass in the northern and more continental parts of the region.

Acknowledgement

The research was funded by variety entrance fees from the companies: DLF, Barenbrug, DSV, Graminor, Landmark Turf and Native Seed, Semillas Fitó and Everris/ICL.

Summary / more information

Based on the results from the SCANTURF trials in 2016-2018 and 2018-2020, the candidate varieties 'TetraStar', 'Anney', 'Monroe', 'Eventus' and 'Mandalay' (*Lolium perenne*), 'Becca', 'Harmonie', 'Traction' and 'Bowinta' (*Poa pratensis*), 'Lystig' and 'Siskin' (*Festuca rubra* ssp. *commutata*), 'Pinafore', 'Cathrine' and 'Archibal' (*Festuca rubra* ssp. *litoralis* and 'Hastings' (*Festuca rubra* ssp. *rubra*)) were recommended for lawns in the Nordic countries, while 'Monroe', 'Anney', 'Zurich' and 'Eventus' (*Lolium perenne*) and 'Harmonie' (*Poa pratensis*) were recommended for sports grounds.

For each species/subspecies, the final ranking of varieties for lawns and sports grounds in the Nordic countries are updated annually on the SCANTURF web site (www.scanturf.org).

New SCANTURF-trials will be established in May/June 2023. Contact persons are listed below for information about entering candidate varieties.