University of Aarhus
Faculty of Agricultural Sciences
Department of Integrated Pest Management

Efficacy of different formulations of AS 0121 for control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial protocol: 07757
Number of trials: 2

Assignment:
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Date: 23 June 2008

TITLE PAGE

Title:	**Efficacy of different formulations of AS 0121 for control of Fusarium patch (*Microdochium nivale*) on golf greens**
Protocol ID:	07757
Trial number:	07757-1, green 8 07757-2, green 13
Number of pages:	34
Trial leader:	Klaus Paaske
Research assistants:	Magnus Gammelgaard Nielsen, Uffe V. Schiøtt
Trial period:	11 October 2007 – 7 April 2008
Performance criterion:	Performed according to GEP (Good Experimental Practice)

Trial leader's authentication

The undersigned hereby declares that this work was performed under my directions and in accordance with the Principles of Good Experimental Practice. The study was conducted according to the procedures herein described and this report represents a true and accurate record of the results obtained.

_____ _____

Klaus Paaske Date

University of Aarhus
Faculty of Agricultural Sciences
GEP Recognition Unit

Certificate

GEP approval is granted to

Testing unit: **University of Aarhus**

Faculty of Agricultural Sciences
Department of Integrated Pest Management
(diseases and pests)

DK-4200 Slagelse

The approval applies to the execution of GEP efficacy trials of pesticides within

Testing areas: **Field trials**

Fruitgrowing trials

Greenhouse trials

GEP

The GEP Recognition Unit at the Faculty of Agricultural Sciences (DJF), University of Aarhus, controls organisation, staff, premises, trial fields, trial equipment, standard operation procedures and trial reports. The testing unit is subject to continuous control and inspection.

The certificate is valid for a period of 6 years.

Date of approval: 1 January 2008

Signed: 20 February 2008

Nina Sørup Hansen
Danish Environmental
Protection Agency

Else Thordahl Meyer
University of Aarhus, Faculty of
Agricultural Sciences

Peter Kryger Jensen
University of Aarhus, Faculty of
Agricultural Sciences

Ministerial order no. 533 of 18 June 2003 states that investigations of the efficacy of plant protection products carried out in Denmark after 1 January 1996 for registration purposes must be performed by testing units which have been approved to carry out these investigations by the University of Aarhus, Faculty of Agricultural Sciences according to the Commission Directive 93/71/EEC.

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CONTENTS

1. SUMMARY AND CONCLUSION

Two trials were established on golf green in order to evaluate the efficacy of various new formulations for control of Fusarium patch, *Microdochium nivale*. During the autumn and early winter 5 applications were made at approximately 3 weeks' interval. A high natural infection of the disease developed into a strong attack, which in untreated plots reached 49% on green 8 and 31% on green 13. The disease was controlled effectively with AS 0121/A and AS 0121/B, which were just as effective as the reference treatment with Key EW (prochloraz). The other formulations AS 0121/C, AS 0121/D and E601 were less effective.
All formulations were safe to the grass.

2. OBJECTIVE

To evaluate the efficacy of new formulations for control of Fusarium patch on golf greens in comparison with a standard chemical fungicide.

3. METHODS AND MATERIALS

Two trials were established at Skovlunde golf course on different greens, where Fusarium patch is a returning problem each autumn and winter.
Location: Skovlunde & Herlev Golfklubber, Syvendehusvej 111, 2770 Herlev

It was planned to conduct 4 treatments at approximately 3 weeks' interval, starting in the beginning of October, but due to the very mild weather during the autumn and December, it was decided to make an additional application in January.
During the trial period the greens were managed by the green keeper in the same way as the rest of the coarse except treatments with fungicides and fertilisers that may have an effect on fungi. The fertiliser programme is shown in table 3.

The trial design was a randomised block design with 4 replicates and a plot size adapted to the size of the green, for trial 05757-1 8.75 m^2 (2.5x3.5 m) and for trial 07757-2 7.5 m^2 (2.5x3.0 m).

Treatments were applied using a track sprayer, equipped with a Lykketronic PX Combi 820 Spray Computer and Hardi LD-03-110 nozzles. Application volume was 500 l/ha at 4.0 bar pressure.

Treatments:

1. Untreated
2. Key EW (Reference) 1.0 l/ha
3. AS 0121/A 20 l/ha
4. AS 0121/B 20 l/ha
5. AS 0121/C 20 l/ha
6. AS 0121/D 20 l/ha
7. E 601 400 kg/ha

Table 1. Application details (both trials)

Application no.	1	2	3	4	5	6
Application date	11.10.07	22.10.07	02.11.07	21.11.07	13.12.07	14.01.08
Air temperature ºC	13.8	7.6	10.6	4.4	2.5	2.0
Relative humidity %	80	63	76	85	72	84
Wind velocity m/s	2.0	1.0	0	3.0	1.0	3.5
Wind direction	W	SE	-	SE	N	NE
Dew presence	No	No	No	Slightly	Slightly	Slightly
% cloud cover	100	25	100	100	100	85
Plots treated	2-6	7	2-7	2-7	2-7	2-7

First application of treatment 7 was delayed due to late arrival of the product.

Table 2. Product details

Product	Active substance	Concentration	Formulation	Batch no.
Test products:				
AS 0121/A	n.a.	n.a.	Liquid	
AS 0121/B	n.a.	n.a.	Liquid	
AS 0121/C	n.a.	n.a.	Liquid	
AS 0121/D	n.a.	n.a.	Liquid	
E 601	n.a.	n.a.	Granule	
Reference products:				
Key EW	Prochloraz	450 g/l	EW	1723133

The test products were delivered from the sponsor and the reference product was a commercial product from the stock of the Department of Integrated Pest Management.

Assessments

A: % disease infection by Fusarium patch, using a percentage scale, where 0 = no surface area with visible symptoms and 100 = complete infection

B: % grass surface killed by Fusarium patch, using a percentage scale, where 0 = no surface area killed and 100 = complete death

C: Grass vigour, using a scale 0-10 where 10 = grass colour full green and 0 = complete discoloured

Assessments were made before each application and at monthly intervals after last application. Final assessment was made 7 April 2008, after this date the trials were terminated

Trial site information

Established: Green 8: 1992
Green 13: 1989

Grass species: Green 8: >95% *Poa annua*
Green 13: >80% *Poa annua*, rest *Agrostis stolonifera, Festuca rubra*

Table 3. Fertilisers applied to the trial greens during 2007 growth season

	N	P	K	Ca	Mg	S	Fe	Co	Mn	Z
Kg/ha	72	11	219	60	19	112	16	0.6	0.6	0.6

Statistical analysis

The computer program Agricultural Research Manager (ARM) ver.7.3.6 was used for data management and statistical calculations. The data was subjected to analysis of variance and treatment means were separated at the 95% probability level using F-test (Student-Newman-Keuls test).
Figures followed by same letter do not differ significantly ($P \geq .05$, Student-Newman-Keuls)

4. CLIMATE

Meteorological data for the area, measured by the Danish Meteorological Institute, for the trial period is shown in figures 1-3 below. In table 4 is shown monthly averages in comparison with 30 years average.

Autumn 2007 were sunny with temperature and precipitation about average and the winter was warmer than normal; most precipitation fell as rain and on the few occasions when it fell as snow, it melted so quickly that the ground was never covered with snow for more than a few hours. Because of the high air temperature the soil temperature never dropped below zero.

Table 4. Monthly average figures for temperature and precipitation

	October	November	December	January	February	March
Temperature, ºC						
- Actual 2007/2008	8.1	4.7	3.4	3.7	4.4	3.5
- Average 1961-1990	9.5	5.1	1.8	0.1	-0.1	2.0
Precipitation, mm						
- Actual 2007/2008	37.8	51.1	57.0	58.7	28.2	73.7
- Average 1961-1990	56	61	56	46	30	39

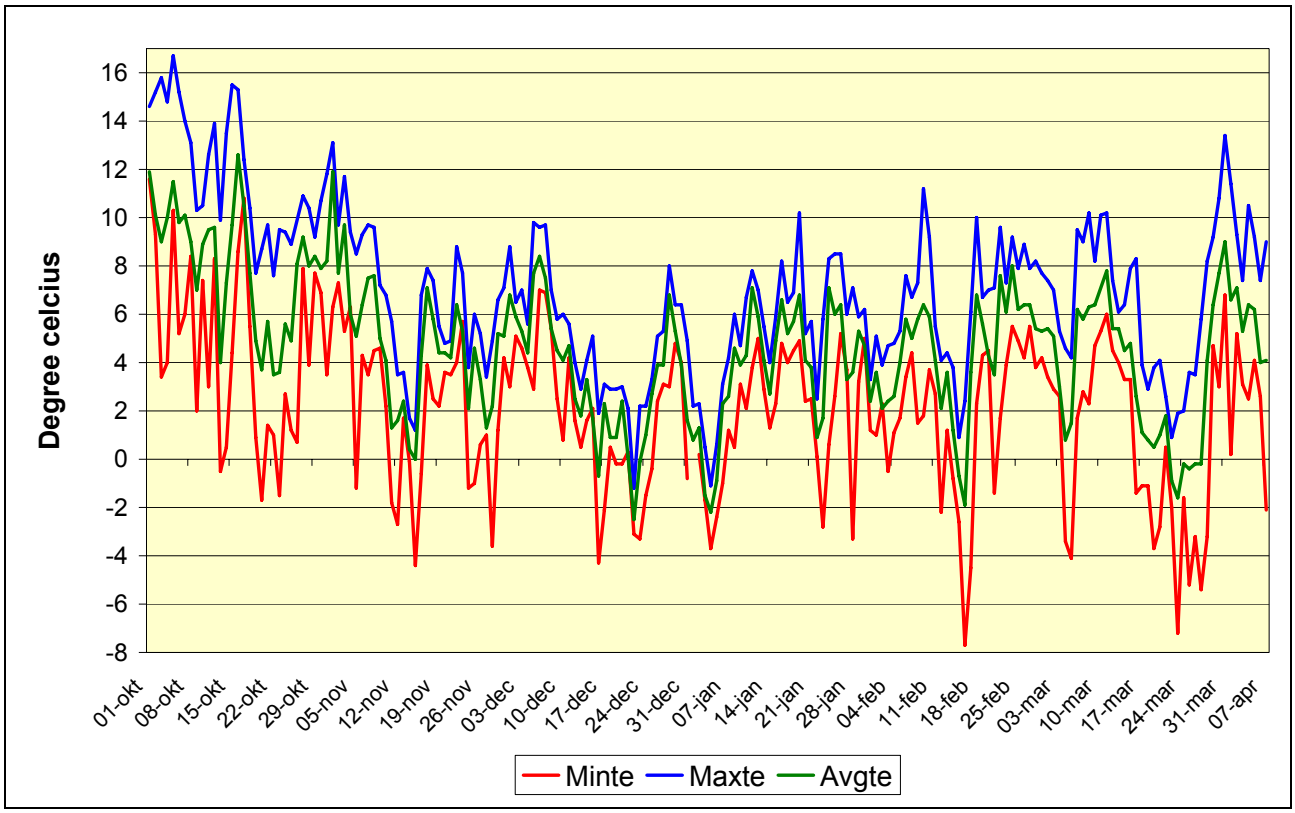


Figure 1. Min-, max and average temperature

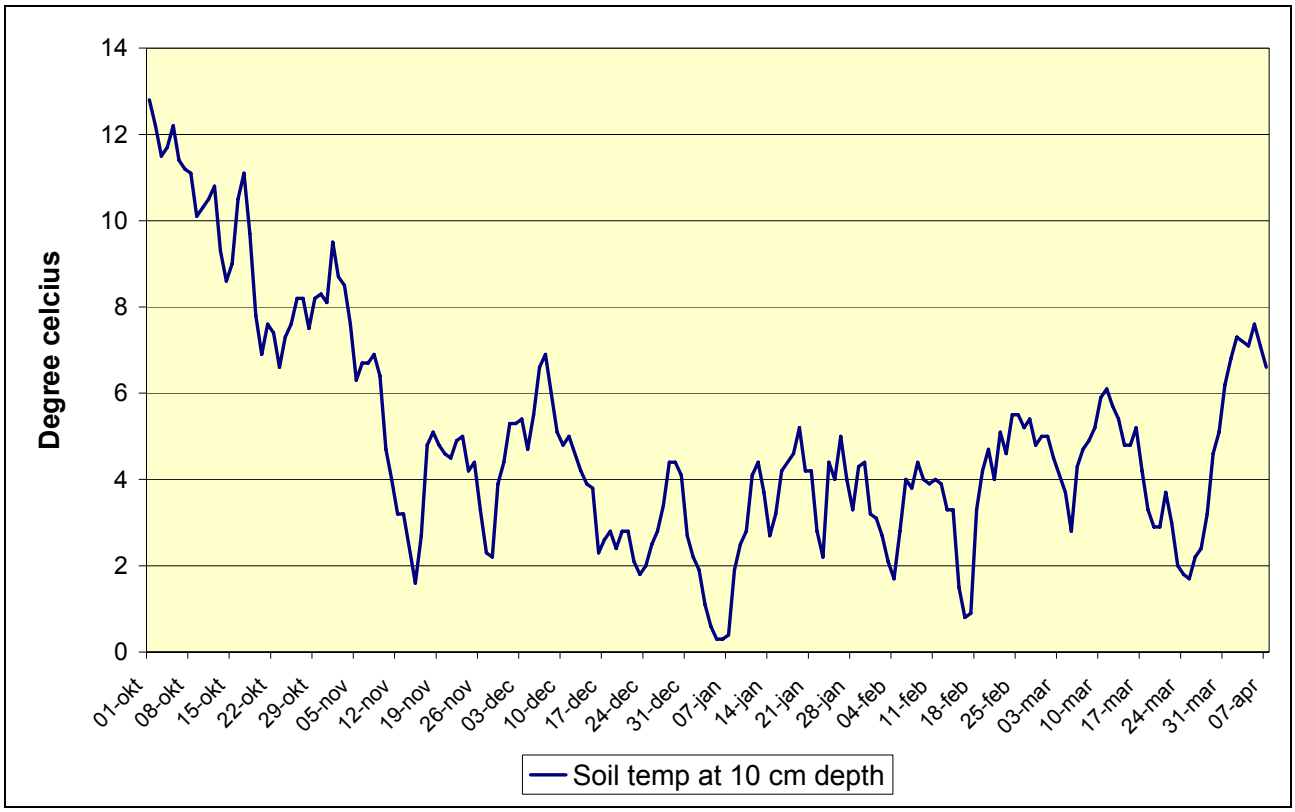


Figure 2. Soil temperature at a depth of 10 cm

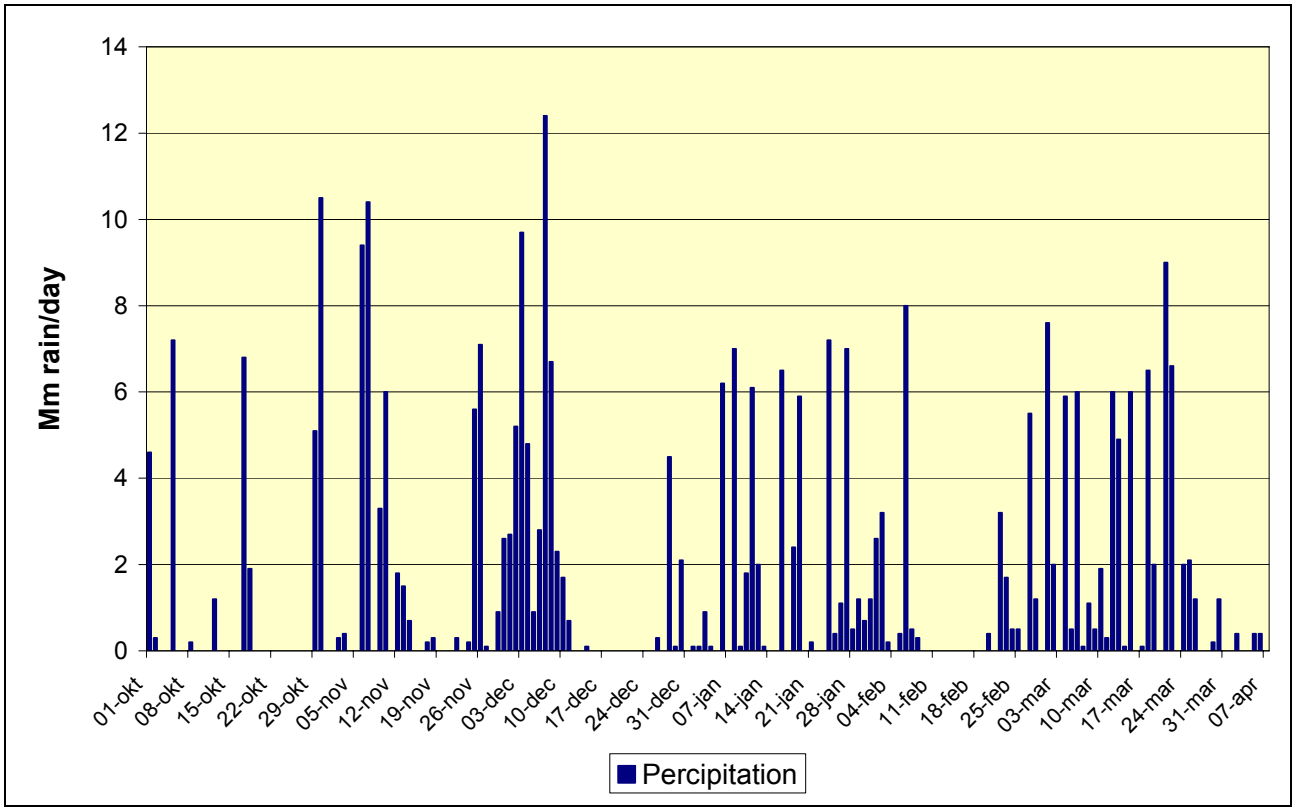


Figure 3. Precipitation mm

5. IDENTIFICATION OF DISEASE

At the establishment of the trials some spots could be found on both greens that looked as Fusarium patch but at this stage it is difficult to make a precise identification.
At the assessment on 13 December several spots with mycelia growth could be found in untreated plots.

Samples were taken from spots with mycelia and from tests in the laboratory of both mycelia and spores the disease was identified as *Microdochium nivale*, which causes Fusarium, patch or snow mould as it is called in Denmark

6. RESULTS

Summaries of the assessments are shown in tables 4-6 and detailed figures can seen in AOV mean tables, page 22-27. Individual plot figures can be seen in Plot Data Summary tables on page 28-33.

The development of disease infection is shown in table 5a and 5b. The highest level of infestation was seen on green 8 with 48.8% in untreated whereas it reached 31.3% on green 13. This high level of infestation was favoured by the very wet summer 2007, which was followed by a very mild autumn and winter in which temperatures below zero during daytime was only seen on a few days and the soil temperature was above zero all winter. Precipitation during the winter fell as rain, only on a few occasions it fell as snow but the soil was never covered with snow for more than a few hours. Furthermore the number of sunshine hours during January and February was less than normal. These conditions were favourable for development of Fusarium patch and from an experimental point of view gave very good conditions for evaluation of efficacy of the treatments for control of the disease.

The disease was controlled very effectively by the reference treatment with Key EW and the experimental formulations AS 0121/A and AS 0121/B were equally effective. Some control was achieved with AS 0121/C, AS 0121/D and E 601 but more variable and at an unacceptable high level.
All of the test formulations and the reference treatment were completely safe to the grass as no visible symptoms of grass damage were seen at any time during the trial. The differences in colour (table 6a and 6B) are caused by differences in disease control and to a certain level also fertiliser effect, which was especially the case for treatment 7 with E 601.

From these 2 trials, following conclusions can be made:

- A high level of natural infection with *Microdochium nivale* developed in both trials, but the distribution of the disease was not uniform on the green
- In both trials an effective reduction in disease was achieved after treatments with AS 0121/A, AS 0121/B and the reference Key EW
- No difference in efficacy was found between AS 0121/A, AS 0121/B and the reference treatment Key EW
- All formulations were safe to the grass
- Both 0121/A and 0121/B appear to be very suitable products for control of Fusarium patch but further trials under different climatical conditions are necessary before a final conclusion on the efficacy can be made

Table 5a. Trial 07757-1, % disease infection

	Treatment	Dose/ha	22 Oct. 07 11 DA-A	2 Nov. 07 22 DA-B	21 Nov. 07 19 DA-C	13 Dec. 07 22 DA-D	14 Jan. 08 32 DA-E	13 Feb. 08 30 DA-F	12 Mar. 08 58 DA-F	7 Apr. 08 84 DA-F
1	Untreated		1.0 a	2.4 a	7.0 a	16.9 a	25.5 a	40.0 a	48.8 a	46.3 a
2	Key EW	1,0 l	0.3 c	0.4 a	0.5 c	0.5 b	0.5 c	0.3 c	0.2 c	0.1 d
3	AS 0121/A	20 l	0.4 bc	0.7 a	1.3 bc	2.4 b	1.2 c	0.5 c	0.3 c	0.2 d
4	AS 0121/B	20 l	0.2 c	0.3 a	0.4 c	0.5 b	0.4 c	0.2 c	0.2 c	0.1 d
5	AS 0121/C	20 l	0.9 ab	2.0 a	5.3 ab	13.9 a	21.0 ab	30.0 ab	36.3 ab	30.0 bc
6	AS 0121/D	20 l	1.0 a	2.3 a	5.1 ab	14.5 a	23.8 ab	35.0 a	40.0 a	37.5 ab
7	E 601	400 kg	0.9 ab	2.4 a	4.4 abc	8.8 ab	12.3 bc	15.6 b	20.6 b	20.6 c

Table 5b. Trial 07757-2, % disease infection

	Treatment	Dose/ha	22 Oct. 07 11 DA-A	2 Nov. 07 22 DA-B	21 Nov. 07 19 DA-C	13 Dec. 07 22 DA-D	14 Jan. 08 32 DA-E	13 Feb. 08 30 DA-F	12 Mar. 08 58 DA-F	7 Apr. 08 84 DA-F
1	Untreated		0.1 a	0.4 a	1.8 ab	5.6 a	10.0 a	18.0 a	28.8 a	31.3 a
2	Key EW	1,0 l	0.1 a	0.2 a	0.2 bc	0.2 b	0.2 b	0.2 c	0.1 c	0.1 c
3	AS 0121/A	20 l	0.1 a	0.1 a	0.6 bc	0.6 b	0.3 b	0.3 c	0.1 c	0.1 c
4	AS 0121/B	20 l	0.1 a	0.1 a	0.1 c	0.2 b	0.2 b	0.2 c	0.2 c	0.1 c
5	AS 0121/C	20 l	0.1 a	0.2 a	1.2 abc	4.0 ab	6.5 a	9.1 b	11.3 bc	9.3 bc
6	AS 0121/D	20 l	0.2 a	0.5 a	1.8 ab	5.4 a	8.0 a	12.5 ab	18.1 ab	19.0 b
7	E 601	400 kg	0.1 a	0.5 a	2.4 a	7.6 a	8.3 a	9.8 ab	15.0 b	16.3 b

Table 6a. Trial 07757-1, % grass surface killed by Fusarium patch

	Treatment	Dose/ha	22 Oct. 07 11 DA-A	2 Nov. 07 22 DA-B	21 Nov. 07 19 DA-C	13 Dec. 07 22 DA-D	14 Jan. 08 32 DA-E	13 Feb. 08 30 DA-F	12 Mar. 08 58 DA-F	7 Apr. 08 84 DA-F
1	Untreated		0	0.1 a	08. a	2.3 a	3.5 a	7.9 a	10.0 a	9.4 a
2	Key EW	1,0 l	0	0 a	0 a	0 c	0 c	0 c	0 c	0 c
3	AS 0121/A	20 l	0	0 a	0 a	0 c	0 c	0 c	0 c	0 c
4	AS 0121/B	20 l	0	0 a	0 a	0 c	0 c	0 c	0 c	0 c
5	AS 0121/C	20 l	0	0 a	0.1 a	1.9 ab	2.9 ab	6.3 ab	7.4 ab	5.5 b
6	AS 0121/D	20 l	0	0.1 a	0.4 a	1.6 ab	3.1 a	7.3 a	7.5 ab	6.3 ab
7	E 601	400 kg	0	0 a	0.3 a	1.0 bc	1.4 bc	3.5 b	4.6 b	4.1 b

Table 6b. Trial 07757-2, % grass surface killed byf Fusarium patch

	Treatment	Dose/ha	22 Oct. 07 11 DA-A	2 Nov. 07 22 DA-B	21 Nov. 07 19 DA-C	13 Dec. 07 22 DA-D	14 Jan. 08 32 DA-E	13 Feb. 08 30 DA-F	12 Mar. 08 58 DA-F	7 Apr. 08 84 DA-F
1	Untreated		0	0	0.1 a	1.4 a	3.0 a	8.4 a	10.6 a	9.3 a
2	Key EW	1,0 l	0	0	0 a	0 a	0 b	0 c	0 c	0 b
3	AS 0121/A	20 l	0	0	0 a	0 a	0 b	0 c	0 c	0 b
4	AS 0121/B	20 l	0	0	0 a	0 a	0 b	0 c	0 c	0 b
5	AS 0121/C	20 l	0	0	0 a	0.8 a	1.3 b	2.3 bc	3.6 bc	2.8 b
6	AS 0121/D	20 l	0	0	0.1 a	1.0 a	1.5 b	4.8 b	6.5 b	6.5 a
7	E 601	400 kg	0	0	0 a	0.5 a	0.8 b	2.3 bc	3.0 bc	3.0 b

Table 7a. Trial 07757-1, Grass vigour

	Treatment	Dose/ha	22 Oct. 07 11 DA-A	2 Nov. 07 22 DA-B	21 Nov. 07 19 DA-C	13 Dec. 07 22 DA-D	14 Jan. 08 32 DA-E	13 Feb. 08 30 DA-F	12 Mar. 08 58 DA-F	7 Apr. 08 84 DA-F
1	Untreated		10 a	10 a	9.3 b	8.6 b	7.9 b	7.1 c	5.9 d	6.8 d
2	Key EW	1.0 l	10 a	10 a	10 a	9.8 a	9.8 a	9.1 b	8.6 b	8.4 a
3	AS 0121/A	20 l	10 a	10 a	10 a	9.8 a	9.9 a	9.5 a	9.1 a	8.5 a
4	AS 0121/B	20 l	10 a	10 a	10 a	9.6 a	9.6 a	9.4 ab	8.9 ab	8.5 a
5	AS 0121/C	20 l	10 a	10 a	8.9 c	8.0 c	7.8 b	6.9 cd	6.1 d	7.3 c
6	AS 0121/D	20 l	10 a	10 a	8.9 c	8.4 bc	7.6 b	6.6 d	6.3 d	7.1 c
7	E 601	400 kg	10 a	10 a	10 a	9.8 a	9.5 a	9.1 b	8.1 c	7.9 b

Table 7b. Trial 07757-2, Grass vigour

	Treatment	Dose/ha	22 Oct. 07 11 DA-A	2 Nov. 07 22 DA-B	21 Nov. 07 19 DA-C	13 Dec. 07 22 DA-D	14 Jan. 08 32 DA-E	13 Feb. 08 30 DA-F	12 Mar. 08 58 DA-F	7 Apr. 08 84 DA-F
1	Untreated		10 a	10 a	9.6 b	9.0 c	9.1 b	7.3 d	6.5 b	7.0 b
2	Key EW	1.0 l	10 a	10 a	10 a	10 a	10 a	9.1 b	8.5 a	8.5 a
3	AS 0121/A	20 l	10 a	10 a	10 a	9.8 ab	9.9 a	9.5 ab	8.9 a	8.5 a
4	AS 0121/B	20 l	10 a	10 a	10 a	9.5 b	9.1 b	8.5 c	8.5 a	8.4 a
5	AS 0121/C	20 l	10 a	10 a	9.0 c	8.3 d	8.3 d	7.4 d	7.0 b	7.1 b
6	AS 0121/D	20 l	10 a	10 a	9.3 c	8.8 c	8.6 c	6.9 d	6.6 b	7.1 b
7	E 601	400 kg	10 a	10 a	10 a	10 a	10 a	9.8 a	9.0 a	8.4 a

Overview green 8

20 October

13 December

14 January

13 February

12 March

7 April

Overview green 13

20 October

No picture

13 December

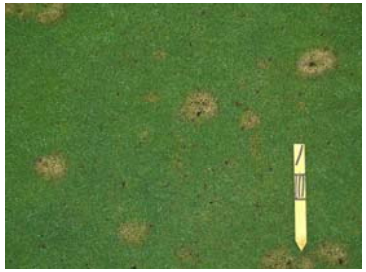
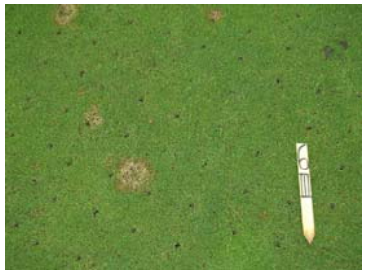
14 January

13 February

12 March

7 April

Green 8 Replicate III	21 November	13 December	14 January	13 February	12 March
Plot 1 Untreated					
Plot 2 Key EW					
Plot 4 AS 0121/B					
Plot 6 AS 0121/D					

Green 13 Replicate III	21 November	13 December	14 January	13 February	12 March
Plot 1 Untreated					
Plot 2 Key EW					
Plot 4 AS 0121/B					
Plot 6 AS 0121/D					

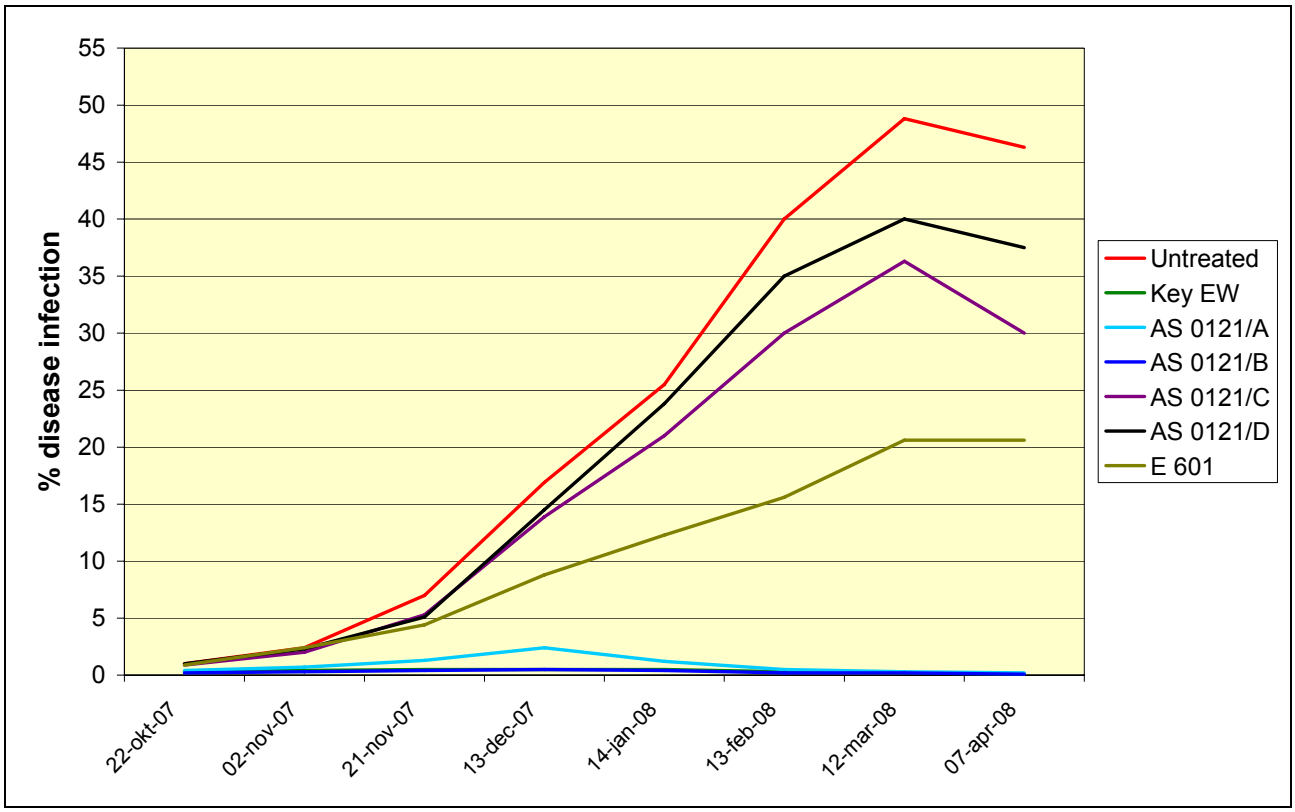


Figure 4. % disease infection on green 8

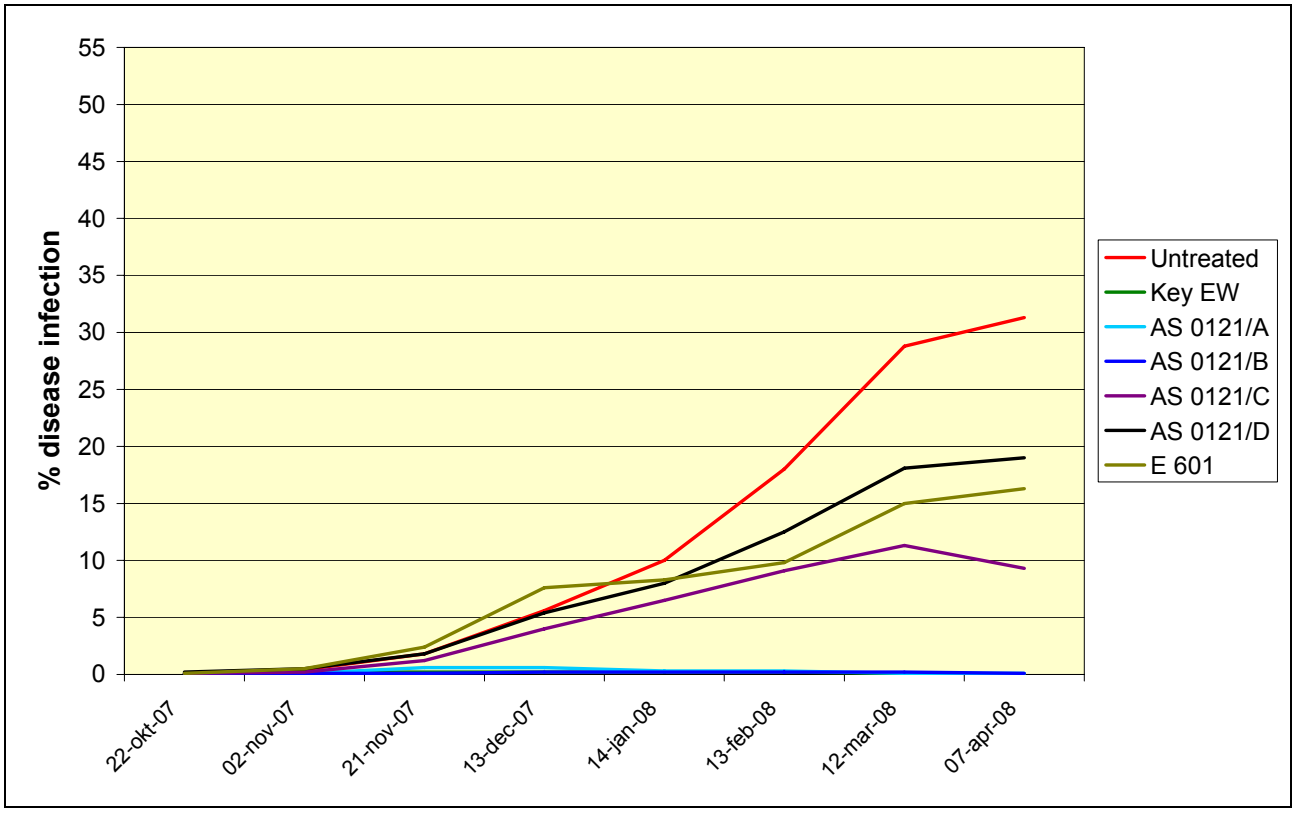


Figure 5. % disease infection on green 13

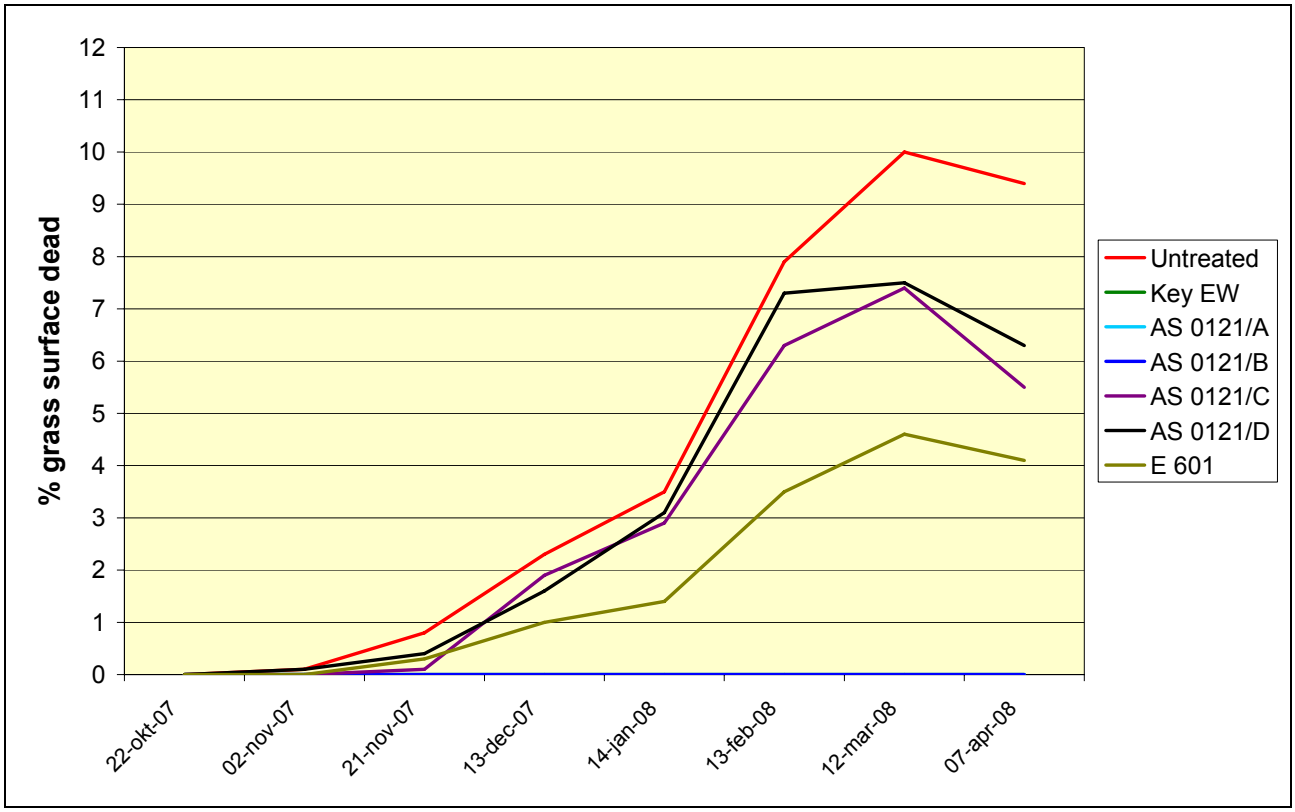


Figure 6. % grass surface dead on green 8

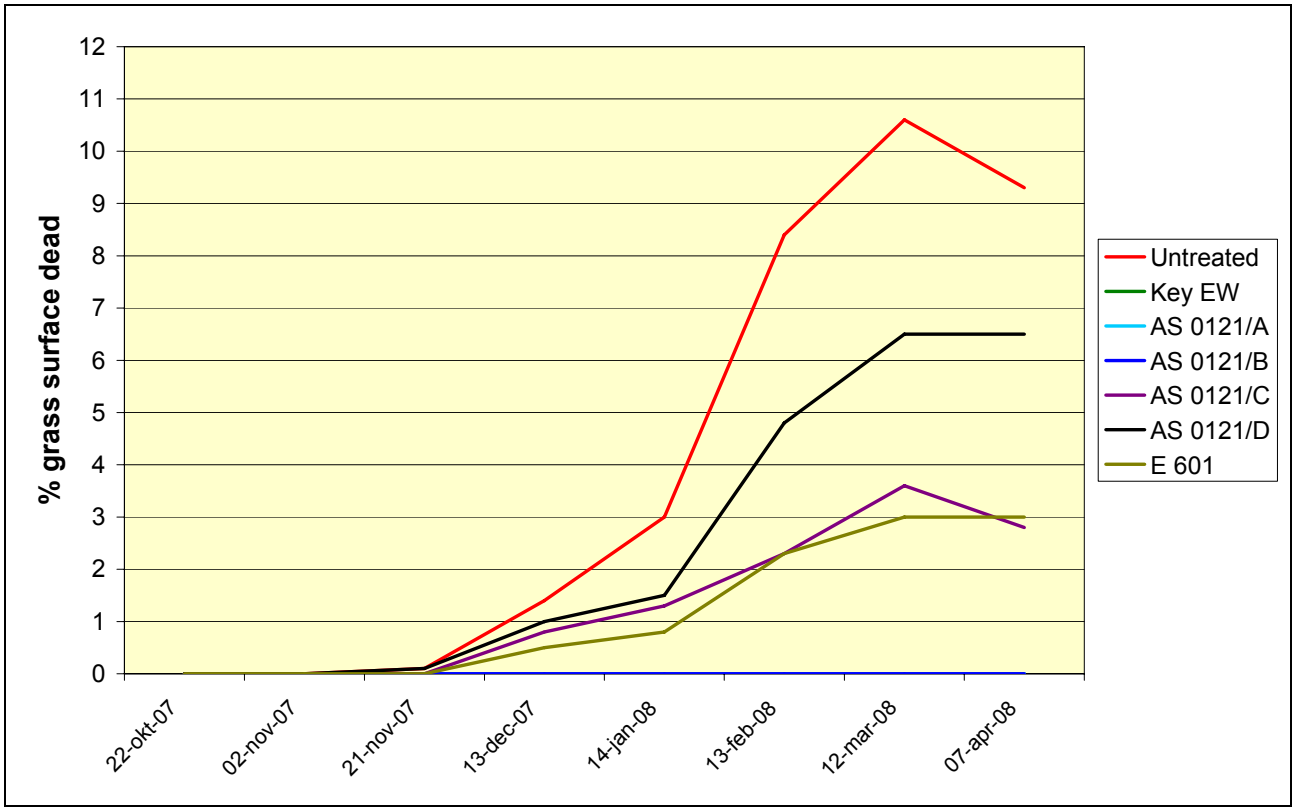


Figure 7. % grass surface dead on green 13

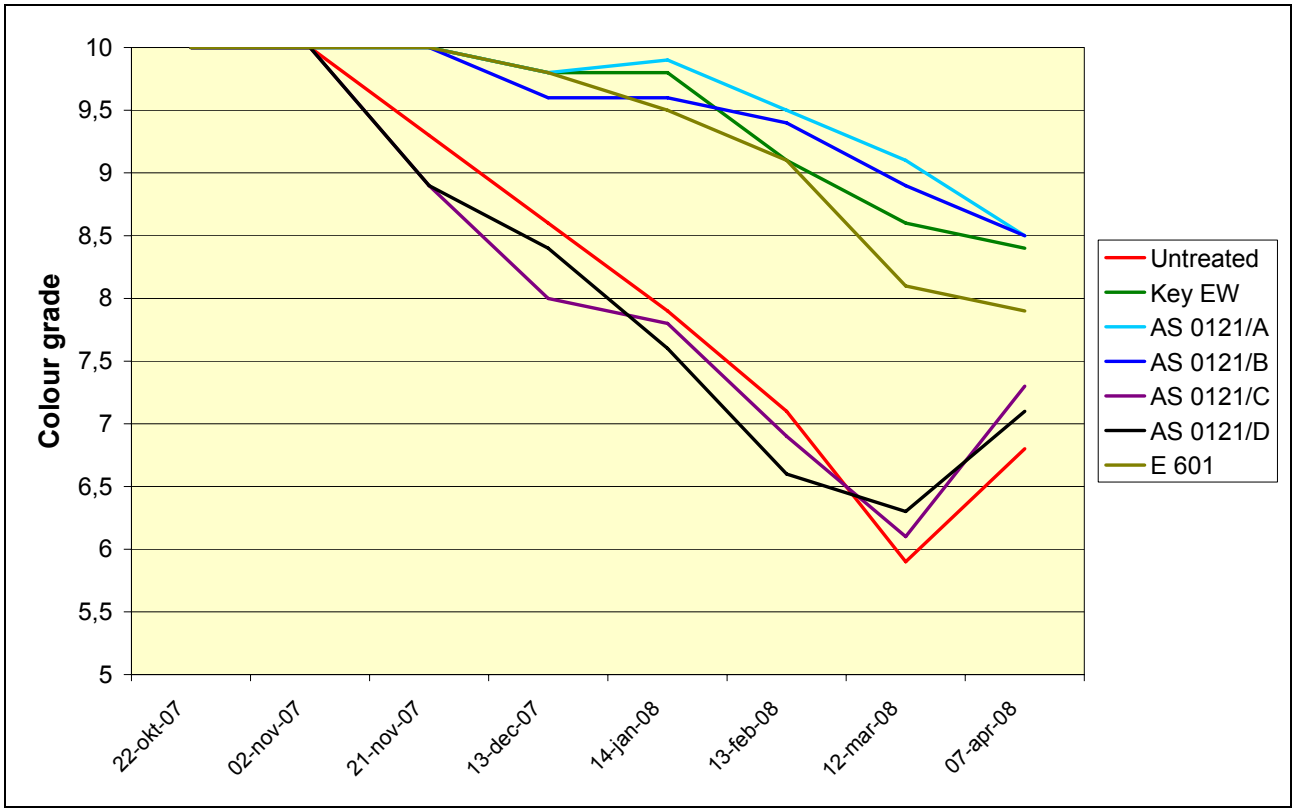


Figure 8. colour green 8

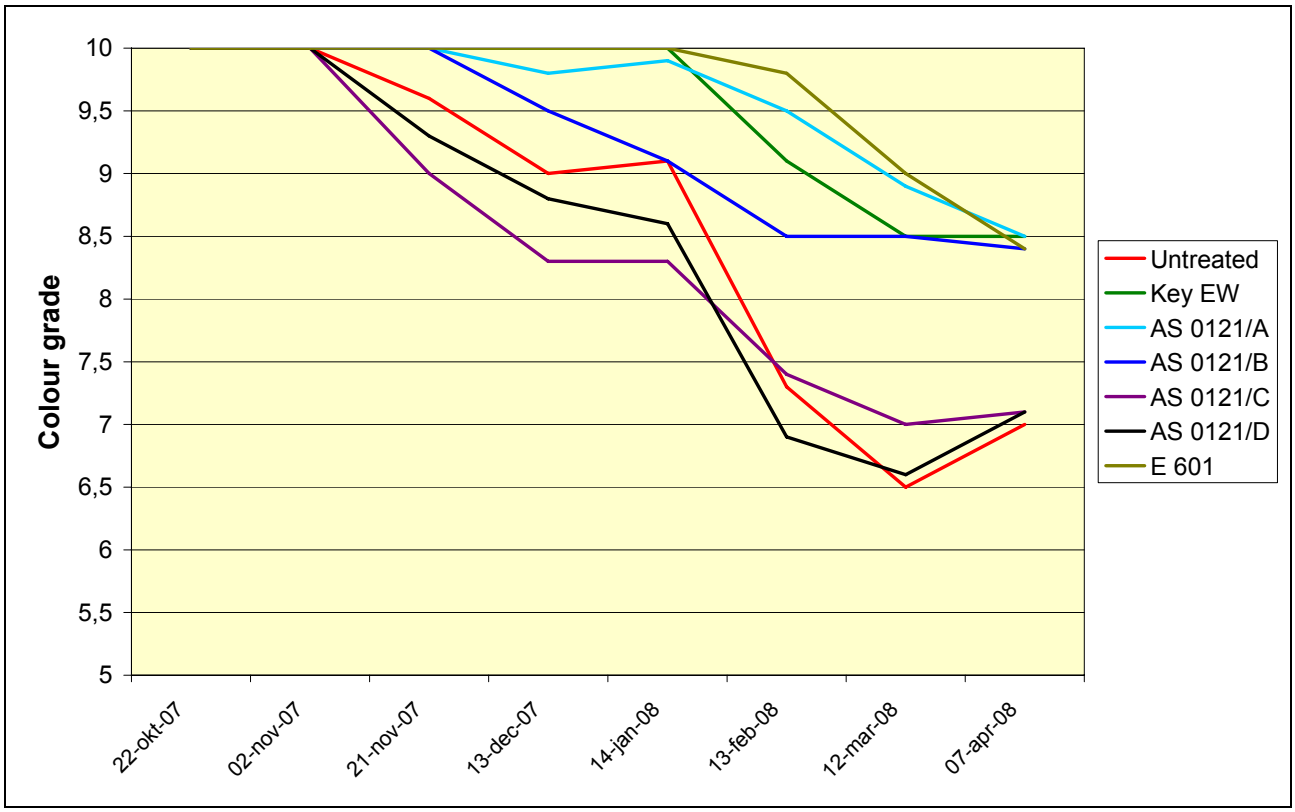


Figure 9. colour green 13

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-1 green 8 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Pest Type			D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code			FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP
Pest Name			Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.
Crop Code			GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG
BBCH Scale			BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE
Crop Name			Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses
Rating Date			22/Oct/2007	2/Nov/2007	21/Nov/2007	13/Dec/2007	14/Jan/2008	13/Feb/2008	12/Mar/2008	7/Apr/2008
Rating Data Type			COUDIS	COUDIS	COUDIS	COUDIS	COUDIS	COUDIS	COUDIS	COUDIS
Rating Unit			%	%	%	%	%	%	%	%
Trt-Eval Interval			11 DA-A	22 DA-B	19 DA-C	22 DA-D	32 DA-E	30 DA-F	58 DA-F	84 DA-F
Number of Decimals			1	1	1	1	1	1	1	1
Trt No.	Treatment Name	Rate / Unit	1	4	7	10	13	16	19	22
1	Untreated		1,0 a	2,4 a	7,0 a	16,9 a	25,5 a	40,0 a	48,8 a	46,3 a
2	Key EW	1,0 L/HA	0,3 c	0,4 a	0,5 c	0,5 b	0,5 c	0,3 c	0,2 c	0,1 d
3	AS0121/A	20,0 L/HA	0,4 bc	0,7 a	1,3 bc	2,4 b	1,2 c	0,5 c	0,3 c	0,2 d
4	AS0121/B	20,0 L/HA	0,2 c	0,3 a	0,4 c	0,5 b	0,4 c	0,2 c	0,2 c	0,1 d
5	AS0121/C	20,0 L/HA	0,9 ab	2,0 a	5,3 ab	13,9 a	21,0 ab	30,0 ab	36,3 ab	30,0 bc
6	AS0121/D	20,0 L/HA	1,0 a	2,3 a	5,1 ab	14,5 a	23,8 ab	35,0 a	40,0 a	37,5 ab
7	E601	400 KG/HA	0,9 ab	2,4 a	4,4 abc	8,8 ab	12,3 bc	15,6 b	20,6 b	20,6 c
LSD (P=.05)			0,53	2,18	4,56	9,93	12,43	14,46	16,26	14,34
Standard Deviation			0,36	1,47	3,07	6,69	8,37	9,74	10,95	9,65
CV			54,74	99,23	89,76	81,59	69,28	56,02	52,39	50,17
Replicate F			3,273	1,558	0,975	1,527	1,624	1,228	0,587	0,524
Replicate Prob(F)			0,0452	0,2341	0,4262	0,2416	0,2189	0,3284	0,6314	0,6715
Treatment F			3,991	1,790	2,989	4,472	7,482	13,051	14,805	16,312
Treatment Prob(F)			0,0103	0,1578	0,0332	0,0061	0,0004	0,0001	0,0001	0,0001

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Column 1-8 Footnote: % disease infection

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-2 green 13 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	1	4	7	10	13	16	19	22
Pest Type				D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code				FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP
Pest Name				Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.
Crop Code				GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG
BBCH Scale				BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE
Crop Name				Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses
Rating Date				22/Oct/2007	2/Nov/2007	21/Nov/2007	13/Dec/2007	14/Jan/2008	13/Feb/2008	12/Mar/2008	7/Apr/2008
Rating Data Type				COUDIS	COUDIS	COUDIS	COUDIS	COUDIS	COUDIS	COUDIS	COUDIS
Rating Unit				%	%	%	%	%	%	%	%
Trt-Eval Interval				11 DA-A	22 DA-A	19 DA-C	22 DA-D	32 DA-E	30 DA-F	58 DA-F	84 DA-F
Number of Decimals				1	1	1	1	1	1	1	1
1	Untreated			0,1 a	0,4 a	1,8 ab	5,6 a	10,0 a	18,0 a	28,8 a	31,3 a
2	Key EW	1,0	L/HA	0,1 a	0,2 a	0,2 bc	0,2 b	0,2 b	0,2 c	0,1 c	0,0 c
3	AS0121/A	20,0	L/HA	0,1 a	0,1 a	0,6 bc	0,6 b	0,3 b	0,3 c	0,1 c	0,1 c
4	AS0121/B	20,0	L/HA	0,1 a	0,1 a	0,1 c	0,2 b	0,2 b	0,2 c	0,2 c	0,1 c
5	AS0121/C	20,0	L/HA	0,1 a	0,2 a	1,2 abc	4,0 ab	6,5 a	9,1 b	11,3 bc	9,3 bc
6	AS0121/D	20,0	L/HA	0,2 a	0,5 a	1,8 ab	5,4 a	8,0 a	12,5 ab	18,1 ab	19,0 b
7	E601	400	KG/HA	0,1 a	0,5 a	2,4 a	7,6 a	8,3 a	9,8 ab	15,0 b	16,3 b
LSD (P=.05)				0,09	0,38	1,59	4,09	5,87	8,55	12,57	12,18
Standard Deviation				0,06	0,26	1,07	2,75	3,95	5,76	8,46	8,20
CV				54,21	100,19	94,76	81,62	82,81	80,61	80,53	75,6
Replicate F				3,882	0,635	0,829	1,676	0,995	1,181	1,184	0,715
Replicate Prob(F)				0,0266	0,6021	0,4953	0,2077	0,4177	0,3449	0,3436	0,5556
Treatment F				1,412	1,738	2,670	4,891	4,898	6,064	6,843	8,574
Treatment Prob(F)				0,2639	0,1693	0,0494	0,0040	0,0039	0,0013	0,0007	0,0002

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Column 1-8 Footnote: % disease infection

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-1 green 8 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Pest Type			D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code			FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP
Pest Name			Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.
Crop Code			GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG
BBCH Scale			BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE
Crop Name			Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses
Rating Date			22/Oct/2007	2/Nov/2007	21/Nov/2007	13/Dec/2007	14/Jan/2008	13/Feb/2008	12/Mar/2008	7/Apr/2008
Rating Data Type			AREA	AREA	AREA	AREA	AREA	AREA	AREA	AREA
Rating Unit			%	%	%	%	%	%	%	%
Trt-Eval Interval			11 DA-A	22 DA-A	19 DA-C	22 DA-D	32 DA-E	30 DA-F	58 DA-F	84 DA-F
Number of Decimals				1	1	1	1	1	1	1
Trt No.	Treatment Name	Rate	Rate Unit	2	5	8	11	14	17	20	23
1	Untreated			0 a	0,1 a	0,8 a	2,3 a	3,5 a	7,9 a	10,0 a	9,4 a
2	Key EW	1,0	L/HA	0 a	0,0 a	0,0 a	0,0 c	0,0 c	0,0 c	0,0 c	0,0 c
3	AS0121/A	20,0	L/HA	0 a	0,0 a	0,0 a	0,0 c	0,0 c	0,0 c	0,0 c	0,0 c
4	AS0121/B	20,0	L/HA	0 a	0,0 a	0,0 a	0,0 c	0,0 c	0,0 c	0,0 c	0,0 c
5	AS0121/C	20,0	L/HA	0 a	0,0 a	0,1 a	1,9 ab	2,9 ab	6,3 ab	7,4 ab	5,5 b
6	AS0121/D	20,0	L/HA	0 a	0,1 a	0,4 a	1,6 ab	3,1 a	7,3 a	7,5 ab	6,3 ab
7	E601	400	KG/HA	0 a	0,0 a	0,3 a	1,0 bc	1,4 bc	3,5 b	4,6 b	4,1 b
LSD (P=.05)				0,0	0,20	0,65	1,06	1,74	2,92	3,58	3,50
Standard Deviation				0,0	0,14	0,44	0,71	1,17	1,96	2,41	2,35
CV				0,0	384,42	204,2	73,98	75,59	55,25	57,22	65,28
Replicate F				0,000	0,632	1,617	1,614	1,509	0,243	0,356	0,711
Replicate Prob(F)				1,0000	0,6041	0,2206	0,2212	0,2462	0,8650	0,7852	0,5582
Treatment F				0,000	0,789	1,601	7,480	7,386	13,405	12,350	9,996
Treatment Prob(F)				1,0000	0,5897	0,2041	0,0004	0,0004	0,0001	0,0001	0,0001

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Column 1-8 Footnote: % grass surface killed

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-2 green 13 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	2	5	8	11	14	17	20	23
Pest Type				D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code				FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP
Pest Name				Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.
Crop Code				GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG
BBCH Scale				BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE
Crop Name				Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses
Rating Date				22/Oct/2007	2/Nov/2007	21/Nov/2007	13/Dec/2007	14/Jan/2008	13/Feb/2008	12/Mar/2008	7/Apr/2008
Rating Data Type				AREA	AREA	AREA	AREA	AREA	AREA	AREA	AREA
Rating Unit				%	%	%	%	%	%	%	%
Trt-Eval Interval				11 DA-A	22 DA-A	19 DA-C	22 DA-D	32 DA-E	30 DA-F	58 DA-F	84 DA-F
Number of Decimals				1	1	1	1	1	1	1	1
1	Untreated			0,0 a	0,0 a	0,1 a	1,4 a	3,0 a	8,4 a	10,6 a	9,3 a
2	Key EW	1,0	L/HA	0,0 a	0,0 a	0,0 a	0,0 a	0,0 b	0,0 c	0,0 c	0,0 b
3	AS0121/A	20,0	L/HA	0,0 a	0,0 a	0,0 a	0,0 a	0,0 b	0,0 c	0,0 c	0,0 b
4	AS0121/B	20,0	L/HA	0,0 a	0,0 a	0,0 a	0,0 a	0,0 b	0,0 c	0,0 c	0,0 b
5	AS0121/C	20,0	L/HA	0,0 a	0,0 a	0,0 a	0,8 a	1,3 b	2,3 bc	3,6 bc	2,8 b
6	AS0121/D	20,0	L/HA	0,0 a	0,0 a	0,1 a	1,0 a	1,5 b	4,8 b	6,5 b	6,5 a
7	E601	400	KG/HA	0,0 a	0,0 a	0,0 a	0,5 a	0,8 b	2,3 bc	3,0 bc	3,0 b
LSD (P=.05)				0,00	0,00	0,20	1,01	1,52	2,94	3,67	3,15
Standard Deviation				0,00	0,00	0,14	0,68	1,02	1,98	2,47	2,12
CV				0,0	0,0	384,42	130,87	108,87	78,31	73,04	68,77
Replicate F				0,000	0,000	0,632	1,937	1,881	1,423	1,692	0,762
Replicate Prob(F)				1,0000	1,0000	0,6041	0,1597	0,1690	0,2687	0,2043	0,5300
Treatment F				0,000	0,000	0,789	2,650	4,690	9,963	10,562	11,647
Treatment Prob(F)				1,0000	1,0000	0,5897	0,0507	0,0049	0,0001	0,0001	0,0001

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Column 1-8 Footnote: % grass surface killed

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-1 green 8 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Pest Type			D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code			FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP
Pest Name			Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.
Crop Code			GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG
BBCH Scale			BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE
Crop Name			Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses
Rating Date			22/Oct/2007	2/Nov/2007	21/Nov/2007	13/Dec/2007	14/Jan/2008	13/Feb/2008	12/Mar/2008	7/Apr/2008
Rating Data Type			COLOR	COLOR	COLOR	COLOR	COLOR	COLOR	COLOR	COLOR
Rating Unit			0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Trt-Eval Interval			11 DA-A	22 DA-A	19 DA-C	22 DA-D	32 DA-E	30 DA-F	58 DA-F	84 DA-F
Number of Decimals			1	1	1	1	1	1	1	1
Trt No.	Treatment Name	Rate	Rate Unit	3	6	9	12	15	18	21	24
1	Untreated			10,0 a	10,0 a	9,3 b	8,6 b	7,9 b	7,1 c	5,9 d	6,8 d
2	Key EW	1,0	L/HA	10,0 a	10,0 a	10,0 a	9,8 a	9,8 a	9,1 b	8,6 b	8,4 a
3	AS0121/A	20,0	L/HA	10,0 a	10,0 a	10,0 a	9,8 a	9,9 a	9,5 a	9,1 a	8,5 a
4	AS0121/B	20,0	L/HA	10,0 a	10,0 a	10,0 a	9,6 a	9,6 a	9,4 ab	8,9 ab	8,5 a
5	AS0121/C	20,0	L/HA	10,0 a	10,0 a	8,9 c	8,0 c	7,8 b	6,9 cd	6,1 d	7,3 c
6	AS0121/D	20,0	L/HA	10,0 a	10,0 a	8,9 c	8,4 bc	7,6 b	6,6 d	6,3 d	7,1 c
7	E601	400	KG/HA	10,0 a	10,0 a	10,0 a	9,8 a	9,5 a	9,1 b	8,1 c	7,9 b
LSD (P=.05)				0,00	0,00	0,36	0,50	0,41	0,35	0,46	0,36
Standard Deviation				0,00	0,00	0,24	0,34	0,28	0,24	0,31	0,24
CV				0,0	0,0	2,53	3,72	3,14	2,88	4,1	3,09
Replicate F				0,000	0,000	0,407	2,147	1,538	0,632	0,495	0,155
Replicate Prob(F)				1,0000	1,0000	0,7500	0,1299	0,2389	0,6041	0,6904	0,9250
Treatment F				0,000	0,000	20,593	20,276	56,385	119,737	84,835	36,724
Treatment Prob(F)				1,0000	1,0000	0,0001	0,0001	0,0001	0,0001	0,0001	0,0001

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Column 1-8 Footnote: Colour 0-10 where 10 = full green

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-2 green 13 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Pest Type	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease	D Disease
Pest Code	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP	FUSASP
Pest Name	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.	Fusarium spp.
Crop Code	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG	GGGGG
BBCH Scale	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE	BGWE
Crop Name	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses	Grasses
Rating Date	22/Oct/2007	2/Nov/2007	21/Nov/2007	13/Dec/2007	14/Jan/2008	13/Feb/2008	12/Mar/2008	7/Apr/2008
Rating Data Type	COLOR	COLOR	COLOR	COLOR	COLOR	COLOR	COLOR	COLOR
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Trt-Eval Interval	11 DA-A	22 DA-A	19 DA-C	22 DA-D	32 DA-E	30 DA-F	58 DA-F	84 DA-F
Number of Decimals	1	1	1	1	1	1	1	1
Trt No. Treatment Name Rate Rate Unit	3	6	9	12	15	18	21	24
1 Untreated	10,0 a	10,0 a	9,6 b	9,0 c	9,1 b	7,3 d	6,5 b	7,0 b
2 Key EW 1,0 L/HA	10,0 a	10,0 a	10,0 a	10,0 a	10,0 a	9,1 b	8,5 a	8,5 a
3 AS0121/A 20,0 L/HA	10,0 a	10,0 a	10,0 a	9,8 ab	9,9 a	9,5 ab	8,9 a	8,5 a
4 AS0121/B 20,0 L/HA	10,0 a	10,0 a	10,0 a	9,5 b	9,1 b	8,5 c	8,5 a	8,4 a
5 AS0121/C 20,0 L/HA	10,0 a	10,0 a	9,0 c	8,3 d	8,3 d	7,4 d	7,0 b	7,1 b
6 AS0121/D 20,0 L/HA	10,0 a	10,0 a	9,3 c	8,8 c	8,6 c	6,9 d	6,6 b	7,1 b
7 E601 400 KG/HA	10,0 a	10,0 a	10,0 a	10,0 a	10,0 a	9,8 a	9,0 a	8,4 a
LSD (P=.05)	0,00	0,00	0,32	0,37	0,34	0,53	0,56	0,29
Standard Deviation	0,00	0,00	0,22	0,25	0,23	0,36	0,37	0,19
CV	0,0	0,0	2,23	2,7	2,45	4,31	4,76	2,47
Replicate F	0,000	0,000	0,702	0,563	0,462	1,915	3,234	0,632
Replicate Prob(F)	1,0000	1,0000	0,5630	0,6467	0,7126	0,1633	0,0468	0,6041
Treatment F	0,000	0,000	15,128	28,500	37,846	42,600	34,617	56,053
Treatment Prob(F)	1,0000	1,0000	0,0001	0,0001	0,0001	0,0001	0,0001	0,0001

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Column 1-8 Footnote: Colour 0-10 where 10 = full green

8. PLOT DATA SUMMARY

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-1 green 8 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	Plot	D Disease FUSASP 22/Oct/2007 COUDIS % 11 DA-A 1	D Disease FUSASP 2/Nov/2007 COUDIS % 22 DA-A 1	D Disease FUSASP 21/Nov/2007 COUDIS % 19 DA-C 1	D Disease FUSASP 13/Dec/2007 COUDIS % 22 DA-D 1	D Disease FUSASP 14/Jan/2008 COUDIS % 32 DA-E 1	D Disease FUSASP 13/Feb/2008 COUDIS % 30 DA-F 1	D Disease FUSASP 12/Mar/2008 COUDIS % 58 DA-F 1	D Disease FUSASP 7/Apr/2008 COUDIS % 84 DA-F 1
					1	4	7	10	13	16	19	22
1	Untreated			102	2,0	6,0	12,0	25,0	35,0	50,0	65,0	60,0
				206	1,0	1,0	3,0	7,5	12,0	20,0	25,0	25,0
				304	0,5	0,5	3,0	10,0	20,0	40,0	50,0	50,0
				403	0,5	2,0	10,0	25,0	35,0	50,0	55,0	50,0
				Mean =	1,0	2,4	7,0	16,9	25,5	40,0	48,8	46,3
2	Key EW	1,0	L/HA	104	0,5	0,5	0,5	0,5	0,5	0,2	0,2	0,1
				205	0,3	0,3	0,5	0,5	0,5	0,5	0,2	0,1
				302	0,3	0,5	0,5	0,5	0,5	0,2	0,1	0,0
				407	0,1	0,3	0,5	0,5	0,5	0,2	0,2	0,1
				Mean =	0,3	0,4	0,5	0,5	0,5	0,3	0,2	0,1
3	AS0121/A	20,0	L/HA	103	0,5	1,5	2,0	4,0	2,0	0,5	0,2	0,2
				207	0,5	0,5	1,0	2,0	0,5	0,5	0,2	0,1
				301	0,5	0,5	1,5	3,0	2,0	1,0	0,5	0,2
				406	0,1	0,3	0,5	0,5	0,1	0,1	0,1	0,1
				Mean =	0,4	0,7	1,3	2,4	1,2	0,5	0,3	0,2
4	AS0121/B	20,0	L/HA	101	0,1	0,5	0,5	0,5	0,1	0,1	0,1	0,0
				204	0,3	0,3	0,5	0,5	0,3	0,1	0,1	0,0
				305	0,1	0,1	0,2	0,5	0,7	0,5	0,5	0,2
				402	0,3	0,3	0,5	0,5	0,5	0,2	0,1	0,1
				Mean =	0,2	0,3	0,4	0,5	0,4	0,2	0,2	0,1
5	AS0121/C	20,0	L/HA	107	1,0	1,0	2,0	6,0	12,0	20,0	25,0	20,0
				202	1,5	5,0	12,0	30,0	40,0	50,0	60,0	50,0
				306	0,5	1,0	4,0	7,5	12,0	20,0	25,0	20,0
				405	0,5	1,0	3,0	12,0	20,0	30,0	35,0	30,0
				Mean =	0,9	2,0	5,3	13,9	21,0	30,0	36,3	30,0
6	AS0121/D	20,0	L/HA	105	1,0	1,5	2,5	8,0	15,0	25,0	30,0	30,0
				203	1,5	4,0	6,0	20,0	35,0	45,0	50,0	40,0
				307	0,5	0,5	2,0	5,0	10,0	20,0	30,0	30,0
				401	1,0	3,0	10,0	25,0	35,0	50,0	50,0	50,0
				Mean =	1,0	2,3	5,1	14,5	23,8	35,0	40,0	37,5
7	E601	400	KG/HA	106	0,5	1,0	1,0	3,0	5,0	7,5	7,5	7,5
				201	1,5	5,0	7,5	15,0	20,0	25,0	30,0	30,0
				303	1,0	1,5	3,0	5,0	7,0	10,0	20,0	20,0
				404	0,5	2,0	6,0	12,0	17,0	20,0	25,0	25,0
				Mean =	0,9	2,4	4,4	8,8	12,3	15,6	20,6	20,6

Column 1-8 Footnote: % disease infection

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (Microdochium nivale) on golf greens

Trial ID: 07757-2 green 13 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	Plot	D Disease FUSASP 22/Oct/2007 COUDIS % 11 DA-A 1	D Disease FUSASP 2/Nov/2007 COUDIS % 22 DA-A 1	D Disease FUSASP 21/Nov/2007 COUDIS % 19 DA-C 1	D Disease FUSASP 13/Dec/2007 COUDIS % 22 DA-D 1	D Disease FUSASP 14/Jan/2008 COUDIS % 32 DA-E 1	D Disease FUSASP 13/Feb/2008 COUDIS % 30 DA-F 1	D Disease FUSASP 12/Mar/2008 COUDIS % 58 DA-F 1	D Disease FUSASP 7/Apr/2008 COUDIS % 84 DA-F 1
					1	4	7	10	13	16	19	22
1	Untreated			104	0,2	0,5	2,0	7,5	10,0	20,0	35,0	35,0
				207	0,1	0,5	1,5	5,0	12,0	25,0	40,0	40,0
				303	0,1	0,2	2,0	6,0	10,0	15,0	20,0	25,0
				402	0,1	0,2	1,5	4,0	8,0	12,0	20,0	25,0
				Mean =	0,1	0,4	1,8	5,6	10,0	18,0	28,8	31,3
2	Key EW	1,0	L/HA	103	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,0
				206	0,1	0,3	0,5	0,5	0,5	0,5	0,2	0,1
				305	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,0
				406	0,1	0,2	0,1	0,1	0,1	0,1	0,1	0,0
				Mean =	0,1	0,2	0,2	0,2	0,2	0,2	0,1	0,0
3	AS0121/A	20,0	L/HA	106	0,1	0,1	1,0	1,0	0,7	0,5	0,2	0,1
				202	0,2	0,1	0,2	0,5	0,1	0,1	0,1	0,0
				307	0,1	0,1	0,5	0,5	0,2	0,2	0,1	0,1
				403	0,1	0,1	0,5	0,5	0,2	0,2	0,1	0,1
				Mean =	0,1	0,1	0,6	0,6	0,3	0,3	0,1	0,1
4	AS0121/B	20,0	L/HA	101	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,0
				204	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,0
				304	0,1	0,1	0,1	0,2	0,3	0,3	0,2	0,1
				405	0,1	0,1	0,2	0,2	0,2	0,2	0,2	0,1
				Mean =	0,1	0,1	0,1	0,2	0,2	0,2	0,2	0,1
5	AS0121/C	20,0	L/HA	105	0,2	0,5	3,0	10,0	15,0	20,0	25,0	20,0
				201	0,2	0,1	0,2	2,0	3,0	5,0	5,0	5,0
				306	0,1	0,1	1,0	3,0	7,0	10,0	12,5	10,0
				401	0,1	0,1	0,5	1,0	1,0	1,5	2,5	2,0
				Mean =	0,1	0,2	1,2	4,0	6,5	9,1	11,3	9,3
6	AS0121/D	20,0	L/HA	102	0,2	0,2	0,5	3,5	4,5	6,0	7,5	6,0
				205	0,3	1,0	4,0	10,0	15,0	25,0	35,0	35,0
				301	0,1	0,1	0,5	2,0	2,5	4,0	5,0	5,0
				407	0,1	0,7	2,0	6,0	10,0	15,0	25,0	30,0
				Mean =	0,2	0,5	1,8	5,4	8,0	12,5	18,1	19,0
7	E601	400	KG/HA	107	0,1	1,0	5,0	15,0	17,0	20,0	30,0	30,0
				203	0,2	0,1	1,0	4,0	4,5	6,0	10,0	10,0
				302	0,1	0,5	1,5	4,0	4,0	5,0	10,0	12,5
				404	0,1	0,2	2,0	7,5	7,5	8,0	10,0	12,5
				Mean =	0,1	0,5	2,4	7,6	8,3	9,8	15,0	16,3

Column 1 Footnote: % disease infection

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-1 green 8 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	Plot	D Disease FUSASP 22/Oct/2007 AREA % 11 DA-A 1	D Disease FUSASP 2/Nov/2007 AREA % 22 DA-A 1	D Disease FUSASP 21/Nov/2007 AREA % 19 DA-C 1	D Disease FUSASP 13/Dec/2007 AREA % 22 DA-D 1	D Disease FUSASP 14/Jan/2008 AREA % 32 DA-E 1	D Disease FUSASP 13/Feb/2008 AREA % 30 DA-F 1	D Disease FUSASP 12/Mar/2008 AREA % 58 DA-F 1	D Disease FUSASP 7/Apr/2008 AREA % 84 DA-F 1
					2	5	8	11	14	17	20	23
1	Untreated			102	0,0	0,0	2,0	3,0	5,0	10,0	10,0	7,5
				206	0,0	0,0	0,0	1,0	1,5	4,0	5,0	5,0
				304	0,0	0,0	0,0	2,0	2,5	10,0	15,0	15,0
				403	0,0	0,5	1,0	3,0	5,0	7,5	10,0	10,0
				Mean =	0,0	0,1	0,8	2,3	3,5	7,9	10,0	9,4
2	Key EW	1,0	L/HA	104	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				205	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				302	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				407	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				Mean =	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
3	AS0121/A	20,0	L/HA	103	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				207	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				301	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				406	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				Mean =	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
4	AS0121/B	20,0	L/HA	101	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				204	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				305	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				402	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				Mean =	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
5	AS0121/C	20,0	L/HA	107	0,0	0,0	0,5	0,5	1,0	5,0	5,0	4,0
				202	0,0	0,0	0,0	3,0	5,0	10,0	12,0	10,0
				306	0,0	0,0	0,0	2,0	2,5	5,0	5,0	3,0
				405	0,0	0,0	0,0	2,0	3,0	5,0	7,5	5,0
				Mean =	0,0	0,0	0,1	1,9	2,9	6,3	7,4	5,5
6	AS0121/D	20,0	L/HA	105	0,0	0,0	1,0	1,0	3,0	7,5	7,5	5,0
				203	0,0	0,5	0,5	2,0	4,0	7,5	7,5	5,0
				307	0,0	0,0	0,0	0,5	0,5	4,0	5,0	5,0
				401	0,0	0,0	0,0	3,0	5,0	10,0	10,0	10,0
				Mean =	0,0	0,1	0,4	1,6	3,1	7,3	7,5	6,3
7	E601	400	KG/HA	106	0,0	0,0	0,0	0,0	0,5	1,0	1,5	1,5
				201	0,0	0,0	1,0	1,0	1,5	5,0	7,0	5,0
				303	0,0	0,0	0,0	1,0	1,0	3,0	5,0	5,0
				404	0,0	0,0	0,0	2,0	2,5	5,0	5,0	5,0
				Mean =	0,0	0,0	0,3	1,0	1,4	3,5	4,6	4,1

Column 1-8 Footnote: % grass surface killed

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-2 green 13 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	Plot	D Disease FUSASP 22/Oct/2007 AREA % 11 DA-A 1	D Disease FUSASP 2/Nov/2007 AREA % 22 DA-A 1	D Disease FUSASP 21/Nov/2007 AREA % 19 DA-C 1	D Disease FUSASP 13/Dec/2007 AREA % 22 DA-D 1	D Disease FUSASP 14/Jan/2008 AREA % 32 DA-E 1	D Disease FUSASP 13/Feb/2008 AREA % 30 DA-F 1	D Disease FUSASP 12/Mar/2008 AREA % 58 DA-F 1	D Disease FUSASP 7/Apr/2008 AREA % 84 DA-F 1
					2	5	8	11	14	17	20	23
1	Untreated			104	0,0	0,0	0,0	2,0	4,0	10,0	12,5	10,0
				207	0,0	0,0	0,0	2,0	4,0	10,0	15,0	12,0
				303	0,0	0,0	0,0	0,5	2,0	7,5	7,5	7,5
				402	0,0	0,0	0,5	1,0	2,0	6,0	7,5	7,5
				Mean =	0,0	0,0	0,1	1,4	3,0	8,4	10,6	9,3
2	Key EW	1,0	L/HA	103	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				206	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				305	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				406	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				Mean =	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
3	AS0121/A	20,0	L/HA	106	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				202	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				307	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				403	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				Mean =	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
4	AS0121/B	20,0	L/HA	101	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				204	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				304	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				405	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
				Mean =	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
5	AS0121/C	20,0	L/HA	105	0,0	0,0	0,0	2,0	4,0	6,0	7,5	5,0
				201	0,0	0,0	0,0	0,5	0,5	1,0	2,5	2,0
				306	0,0	0,0	0,0	0,5	0,7	2,0	4,0	4,0
				401	0,0	0,0	0,0	0,0	0,1	0,2	0,2	0,2
				Mean =	0,0	0,0	0,0	0,8	1,3	2,3	3,6	2,8
6	AS0121/D	20,0	L/HA	102	0,0	0,0	0,0	0,5	0,7	3,0	4,0	4,0
				205	0,0	0,0	0,5	3,0	4,0	10,0	12,5	10,0
				301	0,0	0,0	0,0	0,0	0,2	1,0	2,5	2,0
				407	0,0	0,0	0,0	0,5	1,0	5,0	7,0	10,0
				Mean =	0,0	0,0	0,1	1,0	1,5	4,8	6,5	6,5
7	E601	400	KG/HA	107	0,0	0,0	0,0	1,5	2,0	5,0	6,0	6,0
				203	0,0	0,0	0,0	0,0	0,2	1,0	2,0	2,0
				302	0,0	0,0	0,0	0,0	0,2	1,0	2,0	2,0
				404	0,0	0,0	0,0	0,5	0,7	2,0	2,0	2,0
				Mean =	0,0	0,0	0,0	0,5	0,8	2,3	3,0	3,0

Column 1-8 Footnote: % grass surface killed

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-1 green 8 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	Plot	D Disease FUSASP 22/Oct/2007 COLOR 0-10 11 DA-A 1	D Disease FUSASP 2/Nov/2007 COLOR 0-10 22 DA-A 1	D Disease FUSASP 21/Nov/2007 COLOR 0-10 19 DA-C 1	D Disease FUSASP 13/Dec/2007 COLOR 0-10 22 DA-D 1	D Disease FUSASP 14/Jan/2008 COLOR 0-10 32 DA-E 1	D Disease FUSASP 13/Feb/2008 COLOR 0-10 30 DA-F 1	D Disease FUSASP 12/Mar/2008 COLOR 0-10 58 DA-F 1	D Disease FUSASP 7/Apr/2008 COLOR 0-10 84 DA-F 1
					3	6	9	12	15	18	21	24
1	Untreated			102	10,0	10,0	9,5	9,0	8,0	7,0	5,5	6,5
				206	10,0	10,0	9,0	8,0	7,5	7,0	6,0	7,0
				304	10,0	10,0	9,5	9,0	8,0	7,5	6,0	6,5
				403	10,0	10,0	9,0	8,5	8,0	7,0	6,0	7,0
				Mean =	10,0	10,0	9,3	8,6	7,9	7,1	5,9	6,8
2	Key EW	1,0	L/HA	104	10,0	10,0	10,0	10,0	10,0	9,0	8,5	8,5
				205	10,0	10,0	10,0	10,0	10,0	9,0	8,5	8,5
				302	10,0	10,0	10,0	9,5	9,5	9,5	9,0	8,5
				407	10,0	10,0	10,0	9,5	9,5	9,0	8,5	8,0
				Mean =	10,0	10,0	10,0	9,8	9,8	9,1	8,6	8,4
3	AS0121/A	20,0	L/HA	103	10,0	10,0	10,0	10,0	10,0	9,5	9,0	8,5
				207	10,0	10,0	10,0	9,0	9,5	9,5	9,0	8,5
				301	10,0	10,0	10,0	10,0	10,0	9,5	9,5	8,5
				406	10,0	10,0	10,0	10,0	10,0	9,5	9,0	8,5
				Mean =	10,0	10,0	10,0	9,8	9,9	9,5	9,1	8,5
4	AS0121/B	20,0	L/HA	101	10,0	10,0	10,0	10,0	10,0	9,5	9,0	8,5
				204	10,0	10,0	10,0	9,5	9,5	9,5	9,0	8,5
				305	10,0	10,0	10,0	9,5	9,5	9,0	8,5	8,5
				402	10,0	10,0	10,0	9,5	9,5	9,5	9,0	8,5
				Mean =	10,0	10,0	10,0	9,6	9,6	9,4	8,9	8,5
5	AS0121/C	20,0	L/HA	107	10,0	10,0	9,0	8,0	7,5	7,0	6,0	7,0
				202	10,0	10,0	9,0	8,0	7,5	6,5	6,0	7,0
				306	10,0	10,0	8,5	8,0	8,0	7,0	6,5	7,5
				405	10,0	10,0	9,0	8,0	8,0	7,0	6,0	7,5
				Mean =	10,0	10,0	8,9	8,0	7,8	6,9	6,1	7,3
6	AS0121/D	20,0	L/HA	105	10,0	10,0	8,5	8,0	7,5	6,5	6,0	7,0
				203	10,0	10,0	8,5	8,0	7,5	6,5	7,0	7,5
				307	10,0	10,0	9,0	8,5	7,5	6,5	6,0	7,0
				401	10,0	10,0	9,5	9,0	8,0	7,0	6,0	7,0
				Mean =	10,0	10,0	8,9	8,4	7,6	6,6	6,3	7,1
7	E601	400	KG/HA	106	10,0	10,0	10,0	10,0	10,0	9,5	8,5	8,0
				201	10,0	10,0	10,0	9,5	9,5	9,0	8,0	7,5
				303	10,0	10,0	10,0	10,0	9,0	9,0	8,0	8,0
				404	10,0	10,0	10,0	9,5	9,5	9,0	8,0	8,0
				Mean =	10,0	10,0	10,0	9,8	9,5	9,1	8,1	7,9

Column 1-8 Footnote: Colour 0-10 where 10 = full green

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-2 green 13 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Trt No.	Treatment Name	Rate	Rate Unit	Plot	D Disease FUSASP 22/Oct/2007 COLOR 0-10 11 DA-A 1	D Disease FUSASP 2/Nov/2007 COLOR 0-10 22 DA-A 1	D Disease FUSASP 21/Nov/2007 COLOR 0-10 19 DA-C 1	D Disease FUSASP 13/Dec/2007 COLOR 0-10 22 DA-D 1	D Disease FUSASP 14/Jan/2008 COLOR 0-10 32 DA-E 1	D Disease FUSASP 13/Feb/2008 COLOR 0-10 30 DA-F 1	D Disease FUSASP 12/Mar/2008 COLOR 0-10 58 DA-F 1	D Disease FUSASP 7/Apr/2008 COLOR 0-10 84 DA-F 1
					3	6	9	12	15	18	21	24
1	Untreated			104	10,0	10,0	9,5	9,0	9,0	7,0	6,5	7,0
				207	10,0	10,0	9,5	9,0	9,0	7,5	6,5	7,0
				303	10,0	10,0	10,0	9,0	9,5	7,5	7,0	7,0
				402	10,0	10,0	9,5	9,0	9,0	7,0	6,0	7,0
				Mean =	10,0	10,0	9,6	9,0	9,1	7,3	6,5	7,0
2	Key EW	1,0	L/HA	103	10,0	10,0	10,0	10,0	10,0	9,0	8,5	8,5
				206	10,0	10,0	10,0	10,0	10,0	9,0	8,5	8,5
				305	10,0	10,0	10,0	10,0	10,0	9,5	8,5	8,5
				406	10,0	10,0	10,0	10,0	10,0	9,0	8,5	8,5
				Mean =	10,0	10,0	10,0	10,0	10,0	9,1	8,5	8,5
3	AS0121/A	20,0	L/HA	106	10,0	10,0	10,0	9,5	9,5	9,5	9,0	8,5
				202	10,0	10,0	10,0	9,5	10,0	9,5	8,5	8,5
				307	10,0	10,0	10,0	10,0	10,0	9,5	9,5	8,5
				403	10,0	10,0	10,0	10,0	10,0	9,5	8,5	8,5
				Mean =	10,0	10,0	10,0	9,8	9,9	9,5	8,9	8,5
4	AS0121/B	20,0	L/HA	101	10,0	10,0	10,0	9,5	9,5	8,5	8,5	8,0
				204	10,0	10,0	10,0	9,5	9,0	8,5	8,5	8,5
				304	10,0	10,0	10,0	9,5	9,0	8,5	8,5	8,5
				405	10,0	10,0	10,0	9,5	9,0	8,5	8,5	8,5
				Mean =	10,0	10,0	10,0	9,5	9,1	8,5	8,5	8,4
5	AS0121/C	20,0	L/HA	105	10,0	10,0	9,5	8,5	8,5	7,0	6,5	7,0
				201	10,0	10,0	9,0	8,5	8,5	8,0	7,5	7,5
				306	10,0	10,0	8,5	8,0	8,0	8,0	7,5	7,0
				401	10,0	10,0	9,0	8,0	8,0	6,5	6,5	7,0
				Mean =	10,0	10,0	9,0	8,3	8,3	7,4	7,0	7,1
6	AS0121/D	20,0	L/HA	102	10,0	10,0	9,5	9,0	9,0	7,5	7,5	7,5
				205	10,0	10,0	9,5	9,0	8,5	7,0	6,5	7,0
				301	10,0	10,0	9,0	8,0	8,5	6,5	6,5	7,0
				407	10,0	10,0	9,0	9,0	8,5	6,5	6,0	7,0
				Mean =	10,0	10,0	9,3	8,8	8,6	6,9	6,6	7,1
7	E601	400	KG/HA	107	10,0	10,0	10,0	10,0	10,0	10,0	9,5	8,5
				203	10,0	10,0	10,0	10,0	10,0	10,0	9,0	8,5
				302	10,0	10,0	10,0	10,0	10,0	9,5	9,0	8,0
				404	10,0	10,0	10,0	10,0	10,0	9,5	8,5	8,5
				Mean =	10,0	10,0	10,0	10,0	10,0	9,8	9,0	8,4

Column 1-8 Footnote: Colour 0-10 where 10 = full green

9. PLOT MAP

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-1 green 8 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Replicate	1		2		3		4
Treatment no.	5		3		6		2
Plot no.	107		207		307		407
	7		1		5		3
	106		206		306		406
	6		2		4		5
	105		205		305		405
	2		4		1		7
	104		204		304		404
	3		6		7		1
	103		203		303		403
	1		5		2		4
	102		202		302		402
	4		7		3		6
	101		201		301		401

University of Aarhus, Department of IPM, Flakkebjerg

Control of Fusarium patch (*Microdochium nivale*) on golf greens

Trial ID: 07757-2 green 13 Study Director:
Location: Skovlunde Investigator: Klaus Paaske

Replicate	1		2		3		4
Treatment no.	7		1		3		6
Plot no.	107		207		307		407
	3		2		5		2
	106		206		306		406
	5		6		2		4
	105		205		305		405
	1		4		4		7
	104		204		304		404
	2		7		1		3
	103		203		303		403
	6		3		7		1
	102		202		302		402
	4		5		6		5
	101		201		301		401