

TURF TRIAL INFORMATION

Greenmaster[®]
Pro-Lite[®]

Optimizing Winter Sports Pitch Recovery: Key insights into effective nutrition for Turf Managers

SUMMARY

- Winter sports field recovery trial completed at a football club in northern England.
- Mature *Lolium perenne* sward on a professional sand-based sports rootzone.
- Six conventional release mini-granule products with different nitrogen content and forms were applied once at 30g/m² delivering a range of nitrogen inputs.
- Turf response assessed by color, quality and NDVI was significantly greater (p<0.05) where nitrogen application rates were higher but also where combinations of urea and ammonium were utilized.

METHODS

A sports pitch trial was completed at a football club in North England on an existing *Lolium perenne* sward established on professional sand-based rootzone. Six fertilizers and a control treatment (no fertilizer) were laid out in a randomized block trial with 4 replications. All fertilizers were applied at a recommended rate of 30g/m² at the trial start which delivered a range of nutrient inputs with nitrogen rate and form being the key focus (as noted in treatments section below). The trial ran for 10 weeks from 4th February to 18th April. Weekly assessments of turf color and quality (assessed visually on a 1-10 scale), and NDVI (Greenseeker handheld meter) were made.

TREATMENTS



Double K

7-0-14+8CaO+4MgO
1% Ammonium
6% Methylene Urea(MU)

30g/m² = 21 kg N ha⁻¹



Autumn

6-5-10+6Fe
4.1% Ammonium
1.9% Urea

30g/m² = 18 kg N ha⁻¹



Invigorator

4-0-8+4Fe
4% Ammonium

30g/m² = 12 kg N ha⁻¹



Turf Tonic

8-0-0+3Fe+3MgO
4.5% Ammonium
3.5% Urea

30g/m² = 24 kg N ha⁻¹



Invigorator Plus

4-0-14+8Fe+2MgO
4% Ammonium

30g/m² = 12 kg N ha⁻¹



Cold Start

11-5-5+8Fe
5.5% Ammonium
5.5% Urea

30g/m² = 33 kg N ha⁻¹



Trial Setup
1st February



Week 2
12th February



Week 4
23rd February



Week 7
16th March

RESULTS

Figure 1. Mean Turf Quality (1-10)

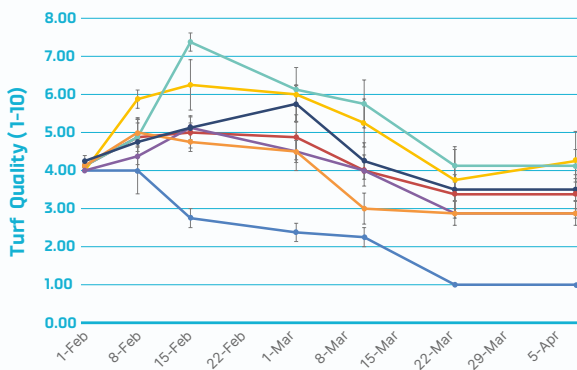
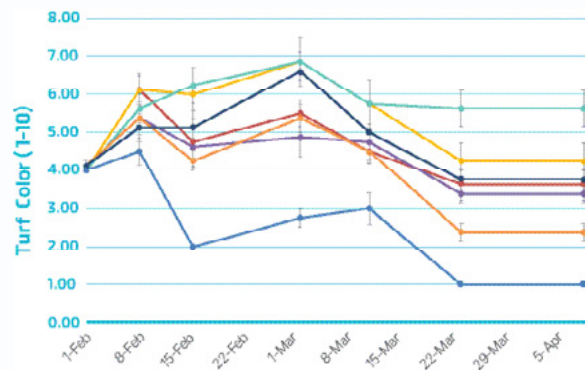


Figure 2. Mean Turf Visual Color (1-10)



● Control ● Invigorator (12) ● Turf Tonic (24) ● Invigorator Plus (12) ● Cold Start (33) ● Double K CalMag (21) ● Autumn (18)

Error bars indicate standard error of the mean. Figure in brackets indicates kg N applied per ha.

The different fertilizer treatments generated significantly ($p < 0.05$) different turf color and quality responses which lasted for the whole 10-week trial duration (figure 1&2), which will be a function of both the rate and form of fertilizer applied. The highest rates of nitrogen applied, for Cold Start (33 kg N ha^{-1}) and Turf Tonic (24 kg N ha^{-1}) did provide the greatest turf color and quality, demonstrating the importance of N to plant recovery after winter. However, the Double K product delivering the third highest rate of N (21 kg N ha^{-1}) did not provide an equivalent turf response (figure 1&2) which illustrates the function that nitrogen type also has. Greenmaster Pro-Lite Double K has a large portion of its nitrogen supplied as methylene urea which is not as readily available as ammonium and urea.

CONCLUSIONS

All products supplied nitrogen and iron to the sward with also varying amounts of potassium and magnesium, but the turf response (quality, color and NDVI) can be most closely related to the nitrogen rate and type. For Turf Managers these results may mean re-evaluating their fertilizer choices. An understanding of the form of nitrogen present in a fertilizer as well as selecting an application rate to deliver the required nitrogen to the plant is important. For this post winter period products utilizing combinations of urea and ammonium as conventionally released nitrogen performed better than a product containing methylene urea delivering a higher total N. As Turf Managers plan their post winter strategies, incorporating these findings into their fertilizer selection will be crucial. This approach ensures robust, healthy pitches ready for the spring season, aligning with the core responsibilities of modern turf management.

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