



Research Driven,
Proven Results™

TECHNICAL BULLETIN

USING GRIGG™ COLORANTS IN TURFGRASS MANAGEMENT

Colorants can optimize turf color and quality, improve aesthetics for dormant turf, and some may provide a physiological benefit (pigments) by reflecting potentially harmful near infrared (NIR) light.

Overview: Pigments vs. Paints

Turf managers have the ability to use colorants for a specific agronomic objective, or to simply paint the turf. In general, pigments and paints are chemically similar, but very different physically. Colorants contain specific pigments that produce a 'green' or 'green-blue' visible color, but the formulation and inert ingredients determine its use.

Colorants designed as paints are often applied to turf in an effort to cover up or mask an existing unwanted color or turf condition and are applied infrequently. Conversely, pigments such as GRIGG™ GreenPIG® are designed for routine use, and often applied with tank mix partners such as crop protectants and plant growth regulators or as part of a complete agronomic program. The physical characteristics of the colorant dictate to turf managers how to use these products most effectively.

Physical Characteristics and Differences of Pigments vs. Paints

Pigments (e.g. GreenPIG)

- Low viscosity and metal load, hence lower weight
- Designed for repeated use and to promote plant health
- Increased reflectance of potentially damaging NIR light
- Formulation/use rates/timings filter of more photosynthetic light for absorption and reflectance of NIR light.

Paint

- High viscosity and metal load, hence higher weight.
- Adjuvants to promote 'stickiness' - for infrequent use
- Corrosive to spray equipment and may cause pump seals to leak
- Greater staining potential

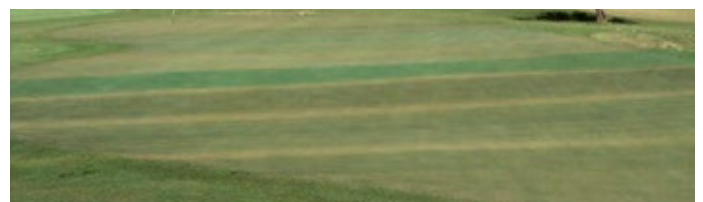
Are Pigments Absorbed by Turfgrass Leaf Tissue?

The answer is likely yes, but we cannot be entirely sure. It had been widely believed that colorants coat the leaf surface and remain there until being mowed off. However, anecdotal evidence might suggest that pigments are absorbed. For example:

- Excellent color can be maintained for 2-3 weeks after repeated mowing — depending on rate.
- Turf response to GreenPIG application can be different after application to dormant compared to semi dormant turfgrass.

These observations might suggest that pigment getting into the plant can provide color longevity and affect use rate and application frequency (see Figure 1).

Figure 1. Different color responses from pigments and paints applied to semi dormant Tifeagle Bermudagrass fairway. Photo taken the day of application. Photo courtesy B. Whitlark



What to Consider When Choosing a Colorant

Clearly, differences exist between colorants, which affects the recommended use and subsequent benefit of the product(s). Factors that should be carefully consider include: turf species, stage of growth, and height of cut to determine the correct rate and application frequency. If you choose a pigment, it should be applied while turf is actively growing and using routinely during the entire dormancy period*.

GRIGG research has documented that turf treated with GRIGG GreenPIG pigment can increase in NIR light reflectance. We continue to create trials and testing to correlate this measurement with decreased oxidative stress.

** The color attained using pigmented products is very subjective and should be tested prior to extensive use in order to determine optimum rate and application interval at different sites. Products list recommended rates as a guideline.*

How GRIGG Colorants Stack Up Against Each Other:

KEY: ✓ Ideal application as determined by desired results + Possibly good results if factors considered – Less than ideal results

Product	Golf Applications	Sports Applications	Actively Growing Turf	Semidormant Turf	Dormant Turf	Near Infrared Protection	UV Protection
GRIGG™ GreenPIG™ Premium Pigment Additive	✓	+	✓	–	–	✓	–
GRIGG™ GreenPIG™ Ultra Premium Pigment Additive	✓	+	✓	✓	✓	✓	–
GRIGG™ GreenPIG™-UV Premium Pigment Additive	✓	+	✓	–	–	✓	✓
GRIGG™ Spaint® Sports Turf Colorant	+	✓	✓	✓	✓	–	–
GRIGG™ Markit-Blue™ Blue or Green Spray Pattern Indicator	✓	✓	✓	✓	✓	–	–

GreenPIG and GreenPIG Ultra are the same base product, with a different colorant package. Both formulations are completely stable and help protect turfgrass from near infrared (NIR) wavelength light.

GreenPIG Ultra provides a natural, deep green color and remains the better choice for turf that has already lost color due to dormancy or other factors, while the original GreenPIG provides excellent turf color as part of a general maintenance program. GreenPIG UV provides the added value of blocking potentially harmful ultraviolet (UV) light with its proprietary UV protection chemistry. The UV formulation provides turf managers with another color option, and is an ideal candidate for use as part of a general maintenance strategy - improving turfgrass color and performance.

For applications where durable and long lasting results are needed, Spaint® provides an effective natural green colorant for all types of turfgrass. Spaint dries fast and stands up to traffic with minimal transfer to uniforms which makes it an ideal choice for high impact sports fields. On golf courses, Spaint can be an excellent choice to color divot mixes and other uses where durable coloration is needed at any stage of growth or dormancy.

Markit-Blue™ provides applicators with an excellent non-phytotoxic spray pattern indicator with additional organic ingredients that act as a spreading agent in a tank mix. By adjusting application rates of either the blue or green Markit, various strengths of visibility can be achieved. As a spray pattern indicator, Markit does not have a long lasting aesthetic effect.

For more on GRIGG™ pigment products and research visit www.grigg.co.

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