Evaluation of seed coating treatments in soft white winter wheat

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OBJECTIVES

To evaluate Specialty Fertilizer Products, LLC (SFP) and Verdesian Life Sciences (VLSci) seed treatments (Tuxedo, Surgent, and Take-Off) individually and in combination for effects on soft white winter wheat growth and grain yield and quality of in Southwest Idaho.

SEED TREATMENTS

Proposed benefits:

Surgent Micronutrient Seed Treatment

Proposed benefits:

- ✓ Immediate and Constant source of Zinc & Manganese
- ✓ Stronger emergence, Healthier root growth, Vigorous plant growth, Increased yield potential
- ✓ Patented polymer technology loaded with Zinc & Manganese
- ✓ Enhanced availability of the micros compared to inorganic sources
- ✓ Application rate: 5-6 oz. per 100 pounds of seed

Tuxedo Micronutrient Seed Treatment

- ✓ Similar to Surgent, with more concentrated polymer coating.
- ✓ The technology creates an as-needed micronutrient source - protecting Zinc & Manganese from outside interference and keeping it available to the crop longer.
- ✓ The exclusive polymer technology protects zinc from chemically bonding with other compounds and minerals commonly present in the soil - allows for a lower, more economical application rate.

Take Off Seed Treatment

- ✓ Accelerates germination, emergence, establishment and canopy closure and pushes the seed toward a faster start, helping plants avoid early-season disease pressures that can inhibit yield potential throughout the growing season.
- ✓ Quicker germination, emergence and growth means the crop achieves greater photosynthetic capacity and better preservation of soil moisture
- ✓ Improves nutrient uptake and utilization
- ✓ Facilitates carbon fixation and increases nitrogen utilization
- ✓ Triggers the plant to grab more available nitrogen and improves plant health to help maximize yield potential

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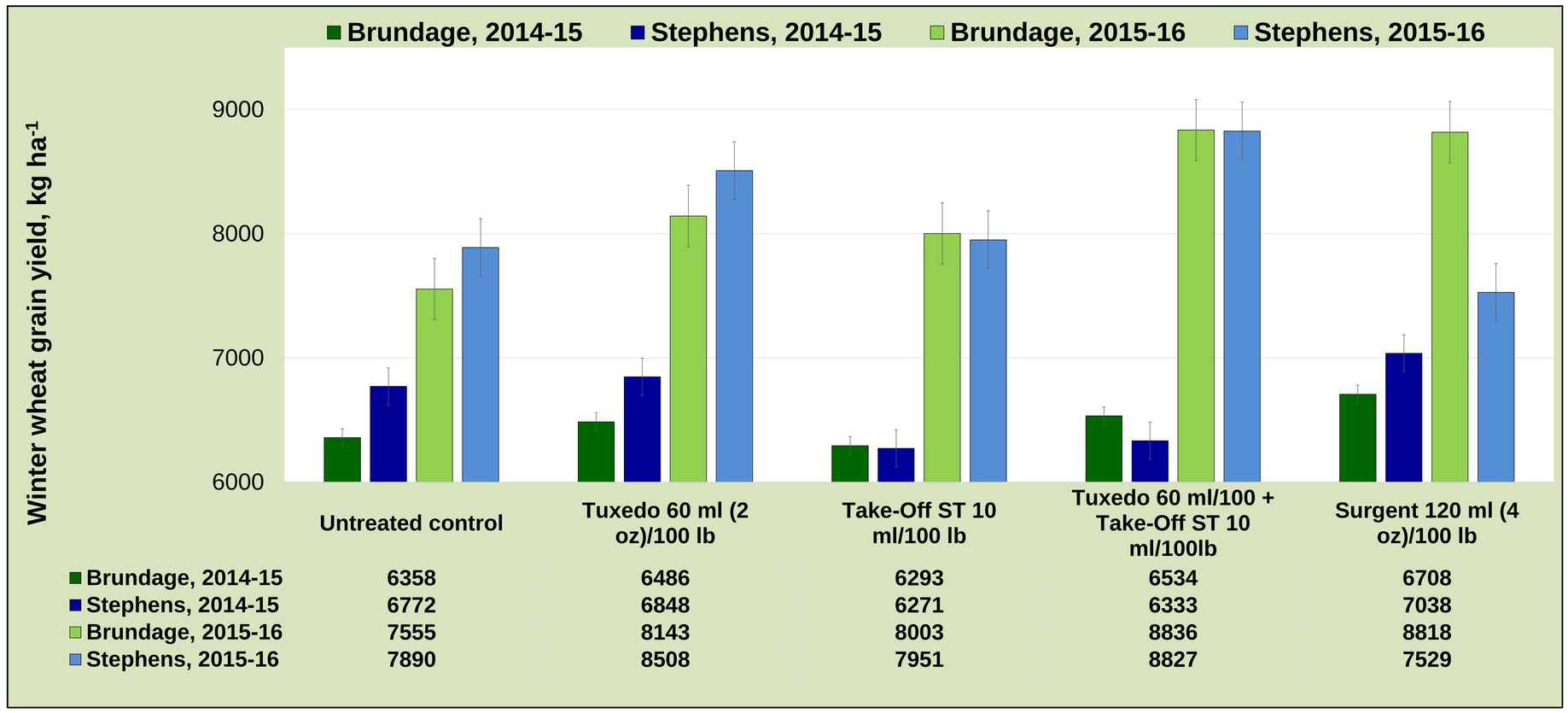
PRELIMINARY RESULTS



	Untreated control	Tuxedo 60 ml (2 oz)/100 lb	Take-Off ST 10 ml/100 lb	Tuxedo 60 ml/100 + Take-Off ST 10 ml/100lb	Surgent 120 ml (4 oz)/100 lb
Brundage, 2014-15	6358	6486	6293	6534	6708
Stephens, 2014-15	6772	6848	6271	6333	7038
Brundage, 2015-16	7555	8143	8003	8836	8818
Stephens, 2015-16	7890	8508	7951	8827	7529

Effect of seed coating treatment on winter wheat (Brundage and Stephens) grain yield, Parma, ID, 2014-15 and 2015-16.

DISCUSSION

- ✓ Two varieties evaluated in this study are traditional, older varieties, widely grown in the Southern Idaho.
- ✓ Winter wheat grain yields were higher in 2015-16 compared to 2014-15 for both varieties. In 2014-15, grain yields ranged from 6271 to 7038 kg ha^{-1}, and in 2015-16 – from 7529 to 8836 kg ha^{-1}. Stephens is a higher yielding variety.
- ✓ Within each growing season, there were no statistically significant differences in winter wheat grain yield associated with seed coat treatments.
- ✓ Varieties responded differently to seed coat treatments.
- ✓ For both varieties, slight increase in yield was noted with Tuxedo seed coat (trts 2 and 7).
- ✓ For both varieties, highest yield was achieved with Tuxedo + Take-Off (trts 4 and 9).
- ✓ In 2015-16, compared to untreated control, Surgent seed coat treatment notably increased yield for Brundage, but decreased – for Stephens.
- ✓ In both years, Take-Off seed coat (trts 3 and 8) resulted in lower grain yields for both varieties.
- ✓ Comparable grain protein content values were achieved with all evaluated seed coat treatments.

MATERIALS AND METHODS

- ✓ Study was conducted at University of Idaho, Southwestern Research & Extension Center, Parma, ID, in 2014-2015 and in 2015-16.
- ✓ Wheat seed was treated with coating products using a plastic mixer.
- ✓ Brundage and Stephens winter wheat was seeded using a 140 lb/a seeding rate, into 10 x 40 ft plots. The crop was sprinkler irrigated every 10 days.
- ✓ The effect of seed coat treatment on winter wheat grain yield has been analyzed with SAS 9.4, using Duncan's Multiple Range Test, at 90% confidence level.

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