Study the effectiveness of Transit Max® on Early Seedling Growth and Development in Wheat

1. Introduction

In modern agriculture, the optimization of crop performance is crucial to address the global food demand. Improving the efficacy of fertilizer products is a good strategy to improve the crop yield and yield quality. In this study, Transit Max ® was used with grower's commercial fertilizers to improve the early seedling growth and development. Transit Max is a naturally derived patented organic activator with Mineral complexed Organic Matter for better seed germination and plant growth. Transit Max is a group of organic acids which enhance various plant physiological functions such as nutrient absorption, shoot and root growth, germination and seedling emergence. Transit Max contains a mixture of naturally occurring organic substances which are found in composted plant materials. These substances are widespread in nature's soils and fresh and saltwater environments of decaying plant materials. It contains natural acids with tannins, growth regulators, stimulators and auxins, which can be well suited for use in any seed, bulb or rooted plant.

2. Project objectives

To assess the effectiveness of Transit Max® on improving early seedling growth and crop performance in wheat.

- Compare the plant height in control and treated areas
- Compare the root length and root architecture in wheat plants
- Evaluate the fresh weight of plant vegetative parts and roots
- Visually compare the plant growth and development

3. Material and Methods

Site Selection and Trial Design

The trial was conducted in in Underbool, Victoria. Treatment application was done once at planting. One side of the paddock was treated with the grower's normal practice and the other side was treated by adding Transit Max® to the grower's practice. After four and six weeks of the treatment application, data collection was done to study the effectiveness of Transit Max® on improving crop growth and development.

Table 1: Treatments and application rates of each Calcium product.

Treatment	Rate (L/ha)
Grower's Practice	• Urea/Granulock SS 46 kg/ha /Zn Sulphate @1.5L
Treated	• Grower's Practice + Transit Max 100 ml/ha

4. Results

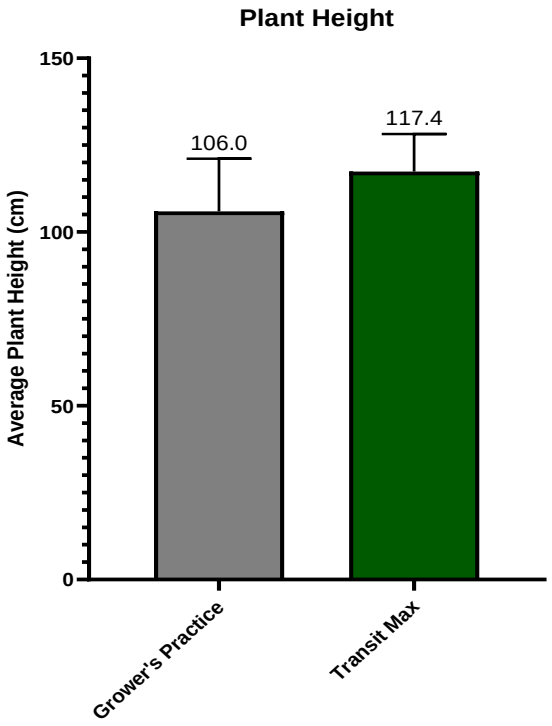

Figure 1: Comparison of plant height in two different treatments after four weeks of the treatment application

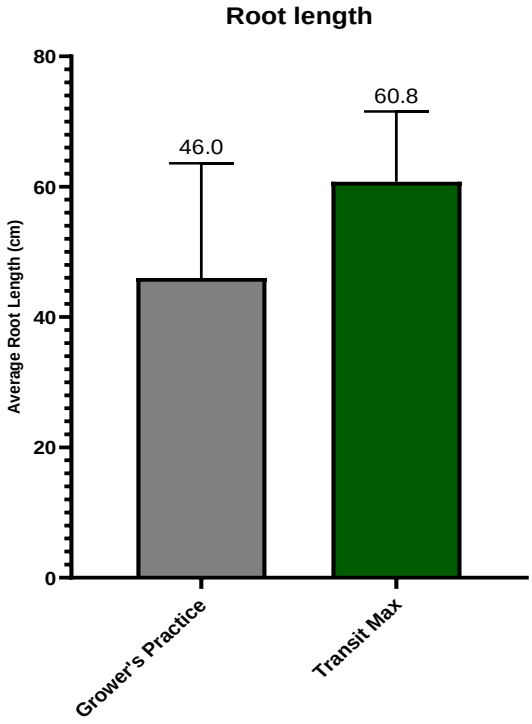

Figure 2: Comparison of root length in two different treatments after four weeks of the treatment application

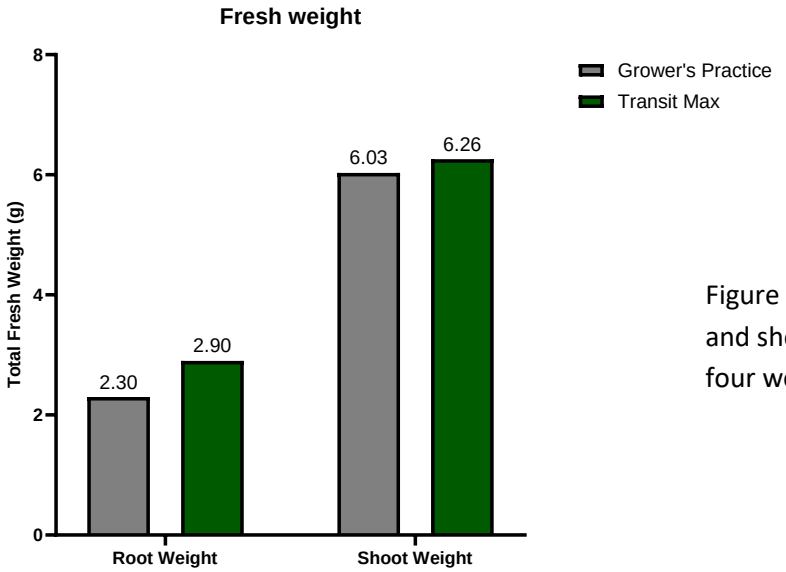

Figure 3: Comparison of fresh weight of roots and shoots in two different treatments after four weeks of the treatment application

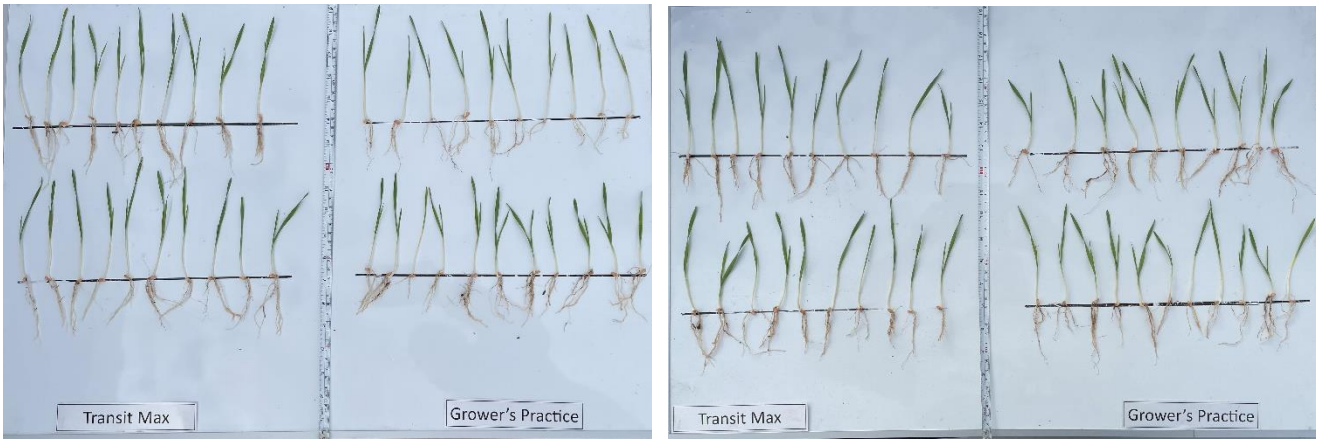

Figure 4: Visual comparison of shoot and root growth in two treatments after four weeks of the treatment application in two different areas in the field.

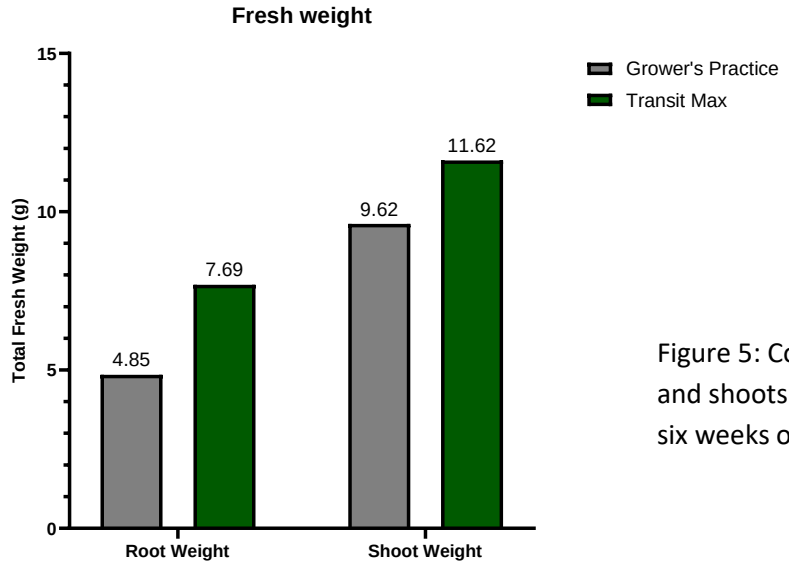

Figure 5: Comparison of fresh weight of roots and shoots in two different treatments after six weeks of the treatment application

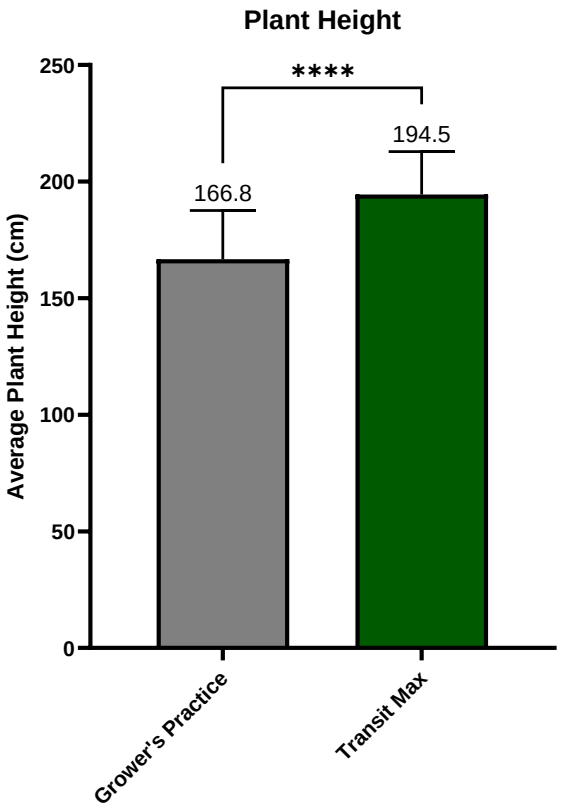

Figure 6: Comparison of plant height in two different treatments after six weeks of the treatment application

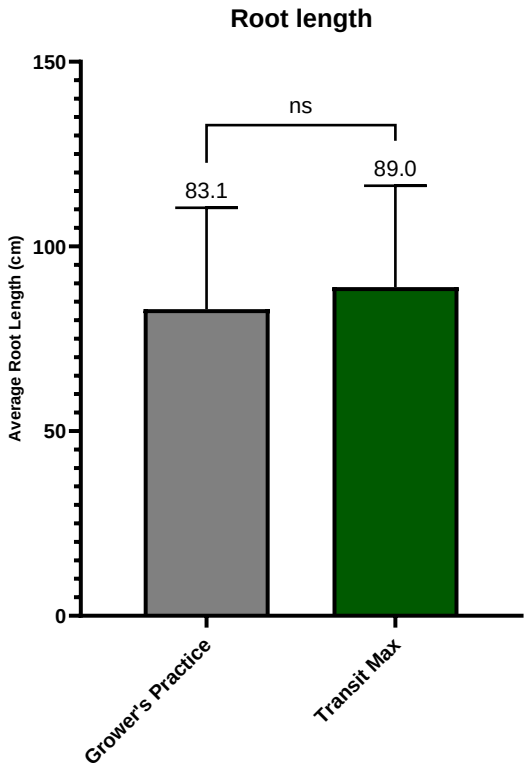

Figure 7: Comparison of root length in two different treatments after six weeks of the treatment application

Figure 8: Visual comparison of shoot and root growth in two treatments after six weeks of the treatment application.

5. Conclusion

After four weeks and six weeks of the products application, plant measurements, comparison photos and aerial drone photos were taken to compare the effectiveness of Transit Max® on improving early seedling growth in wheat. The results showed that grower's practice with Transit Max has the best results in terms of plant height, root length, fresh weight of roots and shoots. In addition, it showed that the plants are showed a better plant growth and development and better root system in Transit Max treated area compared to the grower's practice itself. The aerial drone images showed that Transit Max treated area is greener in colour and more uniform compared to the grower's practice itself. Based on the results, it can be concluded that adding Tranist Max® is beneficial in improving early seedling growth in wheat.