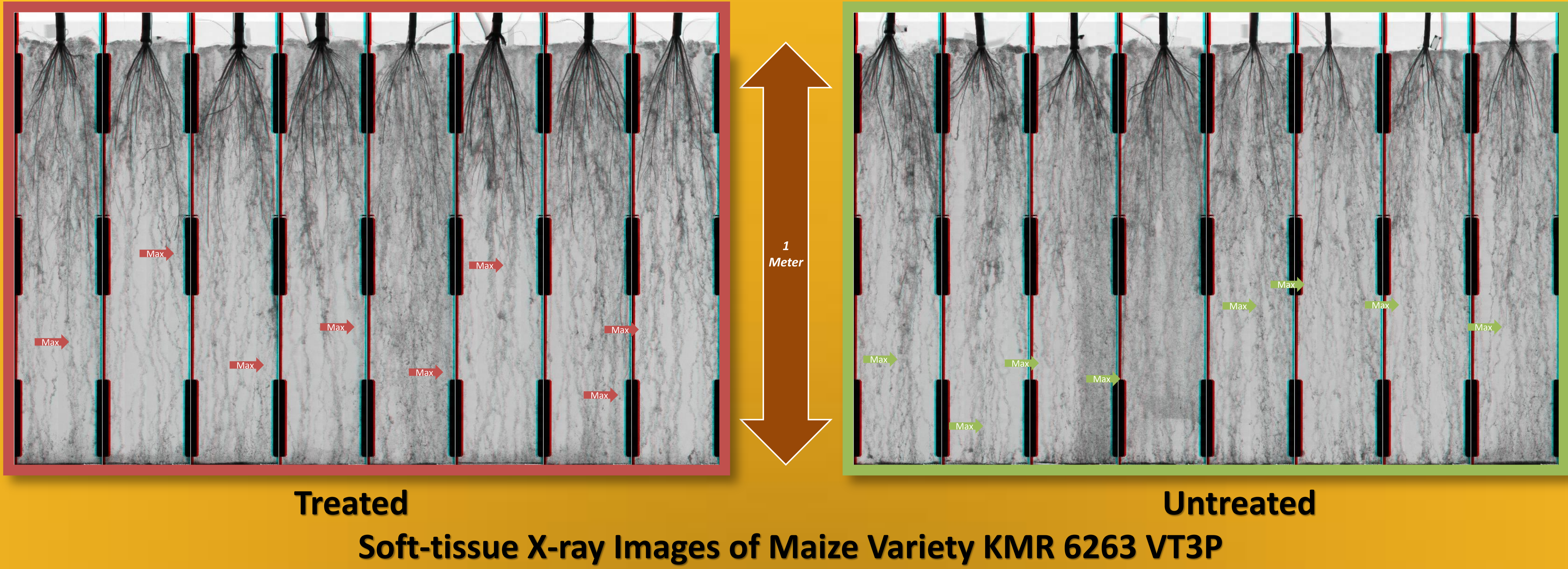


# The Effects of a “Seed Treatment” Applied Bio-stimulant on Root System Development Over Time

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## Introduction

- A comparison of the root system development over time, when grown in an X-ray transparent media, was conducted with maize plants in the PSC Root Lab.
- Eight of sixteen KMR 6263 VT3P (stacked traits) maize seeds with fungicide treatments “Maxim 4FS”, “Apron XL” and “Dynasty” and insecticide treatment “Cruiser” were also coated with a pre-commercial bio-stimulant formulation (terrestrial plant extract.)
- The eight bio-stimulant treated seeds were germinated and grown for six weeks along with eight non-bio-stimulant treated plants.
- The root systems were X-ray imaged in-situ over a four week period beginning three weeks after germination.
- The X-ray images were processed with image analysis software to extract and compare key attributes of the developing root system architecture of each plant over time.
- The conclusions of the experiment were that the addition of the bio-stimulant dramatically increased the size of the root system. The effects were apparent throughout the development of the plants which were monitored up to the V9 vegetative development stage.



**PSC Root Lab**

Fully automated software extracts root traits from the background noise (moisture distribution) of the X-ray images. Several passes of the software extract root trait details on five overlapping root diameter ranges.



## Dramatic Increases in Key Root Traits (Root Area, Root Length, Root Count) of Treated Seeds Were Maintained Over Several Weeks

