

# Benefits of Generating Early Root Growth with Chandler Seed Treat

## Product Summary

Chandler Dry Seed Treat is a talc-like powder that is applied directly on the seed at planting time. The product is **non-toxic** and contains micronutrients and naturally occurring enzymes, proteins, and amino acids that enhance the germination process and provide an early source of nutrients for the plant. The result is faster seedling emergence, higher germination rates, and more vigorous plant growth. As the emerged plant grows, Dry Seed Treat continues to work for you by enhancing plant root development (including nodulation in soybeans and other legumes), nutrient uptake, and plant growth. At harvest, Chandler Dry Seed Treat promotes faster maturity and dry-down, higher yields and test weight, and less lodging. Chandler Seed Treat is also available in liquid form for use in liquid seed treatment applicators.

## Why is Early Root Growth Important?

We have seen the importance of generating a good plant root system ever since we started testing enzyme products for crop production. Although the seed companies and other input suppliers are now talking more about the role of root system size and health, this relationship between roots and yields has not always received the attention or appreciation it deserves. For example, I talked with an aggressive young farmer at the Minnesota Farmfest a few years ago and tried to explain the benefits of using Chandler Dry Seed Treat to build larger corn root systems. He quickly informed me that he didn't care about the root system and was only interested in the ability of the products to increase yields. Based on my experience over the past 25 to 30 years, I find that producers who don't take time to understand the root system and other key plant components are likely to miss out on those high crop yields that they care so much about.

To be specific, the quality and quantity of crop products is directly related to the size and health of the plant root system because the roots take up water and other soil nutrients to feed the plant. Plants with larger root systems are better able to support vigorous crop growth and generate yields nearer to the genetic potential of the plant. Chandler Dry Seed Treat increases the number of hair-like feeder roots that carry these nutrients into the plant. Of course, the soil nutrients must be in a form that can be used by the plant and must be available in ample quantities, and the benefits of Chandler Dry Seed Treat are further enhanced when the product is used along with Chandler Soil and Biocat 1000.



## Keeping the Nutrients Flowing

A large and healthy root system is also better able to take up the right kinds of nutrients for the plant. We can also see the impact of Chandler Dry Seed Treat on nutrient uptake by splitting corn stalks lengthways (from the roots to the top of the plant). At each joint, the corn plant has a filter that acts just like a fuel filter. The plant filters become darker in color as more impurities are removed from the absorbed nutrients. If these filters become plugged, the nutrient flow slows and may eventually stop (just as a plugged fuel filter may shut down an engine), which hampers crop growth and yield production. Users of Chandler Dry Seed Treat often find that the filters in treated corn plants appear to be white or very lightly colored, which means that the filters are clear and open. Chandler Dry Seed Treat helps to promote high crop yields throughout the season by keeping the nutrients flowing into the plant.

## The Role of Plant Sugar in Crop Health and Yields

Chandler Dry Seed Treat also enhances plant sugar content, which is an important measure of plant health and yield potential. Although some people can judge sugar content by tasting the plant matter, the best way to measure sugar content is to use a refractometer. The plant sugar content is typically reported in percentages or brix, and higher brix counts indicate healthier plants. For a corn plant, the readings may range from 1 to 20 brix, and we should find higher readings as we move up the plant and closer to the ear. Higher sugar content also indicates that the plant will tend to have fewer insect problems, especially if you can maintain plant sugar content of 10 brix or more. Insects cannot digest sugars, so they will tend to stay away from healthy plants and attack weaker plants with low sugar content. For example, one of our long-time users was mowing last summer (2006) and observed that the insects were eating the grass and weeds in the waterways but were not on the corn or bean plants. The treated corn and bean plants had higher sugar content and were not attractive to the insects.

## Application Rates and Per-Acre Costs for Midwest Field Crops

For convenient field application, Chandler Dry Seed Treat can be dusted on and thoroughly mixed with the seed in the planter box or seed hopper. The product is **non-toxic** and can be applied without special equipment or handling. The recommended application rate is 4 ounces per bag or bushel of seed (4-8 ounces for alfalfa seed), so the per-acre cost depends on the seeding rate for the crop. At the regular retail price of Chandler Dry Seed Treat, the per-acre cost of the product is:

- **Corn** --- \$0.68 per acre at a plant population rate of 32,000 plants per acre (2.5 acres per bag)
- **Soybeans** --- \$1.70 per acre
- **Alfalfa** --- \$0.60 to \$1.20 per acre
- **Wheat and small grains** --- \$2 to \$3 per acre

The per-acre cost is lower for product purchased during our Fall (September to October) and Pre-Season (December to March) Discount Programs. All prices are subject to change without prior notice.



## Product Benefits for Specific Crops Reported by Our Users:

- **Corn** --- treated fields average 2,000 more plants per acre than untreated fields planted at the same population rate, higher sugar content and fewer insect problems, average 2 pounds higher test weight, 3-5 points dryer at harvest, and average yield gains of 5-10 BPA
- **Soybeans** --- more healthy root nodules (for nitrogen fixation), higher test weights, better quality, and average yield increases of 3-5 BPA
- **Cereal grains** --- more stooling and thicker stand, more stems or stalks per crown, higher grain quality, better test weight, and average yield increase of 6-12 BPA
- **Alfalfa** --- reduce seeding rates 3-6 pounds per acre, more healthy root nodules, higher yields and better quality (higher protein and TDN), reduced winter kill

