

CHANDLER FOLIAR



**MARKETED BY
MIDWEST BIO-TECH, INC.**

WHAT IS CHANDLER FOLIAR?

Chandler Foliar is a non-toxic liquid plant food containing micronutrients and biostimulants that promote efficient plant growth. The product is applied to plants as a foliar spray, and the nutrients and other components are provided in forms that are readily available to the plant. Chandler Foliar is designed to enhance the availability of the applied nutrients and to help the plant increase the uptake of soil nutrients.

WHAT ARE THE PRODUCT INGREDIENTS?

Chandler Foliar is a suspension that contains a wide range of nutrients and organic components. The suspension has both dissolved and undissolved plant nutrients dispersed in the fluid so that the product has a higher and more complex nutrient content than a true nutrient solution. Chandler Foliar includes the following naturally occurring components:

- 7% nitrogen
- Chelated copper, iron, manganese, magnesium, and zinc
- Sulfur, boron, and molybdenum
- Natural surfactants
- Humic and ammoniac acids
- Liquid fermentation products (enzymes, amino acids, vitamin-B complex, and microbial metabolites)
- Selected plant extracts

The nutrients in Chandler Foliar are chelated with a combination of citric acid and partially hydrolyzed vegetable protein. These materials promote both the complexing and chelation actions that increase bonding of the minerals, prevent nutrient tie-up, and increase nutrient availability to the plant.

WHAT DOES CHANDLER FOLIAR DO?

Regular use of Chandler Foliar in conjunction with your normal fertilizer program and sound cultural practices will improve plant growth by stimulating the uptake of applied and soil nutrient uptake. Chandler Foliar also boosts plant performance under nutrient deficiency stress, helps plants to tolerate drought and other unfavorable weather conditions, improves plant vigor and yield potential, and reduces problems with plant pests and diseases.

HOW DO YOU APPLY CHANDLER FOLIAR?

Chandler Foliar may be applied to plant foliage with conventional ground or aerial spray equipment and is non-phytotoxic when used as directed. Chandler Foliar may be applied by itself or in a tank mix with other products, and the product is compatible with most commonly used liquid fertilizers and

pesticides. We recommend that you test all new tank mix combinations for compatibility before application, and you should dilute one part Chandler Foliar with 3 to 5 parts water prior to mixing. You should apply Chandler Foliar with enough water (10-20 gallons per acre) to provide good coverage of the plant foliage. The product may also be applied with newer spraying equipment that uses lower water flow rates.

HOW MUCH PRODUCT IS REQUIRED?

The recommended application rate for Chandler Foliar varies by crop. Here is a list of recommended application rates for the major field crops produced in the Midwest:

Alfalfa --- for a **new seeding**, apply 10 ounces per acre. For an **established crop**, apply 10 ounces per acre at the first burst of spring growth. Later, apply 10 ounces per acre within 10-14 days after each cutting. For **seed production**, apply 10 ounces per acre just prior to flowering.

Corn --- spray 8 ounces per acre in a band over the row at the fourth leaf stage. In general, the results from applying Chandler Foliar to corn are sensitive to the timing of the application, hybrid variety, and the weather conditions. If you are interested in applying Chandler Foliar on corn, please contact us for further details about timing of the treatment.

Oats --- apply 8 ounces per acre at the second to third leaf stage.

Soybeans --- for beans **planted in rows**, spray 6 ounces per acre in a band over the row at the second to third trifoliolate leaf stage. For **drilled soybeans**, broadcast 10 ounces per acre at the second to third trifoliolate leaf stage. A second foliar application at the same rates can be made three weeks later (perhaps at the same time as a second chemical pass).

Spring wheat --- apply 8 ounces per acre at the second to third leaf stage. Later, apply 6 ounces per acre at Feeke's stage 8 (flag leaf stage).

Winter wheat --- in the fall, apply 8 ounces per acre at the second to third leaf stage. In the spring, apply 6 ounces per acre at the beginning of new plant growth or tillering.

Pasture --- apply 8 to 10 ounces per acre at any time there is ample new growth or foliage so the plants can receive and absorb the spray.

WHAT IS THE PER-ACRE COST?

The investment per acre treated with Chandler Foliar varies by the type of crop and depends on the recommended application rate. At the full retail price per gallon, the per-acre cost of Chandler Foliar is:

Per-Acre Application Rates and Investment

6 ounces per acre	\$5.33 per acre
8 ounces per acre	\$7.00 per acre
10 ounces per acre	\$8.75 per acre

All prices are subject to change without notice. The per-acre cost will be lower if you buy in larger unit sizes, and Chandler Foliar is also available in 2.5 gallon jugs or in 30 gallon drums. The per-acre cost will also be lower if you buy product during our Fall Discount Program (September and October) or our Pre-season Discount Program (December to March).

ALFALFA, OTHER HAY, AND PASTURE

Chandler Foliar has proven to be especially effective at promoting plant growth and vigor when applied to alfalfa and other types of hay crops. The product stimulates the production of key building blocks required for plant photosynthesis, and it helps reduce the amount of time required by the plant to convert carbon dioxide into plant sugars. By assisting the photosynthesis process, Chandler Foliar helps the hay plants to generate new growth faster and to boost the plant nutrient content.



The product also helps to increase the size of the pores or openings on the plant leaf surface, and alfalfa and other hay plants treated with Chandler Foliar can take in more water and nutrients through the plant leaves. This helps support plant growth and higher nutrient content, and the plants are better able to withstand drought or other unfavorable weather conditions and to overcome growth problems resulting from nutrient deficiencies.

Over the past several years, we have gathered the results from university and on-farm tests of Chandler Foliar applications on alfalfa and other types of hay. In one university field trial, Chandler Foliar increased alfalfa yields by 22% to 30.6% and increased rye grass yields by 35.2% to 101.9% in side-by-side comparisons. The overall increase in alfalfa and rye grass production on the treated plots was 46.9%. Although these hay yield results are especially good, they are comparable to many of the findings from other hay yield trials we have observed.

For an example of an on-farm test, we refer to the data sent to us in 2003 by one of our users in northern Indiana who operates a dairy farm and has 32 acres of alfalfa. By the summer of 2003, his hay field had been established for two years. After the second cutting in 2003, he applied foliar fertilizer to the entire field and added one gallon of Chandler Foliar to the tank when they sprayed the second half of the field. Within three weeks after the treatment, the treated hay was at least 6 inches taller, greener, and had a lot more leaves. The observed differences in the treated and untreated hay plants remained after each cutting until the alfalfa field was plowed up.

In addition to the observed improvements in plant growth, yield, and nutrient content, Chandler Foliar users have also reported that hay from their treated fields tends to have fewer problems with disease and pests. Insects and other pests are naturally drawn to weaker or stressed plants with lower sugar content. By promoting photosynthesis and nutrient uptake, Chandler Foliar helps the treated hay plants remain vigorous and less susceptible to pest attacks.

CHANDLER FOLIAR ON SOYBEANS

An application of Chandler Foliar to bean plants at the second to third trifoliolate leaf stage assists plant photosynthesis in the same way it helps hay plants. By enhancing plant sugar production and nutrient uptake, Chandler Foliar promotes more complete pod fill, higher test weights, and improved bean yields.

Our university test results for soybeans include 54 side-by-side comparisons of beans treated with Chandler Foliar and control or untreated plots. The soybean tests were conducted in the Mississippi Delta region (Mississippi, Arkansas, and Louisiana). Across the 54 trials, the plots treated with Chandler Foliar had an average increase of 14.4% more soybean per acre than the control or untreated plots. Further, each of the 54 test plots exhibited a yield increase due to the Chandler Foliar treatment. The individual bean yield increases ranged from 2.3% to 52.0% across the 54 test plots.



The university soybean test results are consistent with other on-farm tests we have conducted in the Midwest over the past several years. Here is a partial list of the yield results that our users have reported:

Rick Bauer, LaMoille, IL

Chandler Foliar and Raptor were sprayed on 48 acres of drilled Pioneer soybeans in late June. The treated bean yield was 72 BPA and the untreated bean yield was 66 BPA (9.1% increase).

Jan Schuster, Mendota, IL

The soybeans were drilled on May 7, and the weather turned very dry until August. The soybeans were sprayed with Galaxy and Chandler Foliar on June 10, and a second application was made with Assure and Chandler Foliar on July 2. The treated bean yield was 77 BPA and the untreated bean yield was 60 BPA (28.3% increase).

Albert Wagner, Franklin Grove, IL

In the first year, he applied Chandler Foliar to the soybeans at the third trifoliolate leaf stage. The treated bean yield was 69.34 BPA, and the untreated bean yield was 56.67 BPA (22.4% increase). In the second year, he applied Chandler Foliar twice. The treated bean yield was 64.53 BPA, and the untreated bean yield was 61.43 BPA (5.0% increase).

John Wells, Darlington, IN

The soybeans treated with Chandler Foliar had a yield of 54.97 BPA, and the untreated beans yielded 52.79 BPA (4.1% increase).

Wherry Brothers, Fulton, IL

Two different soybean varieties were planted on the same day, and Chandler Foliar was applied to the two bean plots on the same day. The beans in the first treated plot yielded 58.03 BPA, and the untreated beans in the first plot yielded 51.61 BPA (12.4%

increase). The treated soybeans in the second plot yielded 60.48 BPA, and the untreated soybeans in the second plot yielded 59.60 BPA (1.5% increase). The results of this trial also illustrate that Chandler Foliar may generate different yield responses on different hybrid varieties.

OATS, WHEAT, AND CEREAL GRAINS

The benefits of Chandler Foliar treatments may also be achieved when the product is applied to oats, spring wheat, winter wheat, and other cereal grains. For spring-seeded crops like oats and spring wheat, applications made at the second to third leaf stage promote plant growth and yield potential. The product helps the plants grow larger heads with more kernels, better test weight, improved nutrient content, and higher crop yields. The plants are also better able to withstand late-season drought, pest infestations, and other problems that threaten small grain yields.

For winter wheat, the fall application of Chandler Foliar can help the dormant plants survive the winter and begin the spring growth phase more quickly and with improved vigor. The spring application further supports early plant growth and nutrient uptake.



CHANDLER FOLIAR ON CORN

In the past, we have found that applications of Chandler Foliar on corn can generate yield increases of 15 BPA or more plus the other product benefits described for hay, soybeans, and cereal grains. However, as noted in the section on application rates, we have also learned that the success of Chandler Foliar applications on corn is very sensitive to slight variations in timing, hybrid variety, and weather conditions. The product is designed to be applied to the corn at the fourth leaf stage. If Chandler Foliar is applied to corn a bit too early or too late, we find that the user may not gain all of the benefits from the product. Please contact us for further details if you are interested in using Chandler Foliar on corn.

USERS OF CHANDLER FOLIAR REPORT THESE BENEFITS

- Increase plant nutrient uptake and availability
- Enhance plant photosynthesis
- Improve plant yield potential
- Promote flower development and fruit set
- Improve the nutrient content and overall quality of seeds, grain, flowers, and leaves
- Boost plant vigor during periods of drought and other unfavorable weather conditions
- Help plants overcome nutrient deficiencies and other forms of plant stress
- Accelerate plant maturity
- Reduce pest and disease problems

Limited Warranty

Sellers' and Manufacturers Warranty is limited to replacement of defective product.

Neither seller, nor manufacturer shall be liable for any injury, loss or damage directly or consequentially arising out of the misuse or inability to use the product.

All other warranties unless from the manufacturer, whether expressed or implied, are hereby disclaimed.

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