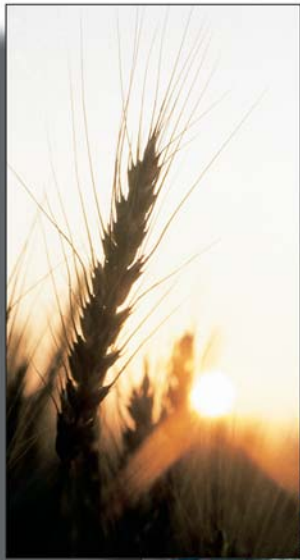


# STOCKOSORB<sup>®</sup> STOCKOSORB<sup>®</sup> F

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AMERICAN SOIL TECHNOLOGIES, INC.  
presents

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AGRICULTURAL TECHNICAL USE GUIDE  
FOR STOCKOSORB<sup>®</sup> AND STOCKOSORB<sup>®</sup> F

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**CONTACT INFORMATION:**

*To obtain information about Stockosorb, or to locate the sales representative nearest you, call American Soil Technologies, Inc., toll-free at 800-798-7645, or 818-899-4686. Check out our Web site at [www.americansoiltech.com](http://www.americansoiltech.com).*

**MOISTURE RETENTION**

What do a disposable diaper and a bin-busting grain yield have in common? In both cases their success is measured by their ability to retain moisture.



The benefits to agriculture are obvious. Since the one element farmers can't control is weather (and timely rains), Stockosorb/Stockosorb F helps level the playing field for growers.

The same technology that allows babies to remain dry provides the critical link for grain, forage and vegetable growers to provide water to thirsty plants. In a diaper, a polymer-based powder pack helps wick the moisture away from the baby's skin, absorbing moisture and keeping it contained in the diaper.

Likewise, the polymer-based crystals found in Stockosorb® and the finer ground crystals found in Stockosorb® F, absorb water, transforming the crystal into a gel-like nugget. This nugget then becomes a microenvironment of water and nutrients that's readily available for plant root uptake.

Applied pre-plant or at planting, Stockosorb/Stockosorb F blends into the soil and waits for rain, holding it right where you need it, in the root zone. When conditions turn dry above the ground, the Stockosorb/Stockosorb F gel nuggets are there, swollen with moisture and nutrients, ready to meet the needs of moisture-starved plants.

If you use irrigation, you may think Stockosorb/Stockosorb F is unnecessary. Think again. In addition to retaining moisture, this product can reduce overall costs and increase intervals between irrigations.



Now that we've introduced you to Stockosorb/Stockosorb F, let's learn how polymer technology works for you.

### **POLYMER TECHNOLOGY AT WORK**

Stockosorb/Stockosorb F are crosslinked, potassium-based polymers specifically formulated and fully registered for use in agriculture.

Similar to a chain-link fence, the polymer builds on the strength of interwoven links. This bond offers high absorption under soil pressure, high gel strength, and lasts longer in soil than competitive products.

According to our internal lab studies and university studies, our products have a gel strength three times greater than the competition. Is that important to you? Definitely.

Other products may have the same ability to absorb water in a free swell environ-

ment (no soil pressure), but ours maintains its ability to retain water and nutrients when incorporated at a depth of 3 to 6 inches. At this level, absorption against soil pressure is the success factor other products can't match, and the reason behind our consistent performance.

Research indicates that in normal growing conditions under average soil pressure, Stockosorb products make up to 95% of the water absorbed available to the plant. The crystals also feature elastic memory whereby once the plant drains the moisture from the gel, it returns to its crystal form. When it rains again, it swells back into its gel form.

This rehydration cycle can continue up to five to seven years. The competition, on the other hand, has a soil life of one year or less.

### **PRODUCT HANDLING**

As one might imagine, the

most important thing to remember about handling Stockosorb brands is this ... **KEEP THEM DRY!**

Direct contact with moisture, while ideal in the ground, creates problems above the soil surface. Store the product in a dry, cool place until application, and be mindful not to let it contact water when preparing for application.

While Stockosorb should not be used with liquid fertilizer, Stockosorb F is compatible with liquid fertilizer. Both are classified as a mild irritant, so wear gloves and protective eyewear. Nose and mouth protection is also recommended.

Lastly, if you've completed the day's planting and there's product in the planter, do not let the product sit overnight. Remove it from the planter and store properly. High humidity and rain seepage in the planter could activate the product. Stockosorb F users should apply the entire fertilizer/Stockosorb F solution. For complete handling instructions, consult the product labels or contact an ASTI sales representative.

### **ENVIRONMENTALLY SOUND**

The Stockosorb brands have positive environmental

profiles, thanks to several key characteristics. With an essentially neutral pH, they break down into base component parts of ammonia, carbon dioxide and water with no residual toxicity. Laboratory tests prove that they show no toxicity to plants, birds, fish, animals and soil organisms. Unlike many competitors – whose products are sodium-based – the potassium-based structure of the Stockosorb brands won't add unwanted salinity levels to the soil.

For a complete environmental profile, consult the product label or contact an ASTI sales representative.

### CROP FLEXIBILITY

The availability of plant nutrients often declines in dry years. In wet years, soil nutrients can easily leach below the root zone



of any growing crop. In either case, the key is to find a happy medium and extend the amount of time that nutrients are made available to the crop. The microenvironment that Stockosorb/Stockosorb F creates, allows moisture and water soluble nutrients optimum time for plant uptake. For best results, ASTI recommends using Stockosorb for forages and vegetables and Stockosorb F mixed with liquid fertilizer for cereals and row crops.

### Cereal Grains

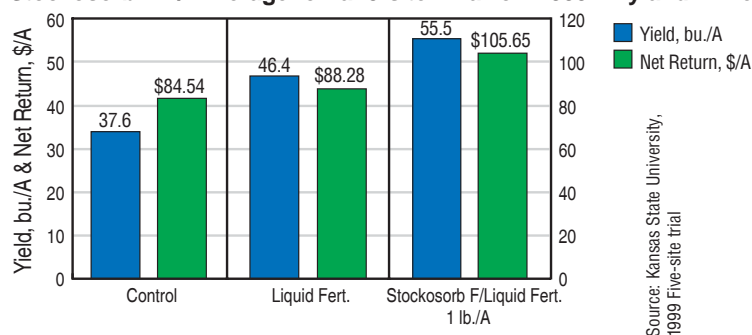
When hydrated, Stockosorb/Stockosorb F can hold up to 200 to 300 times its weight in water and water soluble nutrients. Cereal grains raised in dryland conditions can see the best results. Research conducted at Kansas State University indicates 1 to 2 lbs./acre banded at planting with liquid fertilizer delivers the best overall value, over broadcast applications.

A summary of a 1999 five-site KSU trial of Stockosorb F shows positive net yield and dollar returns on dryland wheat (see Figure 1).



**FIGURE 1**

**Stockosorb F / Average of a 5-site Trial on 1999 Dryland Wheat**



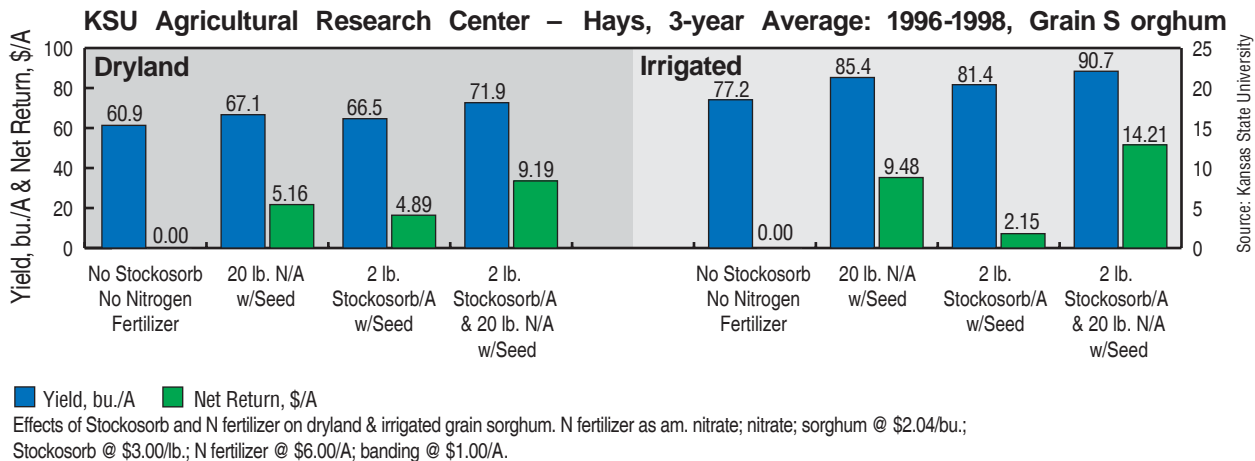
Wheat @ \$2.25/bu.; Stockosorb F \$3.00/lb.; 1 liquid Fertilizer @ \$15.21/A; banded application @ \$1.00/A 30+30+0 liquid fertilizer using 10-34-0 and 28-0-0 metered through a ground-driven John Blue Pump.

### Row Crops

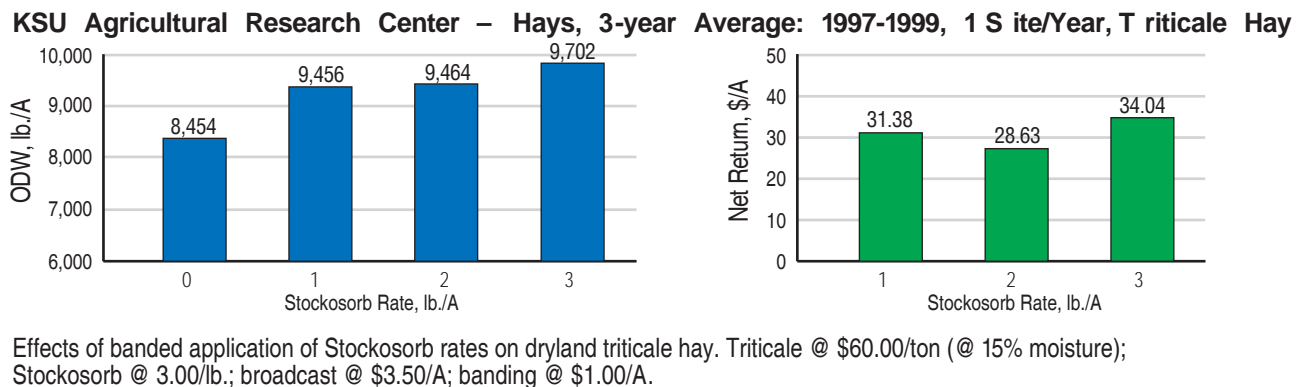
Cross-linked polymers have been used in the horticultural market for 30+ years but they're a relative newcomer to the agricultural market. As a result, research into their use in row crops is limited. However, one grain sorghum study stands out.

A three-year study (1996-1999) conducted at the KSU Ag. Research Center, Hays,

**FIGURE 2**



**FIGURE 3**



Kan., compared yields and dollar returns in both dryland and irrigated trials (see Figure 2). Stockosorb band-applied at the 2 lb. rate with ammonium nitrate fertilizer at planting delivered excellent returns in yield and dollars in dryland and irrigated trials.



**Forage Crops**

ASTI research indicates that Stockosorb delivers several key benefits to forage producers. With

a life span of four to five years, one application of Stockosorb can deliver excellent economic returns

over the life of a forage stand. A Kansas State study on dryland triticale hay (see Figure 3) demonstrates potential increases in yield and return on investment.

**Vegetables**

As demand for fresh and processed vegetables grows, so does the pressure placed on producers to meet that demand. Add the high cost of hybrid seeds, good stands and uniform growth



to the mix, and the value of Stockosorb soars. Stockosorb may be broadcast applied or banded (see application and rates section), both with excellent results.

Positive yield and dollar return data have been recorded for tomatoes, green peppers and onions in trials done in the United States, Chile and Australia. Results demonstrated reduced plant mortality due to drought, increased nutrient uptake, and improved emergence and yields.

In addition to these crops, Stockhausen currently is researching usage in cotton, potatoes, sugar beets and peanuts.

### FEATURES AND BENEFITS

It's obvious that the primary feature and benefit of the Stockosorb brands is their ability to gather and retain moisture and nutrients, making them available for plant uptake.

Here's a quick review of other product attributes.

- Crop flexibility (cereals, row crop, forages, vegetables) and application flexibility (broadcast, broadcast incorporated, banded with liquid fertilizer).
- Increases the ability of the soil to hold water and reduces nutrient leaching.
- Is fully registered for use in agriculture.
- When used properly, will last in the soil 5 to 7 years.
- Can increase intervals between irrigations by 4 to 6 days.
- Compatible with existing fertilizer delivery systems.

### USE RATES AND TIMING

Stockosorb not only offers crop flexibility, but application flexibility as well. While banding offers the best economic fit for many row crop producers, a broadcast-incorporated application is a viable option

for vegetable and alfalfa growers. Recommended use rates and application methods follow.

#### *Cereal Grains\**

Banded: 1 to 2 lbs./acre in furrow in a 1/2-inch band in the seed slice. Product should be placed in the insecticide box calibrated for a 2 lb. insecticide rate. For best results, apply with starter fertilizer or nitrogen fertilizer at planting.

Broadcast application: incorporate 20 lbs./acre, 3 to 6 inches below the soil surface.

Stockosorb F: (see chart at right).

#### *Grain Sorghum and Corn\**

Banded: 2 lbs./acre in furrow in a 1/2-inch band in the seed slice. Product should be placed in an insecticide box calibrated for a 2 lb. insecticide rate. For best results, apply with starter fertilizer at planting.

Stockosorb F: (see chart at right).

**Alfalfa\***

Broadcast: Incorporate 20 to 30 lbs./acre, 3 to 6 inches below the soil surface prior to planting.

**Vegetables\***

Broadcast: Lightly incorporate 20 to 40 lbs./acre at or before planting.

Banded: 7 to 14 lbs./acre in a 14 to 16 inch band, then rotary-hoed to a depth of 3 to 6 inches. A planter soil-insecticide box or similar equipment should be used when banding.

*\* For specific rate and use recommendations based on soil type and organic matter in your area, consult the product label or contact an ASTI sales representative.*

**SUMMARY**

ASTI is a recognized leader in agricultural polymer technologies and is proud to be Stockhausen's distributor for agricultural polymer products. Stockhausen, Inc., may be a newcomer to the agricultural arena, but it has led the way in absorbent

polymer technology for years. With laboratories in the United States and Germany, Stockhausen manufactures more than 800 specialty chemicals for a variety of markets and offers superior products as well as more than 100 years of experience in meeting customer needs. For more information about Stockosorb/Stockosorb F and other products, call toll-free 800-798-7645 or visit our Web site at [www.americansoiltech.com](http://www.americansoiltech.com).

## HOW TO USE STOCKOSORB F

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For proper mixing and application, follow these rules:

1. Fill tank with liquid fertilizer and slowly add Stockosorb F.
2. **DO NOT ADD WATER!**
3. Agitate to keep mixture in suspension.
4. Apply product using 1/16" inside-diameter tube directly behind the opener.
5. Keep tube at a slight angle away from opener (45° maximum angle).
6. Use a 1 to 2 lb./acre rate with a minimum volume of 12 to 15 gallons/acre of liquid fertilizer.

If adding other products to tank, conduct a jar compatibility test first to ensure proper suspension.

# STOCKOSORB® STOCKOSORB® F

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AMERICAN SOIL TECHNOLOGIES, INC.

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[www.americansoiltech.com](http://www.americansoiltech.com)

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Always read and follow label directions.