



## STOLLER ENTERPRISES, INC.

*...World leader in crop nutrition...*

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### **RX FOR PLANTS**

A plant must use the energy from the sun in order to convert Hydrogen, Oxygen, Carbon and nutrients into organic compounds. That sounds simple, doesn't it? However, this process is very complex.

There are hundreds of chemical reactions happening in the plant at any one time. What causes these reactions to ...

- Occur quickly?
- Occur in the correct sequence?
- Maintain activity?

#### **Nutrients**

It is simple to give the correct balance of nutrients. All we need to do is apply an abundance of all nutrients so that a plant can "free choice feed." We know the approximate amounts.

#### **Carbon**

There is normally enough carbon dioxide in the atmosphere. My graduate work at Cornell University demonstrated that yields increase as carbon dioxide in the atmosphere increases.

#### **Hydrogen and Oxygen**

This is a real problem, because the greatest source of these elements is from water. In addition, water in the plant is needed as a solute in which chemical reactions occur.

#### **Water**

Water inside of the plant will control the rate of chemical reaction in the plant.

Perhaps, more importantly, the concentration of water in the plant will change the type of chemical reaction that occurs ... positive and negative.

How does water do this?

It causes a change in the hormone balance of the plant.



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Example: When soil is dry, roots grow downward. When soil is wet, roots grow laterally.

The grower's greatest fear is the lack of water during the growing season.

In an attempt to solve this problem, growers practice irrigation. Although this greatly helps, the wetting and drying cycles keep the hormones "confused."

Drip irrigation (constant watering) eliminates much of this hormone "confusion."

### **Temperature**

The problem of temperature is normally related to the water status of the plant. The temperature must be high enough to supply energy for chemical reaction, but not too high so that the plant "dries out."

### **Objective:**

To take care of the cultural practices and nutrition in order to receive the greatest genetic potential of the seed.

Every day, after planting, we lose genetic potential. We must minimize this loss of genetic potential.

### **Procedure:**

We must maintain a proper balance of hormones in the plant as the moisture supply to the plant changes. This is what controls loss of genetic potential.

This will prevent other negative problems ... hardpan, residue, etc. and all other factors that effect hormone balance in the plant.

If the plant has proper nutrition and the hormone balance is maintained, all other negative factors of production will be greatly reduced in their influence on yields ... disease, insects, etc.

1. The change of hormone balance is determined by the signals that originate from the cell membrane.
2. If the cell membrane has more "protein channels" the hormone balance of the plant can be more easily maintained ... even as stress (or change in moisture) occurs.



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The objective of our work is to increase the "genetic expression" of the plant in order to form cell membranes with more protein channels. If this can be done,

- Less water is needed in order to grow large yields.
- Hormones may not need to be administered.

Field demonstrations have shown the above to be possible. Corn, soybeans, and other plants have made great yields with a minimum of irrigation ... as little as 2" of rain for the whole season. Very little wilting occurred.

- Did the plants use water more effectively?
- Did the plant convert some of its carbohydrates to internal water?

### **Hormones:**

Hormones drive the direction of chemical reactions, the rate of chemical reaction, and the movement of organic compounds in the plant.

All of these things change when the moisture inside of the plant changes.

The proper hormone balance is better maintained, if there are more protein channels in the cell membranes ... the "response center."

The grower says, "When prices are low, I cannot afford to use high levels of nutrition, micronutrients and other products. I cannot accept the risk of drought or other poor growing factors."

Listen to him or her!!! The grower survives on "cash flow".

If the grower was confident that the effect of water supply could be greatly controlled, so that a greater genetic potential could be obtained, he or she would invest more per crop in order to maximize profit ... with a lot less risk. This is what the grower is requesting. The result is important to his business and our business.

### **Recommendation**

The Synergy System is designed to accomplish the above. It is a BIG step in that direction.

### **The Synergy System is comprised of two products:**

- X-Press - which causes the genetic expression of the plant. This causes cell membranes to have more protein channels.
- Ignite -which causes the X-Press to activate.



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We call these products nutraceuticals for plants.

Field Crops: Two quarts per acre of each product ... broadcast – one time

Vegetables: On quart per acre of each product ... broadcast every 14 days.

Note: Apply only in warm weather ... not cold and nasty.

Make sure that plants receive adequate calcium ... for cell membrane formation.

Do a good job of fertilization. Consider "free choice feeding".

### Suggestions for Market Development

The above is not believable unless growers and consultants have seen it work.

1. Apply this System on wheat. Watch for a response ... 7-14 days. If results are favorable, treat the rest of the crop.
2. Apply the System to early-planted corn and soybeans. If you like what you see, treat the rest of the fields.

If this Synergy System performs as it did last year, it will make a grower a lot of money.

P.S. Why do I believe that this system will work?

Everywhere yield monitors were used, the color was the same across the whole field. "Weak spots" were improved. There is no way or program available today which will accomplish this.