



STOLLER ENTERPRISES, INC.

...World leader in crop nutrition...

Auxin - **TOP BOSS** in Plant Growth! - Page 1 of 2

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In any system, organization, structure or organism, there has to be something, somewhere, some place, where the “Buck Stops”.

In crop plant production, the Buck Stops with Auxin (IAA – indole-3-acetic acid)!

As growers , why is it important to understand this?

It can mean more money in our pockets for a very little extra input.

It can mean larger yields with just a little more knowledge and understanding.

It can mean better use of our land and resources.

It can mean better crop quality.

How so, and just how does auxin fit into the picture of plant growth regulation?

Plants have a brain, the root tip. This brain is limited in scope.

The plant brain is able to:

1. Respond to the environment in the soil,
2. Respond to the environment in the air and
3. Respond to the environment in the plant.

Auxin has the final say in what happens in the plant!

Auxin is the main regulating hormone in plant growth. Auxin has a huge number of advisors, messengers and “gophers”. In fact, so many that even today we do not completely understand what they are. But, we do have an understanding of at least some of the main ones, ABA, Gibberellin, Cytokinin, Ethylene. Naturally there are a huge number of other molecules and minerals that have to be available for growth before auxin can have its regulating effect.

But, Auxin responds to the whole host of advisors and then regulates growth depending on the information it receives.

FOR EXAMPLE, ABA is the plant’s comptroller. ABA advises there are only so many resources (plant “money” to do the job!) under the environmental conditions that are perceived, so I (ABA) am putting a stop to further “spending”.

Auxin, because it is top boss, can over ride this stop to “spending”. And that is where, we, as growers can fit in. The plant regulates itself to survive until its cycle is complete. It is programmed to be very conservative. Therefore it will change to whatever growth type it naturally responds to, even if it means reducing the part of the plant that has economic importance to us. It is up to us, with our more complex and more powerful brains, our greater understanding of what can actually be accomplished, to help the plant overcome its natural tendency to do the least possible and to re-direct itself to increase the economically important part of the plant, even under stress conditions.

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An example of how we can change the crops' performance is to understand that the natural tendency of a plant is to reduce or even stop growth at temperatures that are too cool or too hot. The optimal temperature for growth is between 68F (about 20C) and 90F (about 30C). Above or below this temperature the plant needs our help.

We can assist the plant with products such as Stimulate or Satisfy.

But, the critical thing to understand is that the concentration of Auxin (IAA) is different in different parts of the plant and in different plant species. That is what we as growers have to learn. That is what we have to experiment with. That is what we can apply to plants to improve the amount and quality of the economic part of the plant we want.

Auxin is highest in concentration in the apex, the tip of the shoot. It is lowest in the root. Each plant specie may have slightly different levels, but the basic concept is the same for all plants.

It is this auxin balance that we need to learn. That is how we can help the plant really perform closer to its potential. We can give the plant what assistance it needs, when it needs it.

Auxin is really the TOP BOSS, and we can use it to give us better production and better crop quality.

