



Organic Grow: Plant Growth Hormones

by Rick Weller, Founder of Organically Done Plant Products

Plant growth hormones either promote or inhibit various forms of plant growth. They occur naturally but are also synthesized in the lab. If nutrients, water and sunlight are not limiting factors, these growth hormones control plant growth and development.

Like humans, plants produce a variety of hormones that help regulate their internal functions. Five major classes have been identified.

- *Auxins*: promote stem elongation and root growth
- *Cytokinins*: promote cell division
- *Gibberellins*: promote stem elongation and flowering
- *Ethylene*: promote fruit ripening
- *Abscisic Acid*: inhibits cell growth during times of stress

Hormones are synthesized in one part of the plant and typically transferred to another part of the plant. So, for example, auxins created in the apical (dominant) bud are often trans-located to the outer root zone to promote root growth or to lower stem locations to inhibit lateral buds. As you can see, changes made to one location of the plant can impact development in other locations, e.g., topping your dominant bud removes auxin development capacity which may allow more lateral bud development.



Some plant-based organic products such as alfalfa meal (triacontanol) and kelp (primarily cytokinins, auxins, possibly gibberellins) contain natural plant growth hormones and have been shown to enhance plant rooting, growth, flowering and stress resistance. Adding these natural growth hormones is more effective through foliar applications but can be effective with root applications.

More is not always better. There is a point where adding additional growth hormones into your plant environment may have detrimental effects and actually inhibit growth or cause defects. This is very dependent on your specific soil environment and plant species so error on the side of caution. Slowly increase your dosages until you have determined what is right for you. Growth hormone supplements can be applied from seed development through flowering.

There has been much discussion recently on synthetic plant growth regulators (PRG's). These products are regulated by the EPA as a form of pesticide. Several products popular with indoor growers were evaluated and found to have chemical PGR's – the secret sauce – added but not identified on their labels. There is a very real risk that these additives have not been tested for harmful effects.

A wide variety of synthetic PGR's have been developed since the 1930's. Some of these products have been shown to be harmful to water organisms, animals and humans. Many products have been banned for use on food crops. Livestock feed recommendations call for limiting the amount of feed that has been produced with these products. This does not necessarily mean that all PGR's are harmful but, why take the risk?

Coming next: Controlling Pests in an Organic Environment



Organically Done (www.organicallydone.com) is a Michigan manufacturer of organic fertilizers and soil amendments. Our mission is to produce high-quality truly organic products that provide what your plants need while being free of potential contaminating sources that are found in many of today's "organic" alternative – NOT ALL ORGANICS ARE CREATED EQUAL.