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FAQ Section

What are plant growth regulators?

Simply put, plant growth regulators (also known as growth regulators or plant hormones) are chemicals used to alter the growth of a plant or plant part.

Hormones are substances naturally produced by plants, substances that control normal plant functions, such as root growth, fruit set and drop, growth and other development processes.

FDACS Definition of Plant Regulator

Any substance or mixture of substances intended, through physiological action, for accelerating or retarding the rate of growth or maturation or for otherwise altering the behavior of ornamental or crop plants or the produce thereof, but not including substances intended as plant nutrients, trace elements, nutritional chemicals, plant inoculants, or soil amendments.

History and Use of Plant Growth Regulators

The use of plant growth regulators in agricultural production within the United States began in the 1930s. The first discovery and use of plant growth regulators was with acetylene and ethylene, which enhanced flower production in pineapple. Subsequently, use of plant growth regulators has grown exponentially to become a major component of

agricultural commodity production.

Certain herbicides and insecticides that are not true plant growth regulators cause some plant-growth-regulating effects.

For example, the widely used insecticide carbaryl is used to thin apple fruit from trees and to aid in encouraging annual bearing.

Classes of Plant Growth Regulators

Plant growth regulators fall into six major classes. Table 1, below, lists these classes with the plant development function(s) that are controlled by the plant growth regulators.

Table 1 also provides examples of the practical uses with which plant growth regulators are typically associated.

Table 1. Plant growth regulator class, associated function(s) and practical uses.

Class	Function(s)	Practical uses
Auxins	Shoot elongation	Thin tree fruit, increase rooting and flower formation
Gibberellins	Stimulate cell division and elongation	Increase stalk length, increase flower and fruit size
Cytokinins	Stimulate cell division	Prolong storage life of flowers and vegetables and stimulate bud initiation and root growth
Ethylene generators	Ripening	Induce uniform ripening in fruit and vegetables
Growth inhibitors	Stops growth	Promote flower production by shortening internodes
Growth retardants	Slows growth	Retard tobacco sucker growth