



Defoliant and Desiccants¹

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This document discusses the meaning of the terms “defoliant and desiccant,” their patterns of use, and provides a listing of these products registered for use in Florida.

Introduction: What are Defoliants and Desiccants?

Simply put, defoliants and desiccants are chemicals used to remove leaves from the plant – either from the crop itself, or from weeds in infested fields. In cotton production, leaf removal has several advantages:

- The crop may be harvested earlier;
- Quality grades are higher because of a lower content of leaf trash;
- Leaf removal facilitates air movement, and thus drier conditions which are favorable for boll-opening and less conducive to boll rot development;
- Harborage sites of insects that reduce lint quality are removed; and to some degree,

- Reduced lodging of the crop.

Defoliants

Plant defoliation does not hasten maturity; for maximum yield and crop quality potential, defoliants should not be applied until physiological maturity. Defoliants function in several primary ways, both resulting in more rapid development of abscission layers. The abscission layer is the zone where leaf petioles meet stems. Once adequately formed, leaves drop from the abscission layer. The older materials work by contact – rapid destruction of green tissue, which indirectly favors formation of abscission layers. Several other defoliants do not target green tissue destruction rather promote the formation of the abscission layer directly, resulting in leaf drop. The activity of a defoliant is favored by warm temperatures, particularly greater than 50°F.

FDACS Definition of “Defoliant”

Any substance or mixture of substances intended for causing the leaves or foliage to drop from a plant, with or without causing abscission.

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Desiccants

Desiccants are used for similar purposes as defoliant, but they function differently. Desiccants cause green foliage to lose water – a hastened drying process that results in leaf removal (generally faster than the result of a defoliant). Desiccants have several practical uses in production. They effectively destroy the crop following harvest, quickly eliminating pest harborage sites. Besides being a useful pest management tool, they can protect crop quality. For example, in potato production, the presence of massive green vine material can interfere with the harvest operation. Such interference can result in skinning and bruising of the tubers. Skinned and bruised tubers will readily discolor and are more easily predisposed to soft rot. Lower quality tubers lower fresh market value, and in some cases may be rejected entirely. Numerous materials that are applied for weed control are also registered for use as harvest aid chemicals. For example, paraquat and diquat dibromide are very fast-acting, are labeled for control of a wide spectrum of weeds, and have been used as effective harvest aids for many years. Legally, defoliant and desiccants are regulated as pesticides under the Florida Department of Agriculture and Consumer Services (FDACS) and must be registered for use as would any pesticide within the state.

FDACS Definition of “Desiccant”

Any substance or mixture of substances intended for artificially accelerating the drying of plant tissues.

Table 1 lists commonly-used defoliant/desiccant materials that are registered for use in Florida along with some examples of trade names.

Additional Information

Olson, S.M. and D.N. Maynard. Vegetable production guide for Florida 2002 – 2003, 7th ed. University of Florida IFAS/Extension.

Table 1. Materials registered for use as defoliants/desiccants in Florida with example trade names.

Active ingredient	Trade names
Diquat	Reglone [®]
Carfentrazone	Aim [®]
Dimethipin	Harvade [®] , Leafless [®]
Endothall	Accelerate [®] , Desiccate [®]
Mepiquat chloride	Pix [®]
Sodium chlorate	Defol [®]
Pelargonic acid	Scythe [®]
Paraquat	Gramoxone [®]
Thiadiazuron	Dropp [®] , Ginstar [®] , Leafless [®]
Tribufos	Def [®] , Folex [®]