

Defoliants and Desiccants¹

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This document discusses the meaning of the terms “defoliant and desiccant,” describes uses of defoliants and desiccants, 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 plants, such as a crop or weeds in an infested field.

In cotton production, for example, leaf removal has several advantages:

- The cotton 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 the development of boll rot;
- Leaf removal reduces harborage sites of insects that reduce lint quality; 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, but 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.

Desiccants

Desiccants are used for purposes similar to the uses of defoliants, but desiccants function differently. Desiccants

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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. In addition to being a useful pest-management tool, desiccants can protect crop quality in other ways. 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 such tubers 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.

Defoliants and desiccants are regulated as pesticides under the Florida Department of Agriculture and Consumer Services (FDACS) and must be registered for use as all other pesticide used within the state.

FDACS Definition of “Desiccant”

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

The table lists commonly used defoliant/desiccant materials registered for use in Florida along with some example trade names.

Additional Information

American Society for Horticultural Science: <http://www.ashs.org/>

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

Active ingredient	Trade names
Carfentrazone	Aim
Cyclanilide	Finish
Diquat	Reglone, Diquash
Glufosinate	Rely
Paraquat	Gramoxone
Pelargonic acid	Scythe
Pyraflufen	ET
Thidiazuron	Many trade products commercially available.
Tribufos	Def, Folex