Peanut Disease Update

By: Nicholas S. Dufault, Extension Plant Pathologist, University of Florida

This year rainfall returned to most of Florida's peanut production areas through afternoon showers and the tropical systems Debra and Isaac. The increase in moisture created a high disease pressure year with stem rot (white mold) and Rhizoctonia diseases being a major problem for many growers across the state. Also, there was one confirmed occurrence of Cylindrocladium black rot (CBR) in north central Florida and several unconfirmed reports throughout the state. Finally, Tomato Spotted Wilt Virus (TSWV) was also seen throughout the growing region but in low quantities. It is possible that the warm winter months coupled with early planting dates, and in some case 'skippy' stands, led to the notable presence of TSWV. However, TSWV was still not a major concern for Florida peanut production in 2012.

As the peanut season comes to a close there are a few things we should consider about our disease management programs. First, in order to have a quality management program it is critical to gather as much information as possible about the host, pathogen and environment. Three things to keep in mind about these factors as you make your final decisions are:

1. Remember that within 14 days of harvest fungicides provide little if any yield benefits and that pre-harvest intervals range from 14 to 40 days (Table 2). So, knowing the approximate days your peanuts have until maturity is critical to determining late season fungicide sprays, if any are needed.
2. Even in the best fungicide programs, there will always be some disease present. During high disease pressure years it is estimated that the best fungicide program will provide 70 to 80% control/management of a disease. So, in a year such as 2012, having a disease incidence of 30% or greater is not uncommon. During a high disease pressure year the rotation of fungicide chemistries is even more important to control the development and spread of resistant pathogens. Tables 1 and 2 provide a list of common fungicides and their different chemistries (FRAC numbers), to assist you in your fungicide spray selection.
3. Weather is always critical for the disease development of any peanut pathogen. In general, fungal pathogens do better in wet and warm (65 to 85°F) environmental conditions. Major systems, such as tropical storms or hurricanes, can also delay our harvest dates or create gaps in our spray programs. It is important for growers to watch the weather forecast to make accurate and timely applications of fungicide products. For more information about possible scenarios related to weather and stem rot development, visit the blog post by Santa Rosa county extension agent John Atkins (http://calhoun.ifas.ufl.edu/newsletters/2012/08/24/2012-peanuts-it-is-a-white-moldyear/)

It is never too early to start planning for next year. Before your harvest, it is always good to take notes and scout your field for disease and other problems. These notes will be critical to determining management programs for next year and are very useful for spray selection tools such as Peanut Rx. Finally, be sure to note what disease is present in the field. For example, in-furrow fungicide applications can be useful for managing Cylindrocladium black rot, but may not be as useful for stem rot or Rhizoctonia diseases. Knowing what diseases were present the year before is always important for any decisions in your fungicide management program.

DISEASE IDENTIFICATION:

The information below is provided to help with the identification and differentiation of the soil borne diseases Stem rot (White Mold) and CBR. These are short disease identification guides meant to help in the identification of the diseases in the field. If there are further questions about these or any other disease contact your local county extension office.

Stem Rot (a.k.a. White Mold; *Sclerotium rolfsii*)

Stem rot occurs primarily in broadleaf (non grass) crops, with peanuts being a common host in Florida. The disease is most severe during wet (high rainfall) and warm (80 – 95°F) conditions. Usually, symptoms are not apparent until after a sufficient canopy cover is present (i.e. overlapping of the canopy) or during frequent periods of rainfall. Early symptoms include discoloration of leaves on a few branches (Figure 1a and b). A white fungal growth (mycelia) can be seen during periods of high moisture (frequent rainfall and heavy/prolonged dews) on the stem and organic debris on the soil (Figure 1c). As the disease progresses, mustard seed-sized tan to dark brown or reddish sclerotia will develop on the soil surface near the old fungal growth. In drier conditions (minimal rainfall or defoliated canopy), the white fungal growth will not be seen and only the sclerotia may be present (Figure 1d). The disease often progresses in a linear fashion down the row, however it can expand in a circular fashion infecting neighboring rows, as well.

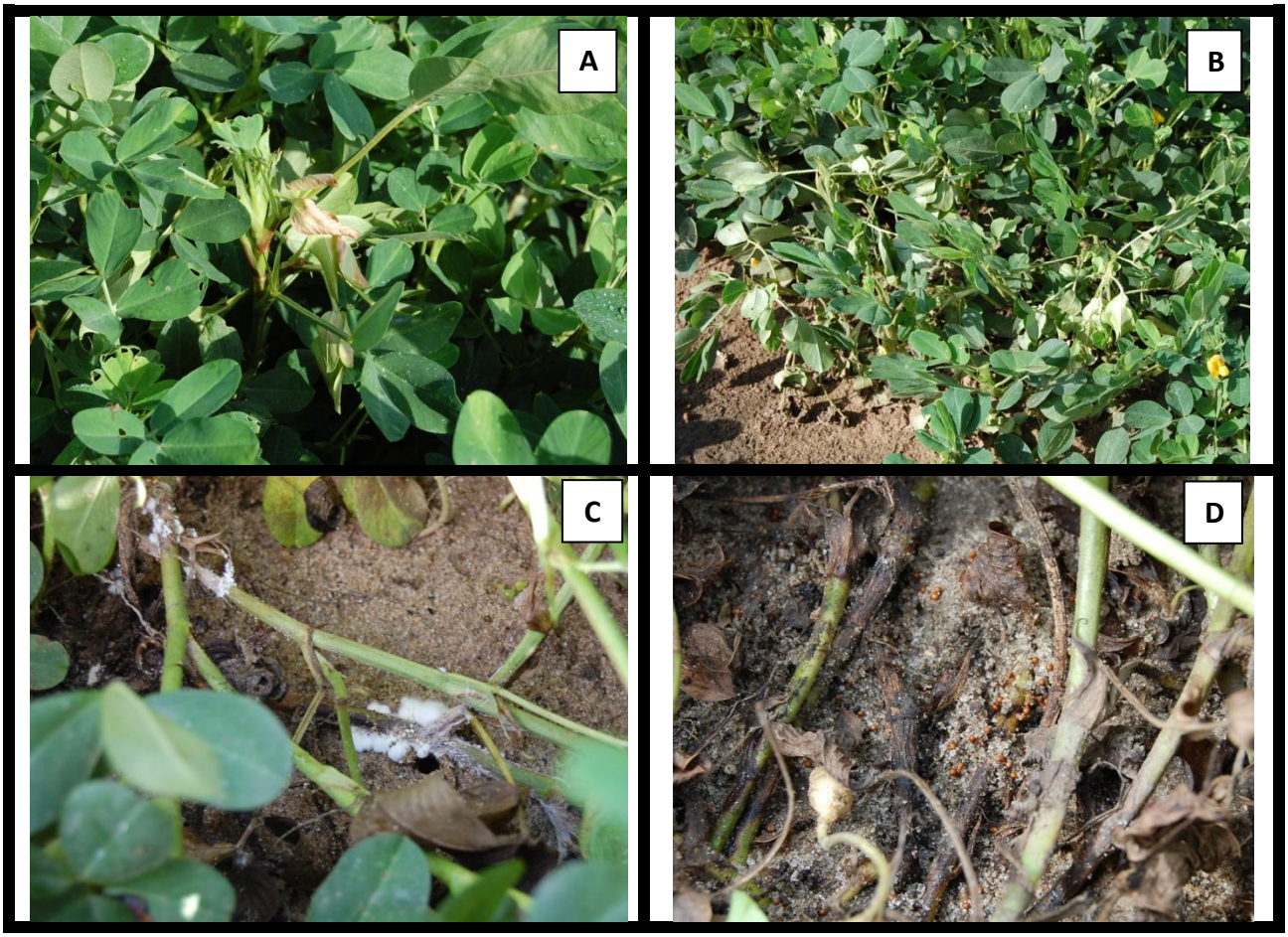

Figure 1. Typical symptoms and signs of the peanut disease Stem Rot. A.) Wilting and discoloration on an infected branch; B.) Wilting of multiple branches; C.) White fungal growth on the branches of peanuts; D.) Mustard size sclerotia on the soil next to diseased plants.

Cylindrocladium Black Rot, CBR (*Cylindrocladium parasiticum*)

CBR is a disease of peanuts that usually have symptoms develop in the month of July and August in Florida. The disease is often more severe during seasons with excessive rains (i.e. tropical systems) and when soil temperatures range from 68 to 86°F. Sustained winter temperatures of less than 40°F are known to reduce the inoculum of this disease and thus its intensity the following year. Symptoms typically start with a yellowing or wilting of the peanut plant that eventually leads to plant death (Figure 2a and b). Stem infections are initially brown but usually will turn black with age (Figure 2c). Under the wet conditions red perithecia will form in these blighted areas (Figure 2c and d). Typically, CBR occurs in patches across the field, but with time this patchy appearance becomes less noticeable (Figure 2a). Often more severe and uniform infections are located in areas of the field that retain water or dew.

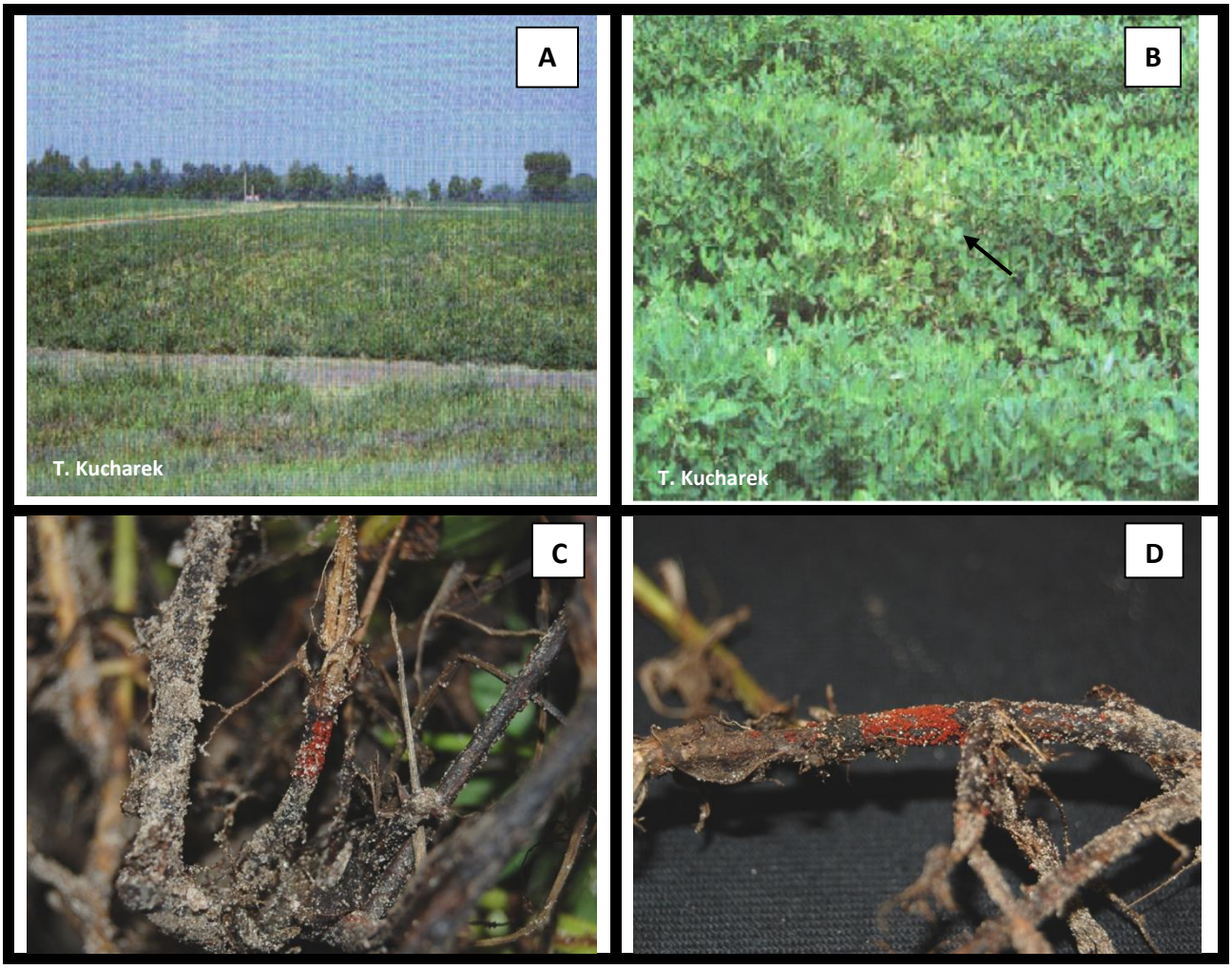

Figure 2. Typical symptoms and signs of the peanut disease Cylindrocladium black rot. A.) CBR in a field; B.) Wilting and yellowing of a peanut plant; C.) Blackening of stem and red perithecia; D.) Close-up of the red perithecia on a stem.

2012 FUNGICIDE SUPPORT TABLES:

Tables 1 and 2 provide a summary of the fungicides available for peanut disease control. All fungicide ratings are relative and meant to be used as a support tool for product selection in disease management programs. Disease management should be part of an integrated program that uses proper crop rotation, debris removal and resistant varieties. Always consult fungicide labels for rates and application instructions as well as other detailed spray information (PHI, spray limits, etc.).

Table 1: Disease response chart for peanut fungicides. Ratings are based on the relative performance of the products in small plot and on-farm trials using labeled recommended rates.

Fungicide(s)	Stem Rot[1]	Rhizoctonia[2]	CBR (Black Rot)[3]	Late Leaf Spot[4]	Early Leaf Spot[5]	Rust[6]
Abound	G	E	*	F	F	F
Artisan	E	F	*	*	*	*
Bravo, Echo, Equus, etc.	*	*	*	F	F	F
Convoy	E	F	*	*	*	*
Eminent-Echo	*	*	*	F	F	F
Elast	*	*	*	F	F	?
Evito	G	?	*	F	F	?
Fontelis	F	?	G	F	F	F
Folicur, Monsoon, etc.	F	F	G	G	F	E
Headline	*	?	*	E	E	E
Proline	F	F	E	G	G	G
Provost	F	F	F	F	F	F
Quash	G	?	*	F	F	F
Stratego	*	*	*	F	F	?
Sulfur compounds						
Tilt-Bravo (or generics)	*	*	*	F	F	F
Topsin 4.5FL	*	?	*	F	F	F

Rating definitions: ? = unknown, * = not recommended, G = Good, F = Fair, E = Excellent.

- Consult the label for more specific information about each product's application and use.
- Disease management should be part of an integrated program with crop rotation, debris removal and resistant varieties.

1. Stem rot, also known as White Mold, is caused by the soil-borne fungal pathogen *Sclerotium rolfsii*.
2. Rhizoctonia is caused primarily by the fungal pathogen *Rhizoctonia solani*.
3. Cylindrocladium black rot is caused by the soil-borne fungal pathogen *Cylindrocladium parasiticum*.
4. Late leaf spot is caused by the aerial fungal pathogen *Cercosporidium personatum*.
5. Early leaf spot is caused by the aerial fungal pathogen *Cercospora arachidicola*.
6. Rust is caused by the aerial fungal pathogen *Puccinia arachidis*.

Table 2: The information in this table is meant as a guide for peanut fungicides and product labels always should be consulted before any application.

Fungicide(s)	Common Name	FRAC #	PHI (Days)	Feed (Hay)	Rate per acre
Abound	azoxystrobin	11	14	Yes	12-18 fl oz
Artisan	flutolanil propiconazole	7	**40**	No	26-32 fl oz
Bravo, Echo, Equus, etc.	chlorothalonil	M5	14	No	1-1.5 pt
Convoy	flutolanil	7	**40**	No	20-32 fl oz
Eminent-Echo	tetraconazole chlorothalonil	3/M5	14	No	16 fl oz
Elast	dodine	U12	14	Yes	15 fl oz
Evito	fluoxastrobin	11	14	Yes	5.7 fl oz
Fontelis	penthiopyrad	7	14		16-24 fl oz
Folicur, Monsoon, etc.	tebuconazole	3	14	No	7.2 fl oz
Headline	pyraclostrobin	11	14	No	6-12 fl oz
Proline	prothioconazole	3	14	No	5.7 fl oz
Provost	tebuconazole prothioconazole	3/3	14	No	8-10.7 fl oz
Quash	metconazole	3	14	No	3-4 fl oz
Stratego	propiconazole trifloxystrobin	3/11	14	Yes	10-14 fl oz
Tilt-Bravo (or generics)	propiconazole chlorothalonil	3/M5	14	No	----
Topsin 4.5FL	thiophanate methyl	1	14	Yes	5-10 fl oz

- Consult the label for more specific information about each product's application and use.
- Disease management should be part of an integrated program with crop rotation, debris removal and resistant varieties.

There is no perfect all-around fungicide product, so for any spray program rotating between fungicide chemistries is recommended. The common name and FRAC number provide information about the class of fungicide being applied.