Alachua County
2800 NE 39th Avenue
Gainesville, FL 32609
Tel: (352) 955-2402
Fax: (352) 334-0122

Peanut Rust Fungus: *Puccinia arachidis* Speg. - FACT SHEET #2019003

Korus, K. A., [1] and Dufault, N.[2]

[1] Extension Agent, Florida Cooperative Extension, Alachua County, Gainesville, Florida 32609
[2] Associate Professor, Department of Plant Pathology, University of Florida, Gainesville, Florida 32611

Peanut rust (PR) is a foliar disease that sporadically occurs across all of Florida's peanut production regions. It can substantially reduce crop yields with these reductions being exacerbated by the presence of early and late leaf spot pathogens (*Cercospora arachidicola* and *Cercosporidium personatum*, respectively). Because of the irregular basis at which this disease occurs, management decisions are often made in season and coordinated with other foliar management programs.

Symptoms and Signs

Peanut is susceptible to PR at any developmental stage; however, symptoms do not typically develop until after canopy closure or later in the season (60 to 110 days after planting). At a distance, infected plants will initially appear yellowish but in severe cases leaf drop can occur causing "burn out" areas (Figure 1). Like other agronomic crop rust diseases, signs of infection are marked by the formation of pustules (uredinia) that erupt from the lower leaf surface that produce orange to brown fungal spore (urediniospores) masses (Figure 1). Pustules are commonly found on the bottom leaf surface, but they may protrude through the top side and can be found on all above ground plant parts (except the flowers). Unlike early and late leaf spot infections, PR infected leaves will tend to remain on the stem with defoliation only occurring in severe cases. PR pustules are visible with magnification of 10X or more and are a diagnostic trait for this disease. However, if you are unsure what is causing your issue, consider submitting a sample to the UF Plant Diagnostic Center. 2570 Hull Rd. Gainesville, FL 32603.

Favorable Disease Conditions

This pathogen can only survive on green plant tissue and in areas where its host is not killed by frost. Thus, it typically does not survive in North Florida and most likely survives on peanut crops or volunteer peanuts in the South Florida and/or the Caribbean. To date, perennial peanut rust does not appear to infect field peanut, however, further research is needed to better understand this relationship. PR spores can be carried long distances by wind to rust-free areas. Infections typically occur during long leaf wetness periods (> 8 hr.) (e.g. multiple days of rainfall, heavy dew periods) and at moderate temperatures (68 - 86° F). New infections can occur every 7 to 20 days and the fungus can spread quickly throughout the canopy under optimal conditions. Favorable conditions need occur several times within a production season for PR to develop to infection levels that lead to yield reductions.

Management

Cultural: Removal of volunteer peanut plants will help reduce PR inoculum as well as benefit in the management of other peanut diseases. Resistant hybrids are available for PR management.
Fungicide: Foliar fungicides are a viable management option. Research has indicated that the triazole (DMI, FRAC 3) and strobilurin (QoI, FRAC 11) classes of fungicides are still effective products. Some active ingredients are cyproconazole, tebuconazole, prothioconazole or tetraconazole for the triazoles, and pyraclostrobin and azoxystrobin for the strobilurins. Some brand name products (e.g. Elatus, Fontelis) may be effective against rust, but due to the sporadic nature of this disease there is limited data available about their efficacy in Florida. If peanut rust is found in your field, it is recommended that these products be added to your foliar disease management program and consider shortening spray application intervals. Triazole and strobilurin products should not be uses alone. Typically these products can be mixed with chlorothalonil, but other options are also available.

Figure 1. (Left Image) Reddish-yellow patches in a peanut field marked by heavy peanut rust infection. (Right Image) Typical sign of peanut rust infection. Orange pustules erupt from the lower leaf surface.