




FEBRUARY 2008

HOMEOWNER PLANT DISEASE CLINIC REPORT

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Signs of spring on the horizon in Athens...cherry trees in full bloom and daffodils springing up everywhere! As March approaches, homeowners start perusing garden centers for new additions to their landscapes and gardens, prematurely purchase fertilizers for their lawns, start vegetable seeds indoors, and gear-up for warmer weather. With all the winter rain we've gotten across the state, it seems as though Georgia should be recovering nicely from the drought, but this is a misconception. We are not yet in the clear for the upcoming year and still need to be vigilant water conservationists.

In terms of upcoming plant diseases, homeowners will likely begin to bring in plant samples with the following problems: leaf galls on Camellia and Azalea (March 2007 report), fire blight on apple and pear, both dollar spot and brown patch on various turfgrass species, and **rust** on various plants, which will be the focus of this month's report.

For a list of plant samples submitted to the homeowner clinic over the last month, please see the table below.

FEBRUARY 2008 Homeowner Samples

County	Plant	Common Name of Disease (Pathogen)	Type of Sample – DDDI or Physical
Chatham	Camellia	No disease – possible nutritional/cold damage	Physical
Cook	Arborvitae	Scale infestation	Physical
Coweta	Camellia	Virus (Camellia Ringspot Virus)	Physical
Crisp	Slime	Algae	DDDI
Douglas	Mushroom	Wood rot (Possibly <i>Hericium</i> sp.)	Physical
Elbert	Yaupon Holly	Unable to determine	DDDI
Elbert	Pecans	Unable to determine	DDDI
Forsyth	Rhododendron	Cultural – lack of water/drought; secondary – Powdery Mildew	Physical
Grady	Leyland Cypress	Possible cultural (planted too deep) or root rot	DDDI
Gwinnett	Phalaenopsis	Unable to determine	DDDI

County	Plant	Common Name of Disease (Pathogen)	Type of Sample – DDDI or Physical
	Orchid		
Gwinnett	Ficus	Possible Crown gall (<i>Agrobacterium</i> sp.)	DDDI
Monroe	Viburnum	Cold damage and possible fungal leaf spot (<i>Cercospora</i> sp.)	DDDI
Muscogee	Illicium floridanum	Unable to determine	DDDI
Pierce	Centipede	Take all root rot (<i>Gaeumannomyces graminis</i>)	Physical
Rabun	Camellia sasanqua	Fungal leaf spot (unknown) & cold damage	DDDI
Thomas	Mushroom	Stinkhorn fungus (<i>Clathrus columnatus</i>)	DDDI
Thomas	Ligustrum	Fungal leaf spot (unknown)	DDDI
Whitfield	Banana Plants	Root rots (<i>Pythium</i> sp. & <i>Phytophthora</i> sp.)	Both
Total samples (late-January to late-February): 18			

RUST Diseases

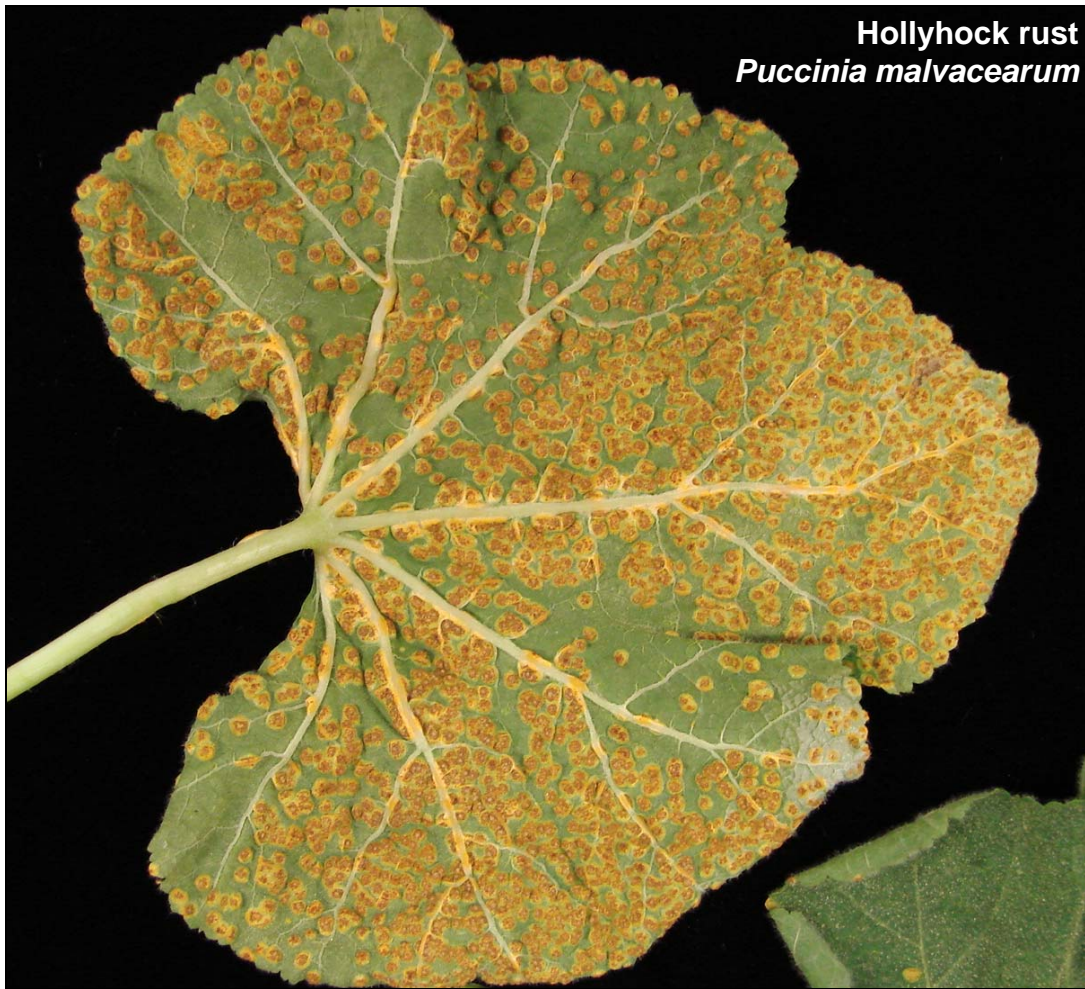
With over 5000 species of rust fungi (Agrios 2005), this group of plant pathogens can attack a wide range of plant hosts and includes some of the most destructive pathogens in the world. Some of the hosts include: grain crops (wheat and oats), vegetables (bean), ornamentals (daylily, snapdragon, hollyhock, and geranium), trees (cedar, pines, and oaks), fruit (blackberry, apples, peach) and field crops (cotton and soybean). Rust fungi are obligate parasites (meaning they need a **living** host to survive and reproduce).

Most rust fungi attack the foliage (leaves) and stems of the plants. Symptoms include: rusty, orange/yellow (sometimes white) pustules or spots on the leaf surfaces. Rust pathogens can also form galls like those created by the cedar-apple rust pathogen. These pathogens can spread very rapidly due to the large number of spores being produced.

Many rust fungi need **two** different hosts to complete their life cycles and have **five** different spore forms. For example, the cedar-apple rust pathogen cannot complete its life cycle without both a cedar and a nearby apple host.

Wet, warm weather favors the development of rust diseases. Therefore, in the spring and fall, we see many rust diseases on various plants.

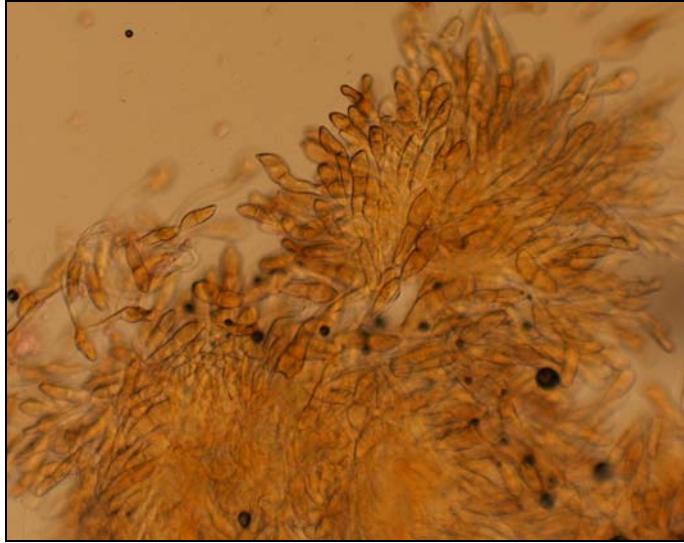
See the examples below.



Rust pustules on the underside of the hollyhock leaf surface.



Raised, orange lesions on the upper side of the hollyhock leaf surface



Masses of teliospores of the rust pathogen, *Puccinia malvacearum*.



Snapdragon infected with the rust pathogen, *Puccinia antirrhini*.

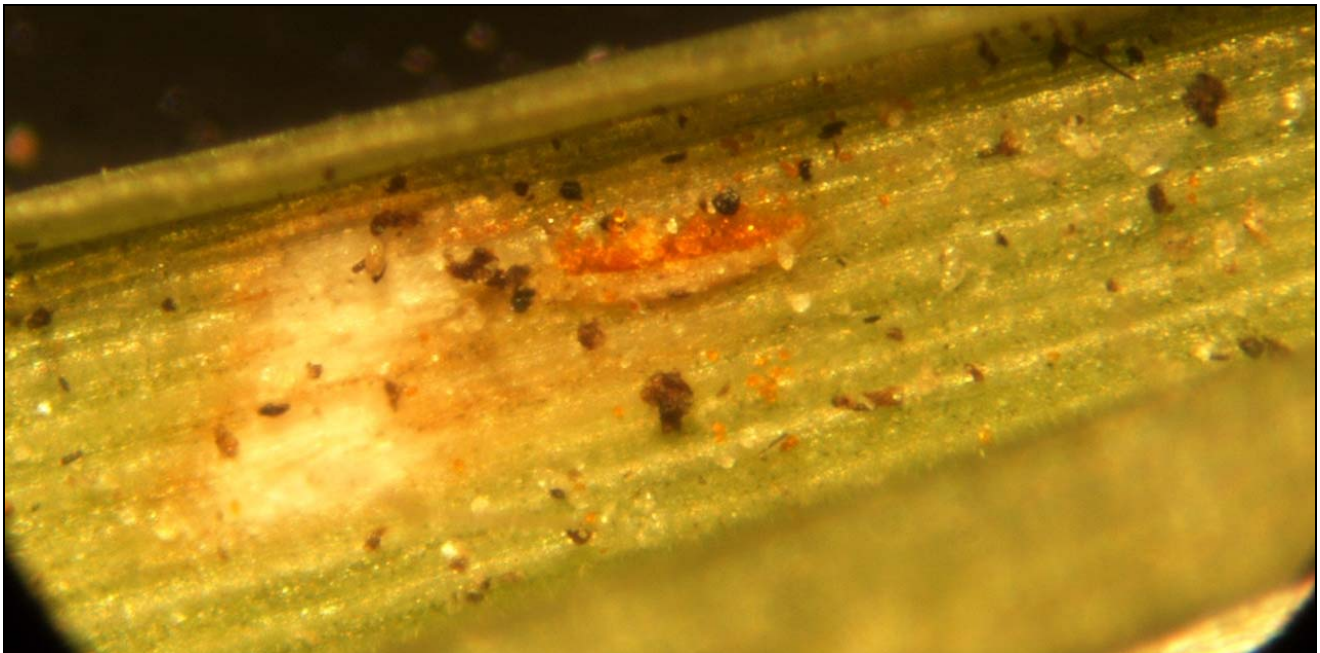


Both sides of the snapdragon leaf surface showing the symptoms and signs of a rust infection.





The two images above show the fungal rust pathogen, *Gymnosporangium clavipes*, on hawthorn fruit. The orange structures seen on the fruit are the fruiting structures of the pathogen. This pathogen infects eastern red cedars and other junipers for half of its life cycle. The other half of the life cycle is spent on Rosaceous hosts (such as hawthorn).



This is a close-up of a rust pustule on Zoysia grass.

So, how do rust pathogens affect their hosts?

They can cause...

- Premature defoliation
- Stunted fruit
- Death of fruit
- Swollen, distorted petioles (eventual death)
- Unsightly galls, fruits, etc.
- Leaf spots/pustules
- Odd gelatinous structures to form on certain plants.

How do we **manage** rust pathogens?

- Purchase **rust resistant** varieties or cultivars of plants when available;
- Eradicate (remove) one of the hosts of the rust pathogen;
- Remove galls, infected fruits and leaves, and diseased tissues (prune 6 to 8 inches below infected area with sterile pruning tools) – SANITATION;
- Early detection and removal of infected host – SCOUTING – helps to prevent the spread of the pathogen;
- Fungicides are available in worst case scenarios (active ingredients listed below):
 - Contact fungicide – Chlorothalonil
 - Systemic fungicides – Myclobutanil, Triadimefon, Tebuconazole, Triforine
 - Be sure to carefully read and follow label directions.