

Geranium Rust

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Geranium rust is common in some locales on zonal geraniums. It is caused by *Puccinia pelargonii-zonalis* and was originally discovered in South Africa. In the 1970's the disease became almost as common as the plants themselves and remains common in landscapes of the Pacific coast. A few years ago, we had an outbreak throughout the United States which was probably due to the ease of spread via rooted cuttings. Between the 1970's and 1990's we forgot about geranium rust since highly effective fungicides were available and in use.

Geranium rust appears as pale green or yellowish spots on the tops of leaves that eventually can develop a dead area in their centers. The rust spores are on the undersides of the leaves and are very powdery and reddish-brown. These are called pustules since the burst open from the leaf interior where the rust fungus is developing. The center pustule is sometimes surrounded by a ring of smaller pustules making it look like Saturn with its rings. These spores are exceedingly easy to spread by fans, wind movement and workers hands and even clothes. Leaves need to be wet for a short time (at least three hours) to allow rust spores to germinate and attack them. The optimal temperature for disease is 62F but we have been doing tests in California with daily highs reaching 95F (nights are 60F). While most (if not all) zonal geraniums are susceptible to this rust, other *Pelargonium* species are apparently very resistant (or maybe even immune).

Never use any cuttings that have signs of rust and do not use stock plants with rust. Even cuttings that appear clean can have rust spores if they are from rust infected plants. If you have your own geranium stock plants you should scout weekly for rust symptoms and it should be replaced once a year to keep mother plants as healthy as possible.

Remove diseased plants as quickly as they are found by putting them into a plastic bag for their trip out of the greenhouse to the dump. Remember how easy it is to spread rust spores.

We performed a trial with some currently available fungicides three years ago (reported in GrowerTalks – Aug. 1999) and three more this past year. The first trial was performed between December 2001 and February 2002, the second one during May and the final one June and July 2002. I have them summarized in the table. It is apparent that the sterol inhibitors (many are triazoles) are very effective for rust diseases with Systhane perhaps the best at the lowest rate for geranium rust. Strobilurins are also effective but sometimes fail. Overall, the best strobilurin for this rust is Heritage. Of the other product evaluated in these four trials we found mancozeb (one of the two ai in Stature) to be excellent as well as a 25 oz rate of Phyton 27.

There are many effective rust products and therefore no excuse for failing to rotate between chemical classes. The most effective program for a severe rust problem would be a rotation between a sterol inhibitor and a strobilurin (like Heritage). If you use Heritage, be sure to add the wetting agent (as per label directions) or you may get no control at all. The wetting agent is needed to penetrate rust pustules. Alternatively using Phyton 27 or a mancozeb (such as Stature can give just as high a level of control. If residues are an issue, however, avoid the mancozeb fungicides.

Fungicide	Rate/100 gal	Results	Chemical grouping
Banner Maxx	4-6 oz	Good to excellent	Sterol inhibitor
BAS500	2-8 oz	Some to excellent	Strobilurin
Compass 50W	2-4 oz	Poor to excellent	Strobilurin
Cygnus	3.2 oz	Some	Strobilurin
Decree 50W	32 oz	Some	Hydroxyanilide
Eagle 20EW	8 oz	Excellent	Sterol inhibitor
EXPA	2 oz	Good to excellent	Sterol inhibitor
Heritage 50WDG	1 oz	Very good to excellent	Strobilurin
Milsana	2%	Good	Plant extract
Phyton 27	16-25 oz	Good to excellent	Copper
Stature	1.75 lb	Excellent	Cinnamic acid/carbamate
Strike 25WP	5.5 oz	Excellent	Sterol inhibitor
Systhane 40WP	2-8 oz	Excellent	Sterol inhibitor
Terraguard 50W	2-4 oz	Poor to very good	Sterol inhibitor