

'Tis The Season to Protect Your Mums From Rust

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Cooler weather signals various things in the world of floriculture - for mum growers it signals that it is time to think about chrysanthemum white rust (CWR) caused by the fungus *Puccinia horiana*. CWR infection results in small, round, light yellow/light green spots (3-5mm in diameter) on the upper leaf surface, with corresponding swellings and spore pustules that are white, pink, tan, or buff in color on the leaf underside. Symptoms are usually first seen in cool and wet weather in August, September or October. CWR is typically more of a concern in the Northeast, Mid-Atlantic, and Western states.

While having a rust mar your plants is worrisome enough, CWR is an increased concern due to its current status as a federally regulated disease. If CWR is found, it is necessary to notify your local regulatory agency and follow a federal protocol, which includes destroying



*Chrysanthemum White Rust on upper and lower leaf surface.
(Photos courtesy of Margery Daughtrey)*



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the symptomatic plants and quarantining the remaining plants until a required series of fungicide applications have been completed. CWR has caused considerable losses for growers who have had this disease found on their property, not only due to the loss of the plants that needed to be destroyed, but also to losing sales windows because the remaining symptomless plants were under quarantine.

Currently, the US Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) is seeking comment on its regulatory strategy for responding to domestic chrysanthemum white rust (CWR) outbreaks and its policy on the importation of CWR host plants and plant material. For more information and to find out how to submit comments, visit: http://www.aphis.usda.gov/newsroom/2012/08/white_rust.shtml. (If you are interested in submitting comments, make sure to submit them by October 2, 2012.)

Although USDA APHIS is seeking comments and is considering revising the quarantine status, CWR remains a quarantine pest for the time being. Therefore, prevention is crucial.

Over the past few years there has been suspicion that CWR is capable of overwintering in the landscape, though this suspicion has not been proven scientifically. However, it was recently reported that *P. horiana* was

found to overwinter in a study conducted in Pennsylvania (G. O'Keefe and D. D. Davis. Plant Disease. 96:1381, 2012). If your operation or a neighbor's operation has seen CWR at some point over the past few years, it would behoove you to be extra cautious. Preventive fungicides are recommended, particularly during ideal weather conditions for the rust disease. CWR will develop and thrive in cooler weather (its ideal temperature is 50-77°F), so now is the time to be watchful and proactive with defensive moves.

Some fungicides labeled for rust management include: the DMI fungicides (Strike, Terraguard, Eagle/Hoist), the strobilurin-containing products (Compass, Cygnus, Heritage, Insignia, or Pageant), and thiophanate-methyl products (e.g., Cleary's 3336, OHP 6672). The contact materials such as mancozeb (e.g., Protect) and chlorothalonil (e.g., Daconil; note warning for plants in bloom) can also be used to prevent new infections. As always, follow all label restrictions and recommendations. Note that not all products listed above are labeled for use in all states.

For more information, you can find a short video presentation (3-4 minutes) by Margery Daughtrey, Cornell University, on Chrysanthemum White Rust at this link: www.greenhousegrower.com/ggtv/?vid=326.

Remember that there is another rust

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that occurs on mums, chrysanthemum brown rust (CBR). Like CWR, CBR causes small yellow spots on leaves, but, unlike CWR, the spore pustules on the leaf undersides will be chocolate brown in color once they are mature. CBR is not federally regulated, but it is nonetheless important to scout for and to manage, since it can result in rather unattractive and unsalable plants. For both rusts, cultural management strategies include proper plant spacing and careful irrigation practices aimed at reducing the amount of time that the foliage is wet. If CBR-infected plants are noticed in the landscape, removing the plants will remove a source of inoculum for the next season. Like CWR, CBR will thrive in cool and wet conditions, so be especially watchful when these occur. When needed, apply a rotation of fungicides with different modes of action; fungicides effective against the relatively common brown rust will also work for white rust protection.



Chrysanthemum Brown Rust on upper and lower leaf surface. (Photos: Nora Catlin)