

# Pathogen Alert: Chrysanthemum White Rust



Upper side of infected leaf



Underside of infected leaf

## Background

Chrysanthemum white rust (*Puccinia horiana*) is a serious fungal disease of chrysanthemums. It was first discovered in Japan in 1895, and was confined to China and Japan until the 1960s. Today it is established in Europe, Africa, Australia, Central America, South America, and the Far East. It can spread quickly in greenhouse and nursery environments, causing severe crop losses.

**Chrysanthemum white rust (CWR) is a pest of quarantine significance in the United States, requiring state and federal regulatory action. The eradication of CWR is feasible because this disease has a limited host range, a poor dispersal mechanism, and fungal spores that are relatively short-lived.**

## Occurrences

Over the last 25 years, localized introductions of chrysanthemum white rust have occurred within the United States or Canada and have subsequently been eradicated. In 2004, CWR was reported in one location in Massachusetts and was eradicated. CWR was again discovered in Massachusetts in 2008. The MA Department of Agricultural Resources and USDA APHIS-PPQ are currently working together with nurseries to eradicate it. CWR was also reported to have overwintered in an outdoor planting of mums at a residential property in Connecticut, and was found at nurseries in Pennsylvania and Michigan.

## Symptoms

The symptoms of chrysanthemum white rust are very distinct. Light green to yellow spots up to 5mm in diameter appear on the upper surface of the leaf. The spots become brown and necrotic with age. Raised beige to pink pustules form on the underside of leaves. These pustules become white with age. Pustules are most common on young leaves and flower bracts but may form on any green tissue or the petals. Symptoms are more likely to be observed during or following cool, wet weather.

## Actions

The federal management plan for CWR includes the following measures:

- Destruction of symptomatic plants and host plants within a 1 meter radius.
- Fungicide treatments for remaining asymptomatic plants
- Sterilization of any equipment or surfaces in contact with infected material
- Trace backs and trace forwards of infected stock, and surveys of the surrounding area.

Plants suspected of being infected with CWR need to be held from sale pending laboratory confirmation. Nurseries also have the option of destroying any infected or potentially infected host material, provided the stock is either bagged and buried under at least 2 inches of soil or incinerated. A nursery inspector or USDA official must supervise any controls that are implemented.



Infected Chrysanthemums



Close up of a chrysanthemum white rust pustule

### Hosts and Resistant Species

Twelve species of chrysanthemum are **SUSCEPTIBLE** to CWR, including:

- Pot mums, spray mums, and garden mums (*Dendranthema X grandiflorum*, syn. *Chrysanthemum morifolium*)
- Nippon daisy (*Nipponanthemum nipponicum*, syn. *C. nipponicum*)
- High daisy (*Leucanthemella serotina*, syn. *C. serotinum*)
- *C. pacificum* (syn. *Ajania pacifica*)

The following species are considered **RESISTANT** to CWR:

- Annual chrysanthemum (*C. carinatum*)
- Crown chrysanthemum (*C. coronarium*)
- Pyrethrum (*Tanacetum coccineum*, syn. *C. coccineum*)
- Marguerite daisy (*Argyanthemum frutescens*)
- Ox-eye daisy (*Leucanthemum vulgare*)
- Shasta daisy (*Leucanthemum X superbum*, syn. *C. maximum*)
- Corn marigold (*C. segetum*)

### For More Information:

- Chrysanthemum White Rust Fact Sheet, Massachusetts Introduced Pests Outreach Project. <http://massnrc.org/pests/pestFAQsheets/chrysanthemumwhiterust.html>
- Chrysanthemum White Rust page from USDA, APHIS-PPQ. [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/cwr/index.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/cwr/index.shtml)
- Chrysanthemum White Rust diagnostic fact sheet, Agricultural Research Service. <http://nt.ars-grin.gov/taxadescriptions/factsheets/index.cfm?thisapp=pucciniahoriana>
- Current USDA/APHIS CWR Eradication Plan [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/cwr/downloads/cwrplan.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/cwr/downloads/cwrplan.pdf)

If you think you may have seen Chrysanthemum White Rust, please call the MDAR Plant Pest Hotline at 617-626-1779, or report it on our website: <http://massnrc.org/pests/>

