

## IMPORTANT RUST DISEASES :-

CEREALS - STEM RUST (*Puccinia graminis*); YELLOW RUST (*P. striiformis*); STONE FRUIT - (*Tranzschelia discolor*); ALLIUMS (ONION) - (*Puccinia allii*); LEGUMES (BEANS) - (*Uromyces appendiculatus*)



Yellow Rust on wheat



Stem Rust on wheat

Almond/Peach - Rust pustules are reddish orange on the undersides of leaves (right) and yellow spots on the upper leaf surface (left).



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Onion/garlic rust

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## Description

The most important wheat rusts are stem rust (black rust), stripe rust (yellow rust), and leaf rust (brown rust). The virulent strain of stem rust, UG99, is a serious threat to Afghan wheat production; yellow rust is still seen even though resistant varieties are available. Rust diseases also attack and cause defoliation of stone fruit and of vegetables in the bean and onion families.

Most rusts overwinter in a resting stage on live plant tissue. With warm wet weather in spring, spores are released to infect new growth. In summer, spores are carried long distances on the wind but depend on moisture for 10-20 hours for germination and establishment. Wheat stem rust including UG99 prefers hot days (25-30°C) and mild nights (15-20°C) with dew. Other rusts prefer cooler temperatures: Bean rust - 16-25°C; Stone fruit rust - 13-26°C.

## Monitoring

Cereal crops should be monitored regularly and rust outbreaks reported to MAIL. On other crops, weekly inspection should record rust and treatment should start if weather is favourable to disease spread. If rust is on harvested fruit, treat in the following spring before symptoms appear on leaves.

## Control

In vegetables, crop rotation and field hygiene are important.

Cereal rusts are traditionally controlled by growing resistant varieties, but outbreaks of new strains creating epidemics (e.g. Yellow Rust in 1980s and UG99 in 1999) are a constant threat. Current varieties are not resistant to UG99. Control by spraying is not economic.

Stem Rust can be combated by:

- changing planting dates and using early maturing or shorter duration varieties to reduce the number of generations/cycles of pathogen in a given season;
- removing overwinter hosts—wheat/barley volunteers growing out of season in abandoned fields;
- reporting all incidents of rust to MAIL Extension/Plant Protection for identification.

When rust is seen on fruit and vegetables, apply strobilurin fungicides (azoxystrobin) alternated with DMI fungicides (myclobutanil or tebuconazole) to eradicate infection. Chlorothalonil applied in spring for other diseases will give some protection.