

Sample collection procedure for GRRC race analyses of wheat rusts 2016

Updated May 16, 2016

We accept to take in samples of yellow rust (*Puccinia striiformis*) for race analyses according to an agreement between ICARDA, CIMMYT and Aarhus University. Annual priorities of sampling areas and numbers are made by staff representatives of CIMMYT (Dave Hodson) and ICARDA (Kumarse Nazari) and GRRC. Samples submitted without prior confirmation by GRRC will not be considered. We also accept samples of stem rust (*Puccinia graminis tritici*) as agreed upon with the Borlaug Global Rust Initiative and the phase II of the Durable Rust Resistance in Wheat Project (DRRW), 2011-15 and rust infected leaves from *Berberis* spp..

Submission of stem rust samples

1. For submission of stem rust samples you should follow the guidelines developed in the phase I of DRRW project and ensure that the stems are appropriately dried.
2. Alternatively, follow the guideline for submission of yellow rust samples which are given below:

Submission of yellow rust samples

Take 3 - 5 leaves/stems (denoted "collection") from each plot/field where you wish to collect samples, younger (upper) green leaves are preferred rather than older leaves. Take leaves/stems with clearly separated, fresh lesions/postules with visible urediniospores. Fold each leaf separately and put them individually in glycine (or paper) bags to promote rapid drying and to avoid curling, - pustules should be inside the folded leaf (photo below). Click on this link for details: <https://www.youtube.com/watch?v=Tc6SoJJuNuw&feature=youtu.be>



To avoid further curling you may press the leaves while they dry 12-24 hours at room temperature. Put together samples from each "collection" into a SINGLE paper envelope and label with unique "collection" ID. After drying, the envelope must be sealed with tape. To increase diversity, we recommend taking "collections" from different locations and varieties (e.g., some heavily infected and some light infected), up to 20 sites/varieties (i.e., up to 20 collections/envelopes with 3-5 individual leaves).

Before sending samples to GRRC, you should put additional two layers of sealed envelopes (increasing in size). Each new envelope (clean from rust spores) must be handled in a lab bench/clean environment using separate clean lab coats and gloves. The final package must be wiped with 70% ethanol to remove sporadic spores from the surface – avoid to store in a fridge at any point due to high humidity – **NEVER** use plastic bags.

We can only guarantee processing incoming samples according to available resources. State clearly outside the envelope: "**scientific material without commercial value**" to avoid unnecessary delays in the customs.

We must receive a request by email prior to submission of samples. GRRC will then issue an import permit stating that we can receive your samples, the permit to be enclosed along with sample submission. Information about details of collector (person), host variety, sampling date, location, GPS coordinates, disease severity in each plot from where samples are taken, must be given. This information should be sent electronically in Excel format or similar **using the following email addresses:**

- Ellen.Jorgensen@agro.au.dk,
- Annemariefejer.justesen@agro.au.dk
- mogens.hovmoller@agro.au.dk

In addition, you should include this note and our note of acceptance of wheat rust samples "GRRC Letter of import statement", by which we accept the samples of wheat rust from outside Denmark.

Samples must be sent by courier to: Ellen Jørgensen, Dept. of Agroecology, Science and Technology, Aarhus University, Forsøgsvej 1, DK-4200 Slagelse, Denmark. Try to avoid DHL which may use radiation affecting the survival of samples.