# INS-CGN-PG-005 Quality requirements and quality assurance seed material

QUALITY REQUIREMENTS

##### A seed sample with accessed status must meet the requirements listed here.

##### Identity

Seed from the Multiplication of the relevant accession must not be mixed or interchanged with seed from other accessions. The genetic integrity of samples propagated by the CGN is ensured by the Multiplication protocols (PRT-CGN-PG-101 to PRT-CGN-PG-130).

**Purity**

A batch of seed to be included must meet the following requirements:

* no contamination with seeds of other species or weeds,
* no dead or empty seeds, sand, pebbles, remains of other plant parts such as

leaf, stem, etc.,

* absence of animal organisms

**Health**

For crops where this applies, the material must comply with phytosanitary requirements, see PRT-CGN-PG-601 Phytosanitary Policy.docx.

##### Germination

#### In the genebank community, the following minimum germination requirements are generally adhered to:

* Varieties and landraces 80%
* Wild species 60%

CGN adheres to these commonly used percentages. In addition, a germination score is given based on both germination and a visual assessment of the seedlings. This qualitative score is a measure of seed quality and determines further treatment of the sample.   
The minimum requirement is a score of 0, 1 or 2 (for more information on these scores, see the protocol germination determination PRT-CGN-PG-301).

**QUALITY CONTROL**

Monitoring of germination is done through repeat germination tests. In case of a (repeat) test result below the norm, the number will be propagated.

1. Frequency of re-germination  
   The germination of seed stored at -20°C with an absolute moisture content between 3 and 7% is expected to deteriorate only slowly.   
   Within CGN, the guideline is to carry out the first repeat germination 25 years after inclusion of the relevant accession, followed by intervals of 5 or 10 years, depending on germination results. Wheat and barley are expected to have better storability than other crops, therefore intervals of 5 and 20 years respectively apply to these.
2. Duplicate germination  
   In duplicate germination determination, part of the samples are tested a second time under code number (anonymously). For each crop, it is randomly determined which numbers qualify for a second determination.   
   The reason for this check is to test the reproducibility of the results and to improve the germination protocols.
3. Group sampling   
   When scheduling regeneration forces, there is the option for curators to use group sampling. Here, accessions are grouped by species, population type, regeneration year, and possibly regeneration address. From each group, at least 25% of the accessions are tested. The motivation for this is that material of the same species regenerated under the same conditions and having undergone the same procedures after harvesting is expected to show similar germination rates over time. If one or more of the accessions tested score below the standard (score 3 or 4), at least 25% more should be tested.