##### **PRT-CGN-PG 111B PROTOCOL FOR THE MULTIPLICATION OF CEREALS**

This protocol applies to all parties involved in the multiplication of CGN material.

### Introduction

Multiplications have to fulfil minimum quality requirements to ensure maintenance of genetic identity and integrity (avoiding seed mixing among accessions and minimizing loss of diversity through genetic drift) and high seed quality (absence of diseases and sufficient germination ability).

*Any deviation from this protocol should be reported to CGN, after which it will be recorded by CGN in the Multiplication logbook (FOR-CGN-PG-002).*

**Multiplication**

Maintaining genetic integrity

* Isolation
  + Not required, as cultivated wheat, barley and oat are self-pollinating.
* Population size
  + Multiplication is performed with at least 20 plants
  + When less than 20 plants are used, this should be reported as deviation.
* Sowing
  + The time of sowing depends on the crop type, either winter or spring. This is information is sent by CGN with the material or in an email.
  + In case of poor or very slow germination, this should be reported as deviation.
  + After sowing, measures to deter birds should be used to prevent seed loss
* Vernalisation
  + Accessions of winter types, which is indicated by CGN, need to be sown in autumn
* Cultivation
  + Selection should be avoided. In case an unexpected high level of heterogeneity or a mixture of species or types is observed, this should be reported to CGN. CGN will then decide if or how selection can take place. The alternative procedure will be recorded in the Multiplication Logbook.
  + Before seeds start to ripen, measures to deter birds should be used to prevent seed loss .
* Pollination
  + Not applicable.
* Harvest
  + All ears should be harvested. If an accession is heterogeneous for harvest time, plants should be harvested on different dates, the harvested seeds may be bulked into a single sample. All produced seed should be send to CGN.

Maintaining identity

* Registration
  + During sowing, cultivation and harvesting, accessions should be clearly marked with a label indicating the field number. All field numbers assigned prior to seed sowing should remain unchanged up to and including harvesting.
* Harvesting
  + Plots should be harvested carefully in order to avoid contamination with seeds of neighbouring plots.

**Maintaining seed quality**

* Seed decontamination before sowing
  + Prior to sowing, the seed should be decontaminated with permitted seed decontaminants.
* Pruning
  + Not applicable.
* Cultivation
  + To diminish the chance of lodging the application of fertilizers should be not optimal.
* Inspection
  + In case of severe mildew infection endangering the regeneration, the crop should be treated.
* Seed treatment after harvest
  + The bags with harvested plant parts should be pre-dried.
  + Seed cleaning procedures after harvest should be discussed with CGN.

**Concluding actions**

* Recorded deviations from this protocol should be sent to CGN along with the seed.
* Harvested seed is sent to CGN as soon as possible, in any case no later than six months after harvest. The seed bags are identified by their field number and their CGN number.