##### **PRT-CGN-PG-123B PROTOCOL FOR THE MULTIPLICATION OF WATERMELON**

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).

Contamination with Genetically Modified Organisms (GMO) should be prevented.

*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
  + All accessions are multiplied in pollinating-insects free greenhouses.
* Population size
  + Ten plants are multiplied per accession. In the case of heterogeneity, material that is hard to multiply or other considerations a minimum of fifteen plants must be used. In consultation with CGN, population sizes can be adjusted when modification is considered necessary.
  + In planting out, the required number of plants is chosen non-selectively from the population, although plants that lag considerably behind in growth may be left out because their poor performance could mean that these plants eventually do not contribute to seed multiplication of the accession.
  + The number of plants that have been included in a multiplication is recorded for every accession. These data are copied into the Multiplication Logbook.
* Sowing
  + The possibility of dormancy or poor germination capacity of the seeds is taken into account. Germination advice sent with the seeds from CGN or the methods of breeder are followed.
  + If material germinates poorly or very slowly, these findings are recorded and copied into the Multiplication logbook.
* Pollination
  + Cross-pollination is performed using chain pollination or self-pollination when indicated. Companies determine methods to induce male or female flowering or ask CGN for advice.
* Harvest
  + From each plant approximately the same amount of seeds is harvested, to get a representative seed mixture. This is realized by harvesting the same amount of fruits per plant. If this is not realistic, CGN is consulted.
  + When more than 6000 seeds are produced, a mixture of 6000 seeds should be returned. If very little seed is produced, it should also be returned.

Maintaining identity

* Characteristics
  + During sowing, cultivation and harvest, accessions must be clearly marked with a label giving the field number. All field numbers assigned before sowing remain unchanged up to and including harvest.
* Harvesting
  + Prevent seed lots being mixed.

Maintaining seed quality

* Seed disinfection before sowing
  + Seeds supplied by CGN have not always been heat treated. It is recommended to give a heat treatment before sowing.
* Inspection
  + The crop is monitored closely. Attention should be paid to seed born viruses and viroids. A report is required of this visual inspection. Where applicable the material will be tested according the instructions, mentioned in the actual EU guidelines/regulations. Heat treatment does not guarantee that the material is free of viruses. Diseases or plagues are combated; this is recorded and copied into the Multiplication logbook. When a disease is identified that might jeopardize proper multiplication of the seed, CGN is notified.
* Seed treatment after harvest
  + In consultation with CGN, a decision is made how the seed will be cleaned after harvest.

**Concluding actions**

* Any deviations during cultivation or cleaning are noted in the appropriate records, which are sent with the seed. These notes are copied into the Multiplication logbook.

Harvested seed is sent to CGN as soon as possible, in any case no later than six months after harvest. The seed bags should be labelled with a field number and a CGN number.