From Canadian M&P,
4.7.2 Beta spp.
Wash for at least 4 hours in running water at a temperature of 20-25 C. If a beet seed washer is not used, the seeds may be soaked for the same period in still water, using at least 250 ml water for each 100 seeds, which must be changed as follows: every 15 minutes for the first hour, then every 30 minutes for the remaining three hours. After soaking completed, remove the seeds from the water and drain for at least 60 minutes on a dry absorbent surface at a maximum temperature of 25 C. Plant on a substrate which has been thoroughly drained to remove all excess water (e.g. stand blotters on edge for at least ½ hour after soaking).
For multigame seed, frequent counts must be made (e.g. at 3, 5, 7 and 10 days in order to keep track of the seedlings and avoid miscounts. See section 4.10.6 a......Beta vulgaris.....must be regarded as having germinated if they produce one or more normal seedlings. Only one seedling per multiple unit is to be counted.

The reason for soaking Beta vulgaris is that water soluble germination inhibitors located in the perianth and pericarp tissue in the fruit hinders germination. Chemical inhibitors work with the excess water to rob the embryo of oxygen and thus prevent germination. The chemical inhibitors are not found in the true seed. Dormancy can lead to low and non-uniform germination. Washing, soaking and drying the fruits prior to sowing is a way of leaching out the inhibitors to improve germination potential.

**Beta vulgaris (Sugar Beet on top row; Garden Beet/Field Beet on bottom row)**

Flowers are imbedded in the receptacle. Each flower can be detected by an operculum covering their single seeded fruits. If there is only one fruit, the term used is "monogerm". If more than one fruit is present in the same receptacle, the term “multigerm” is used. The operculum is more obvious in cultivars that are monogerm.

**Beta vulgaris Swiss Chard**
Seed ball - A cluster of flowers with their single seeded fruits imbedded in the receptacle. The individual fruits are located under an operculum which dislodges as the seeds germinate.

**Beta vulgaris Germination**

The seedlings can have various colors of roots including red and yellow due to a variety of betalain pigments. Other pigments contained are *indicaxanthin* and *vulgaxanthins* (yellow to orange pigments known as *betaxanthins*).

This is what happens if you wait too long to count your seedlings in the germination test. Frequent counts must be made on multigerm seeds since the growing seedlings will separate from the cluster making it difficult to identify its source. Any cluster which produces at least one normal seedling is classified as normal, only one normal seedling per cluster is to be counted.