Effect of temperatures during seed development and pretreatment on seed dormancy of *Malus sargentii* and *M. sieboldii*

Eight pretreatment temperatures ranging from 0.5°C to 18.5°C were tested on two *Malus sargentii* seed lots. Temperatures above 9°C had no significant effect on seed dormancy, 0.5°C and 4.0°C were equally efficient in releasing the dormancy, but only seeds pretreated at 4°C germinated during pretreatment.

To investigate the effect of temperature during seed development on the level of dormancy, two clones of *M. sargentii* and seed plants of *Malus sieboldii* were transferred after pollination to growth chambers at three different temperature regimes (normal mean temperature ± 3°C). Ripe fruits were harvested at three different dates. *M. sieboldii* plants and a third clone of *M. sargentii* were kept outside for comparison. Seed weights and moisture contents after harvest were determined, and germination was tested after pretreatment at 4°C for different periods.

*M. sargentii* seeds developed at the highest temperature regime had higher seed weights, lower seed moisture contents and were less dormant than seeds developed at the lowest temperature regime. The difference in pretreatment needed to obtain maximum germination was 4-5 weeks.

Twelve weeks pretreatment was sufficient to break dormancy in *M. sieboldii* seeds, but at least 15-16 weeks of pretreatment was needed to break the seed dormancy of *M. sargentii*. 