



## Agrophenology in Norway

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Norway is located from below 58°N to beyond 70°N and is also very mountainous. Many arable land species cannot be grown all over the country because of too low temperature sums, and for the same reason different cultivars are often chosen in the North compared to the South, and at various altitudes. The time of snow melt strongly influences the timing of spring work on cultivated fields. They may be too wet for work by heavy equipment even if the temperature is high enough. In some districts even harvesting of ripe plants in autumn, e.g. of cereals, may be delayed on some fields due to high precipitation and soaked soil. Many farmers, particularly in the North and at higher elevations, have to harvest e.g. cereals before they are ripe. The harvested material is then used as fodder for animals. However, it is also known that in cereals long days (24 hours of sun around Midsummer in the North of the country) lower the heat sums necessary from sowing to ripening. In old observations from Norway the sum is found to decrease with about 20 degree-days C per degree increasing latitude, or about two weeks earlier ripening by a difference of 7° latitude. This might be important also by climate change causing a cultivar to get ripe further north than expected by just looking at the necessary heat sums for the cultivar in more southerly regions.

Data on phenology of cereals have been collected back to about 1900 at the Norwegian University of Life Sciences (earlier Norw. Agricult. Univ.). Since about 1994 the data both on species and cultivars of cereals (wheat, barley and oat), potato and meadow plants (grasses and clover) are digitized from various sites in Norway. So are some old phenological data (1928-77) on sowing and harvesting of cereals, planting of potato and cutting of meadows along the country, a few data from more than 25 sites and for more than 30 years! These data are now being analyzed and compared with climatological records.