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Estimation of Agricultural Meteorological Ecotype During the Summer Cropping Period of the High Latitudes of Korean Peninsula

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[Introduction]
Agricultural meteorological ecotype is the most important factor in selection of crop species and cultivars suitable for a crop cultivation region. Recently the global warming has been reported over the past decades in all over Korea Peninsula, and the agricultural meteorology of the region is also gradually changed in micro-climate level. This research was conducted to estimate the agricultural meteorological ecotype during the summer cropping period of the 27 weather station (WS) regions of North Korea.

[Materials and Methods]
The meteorological data was 30 years from 1991 to 2020 of the 27 WSs in North Korea, and 'Hwacheon' and 'Inje' province in 'Kangwon-do' area of South Korea as references. The meteorological ecotype is classified by the two sorts of agricultural characteristics, the maximum growth days from the possible sowing date to harvest date and its accumulated temperature. The possible sowing and harvest was determined at the date with 8°C of daily minimum temperature.

[Results and Discussion]
The agricultural meteorological ecotype during the summer period of the 27 regions of North Korea was classified by 8 groups based on the maximum growth days and its accumulated temperature. The growth day and the accumulated temperature were decreased with the higher ordering of group. Group I is the highest maximum growth days with 185～190 days and the accumulated temperature with 3,600～3,800 °C among the eight groups. It includes provinces located to the southwest and the southeast area of North Korea. Group Ⅷ showed the lowest growth day with about 130 days and the accumulated temperature with about 2,500 °C, which provinces located to the north and the mountainous area. The provinces with the higher ordering group are moved to inside and north side of North Korea. This result suggests that the 8 agricultural meteorological ecotypes would be used on the selection of summer crop species and cultivars for a certain region of North Korea.

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