

Soil temperature change and its inference in soil classification in Korea

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Climate, one of the phenomena of the dynamic nature is changing, and is soil temperature also changing. Even though worldwide concern on this climate change, little attention has been paid to change for soil temperature. Recommendations on major crops for soil and climate conditions have been provided through soil information system, but those on forage crops, of which demands are increased, are lack in Korea. Upon such backgrounds, relationship between air and soil temperature changes was studied with data for 20 locations for last 30 years collected from the Korean Meteorology Administration, KMA. In addition, recommendation on forage crops was determined based on the electronic climate maps and soil information system. The average annual temperature increase at the 10 cm depth was 0.02294°/yr ranging from -0.0076 to 0.0610, which was faster than air temperature increase. The soil temperature at the 50 cm showed similar pattern to the data for 10cm, but those at 3 and 5 m depths were higher than that at the surface soil. This could be confirmed with the 30 years average provided by the KMA. Since the reason for the soil temperature increase has not been clearly identified, further extensive investigation is necessary in the future. Analysis on thermal soil regime based on the developed electronic soil climate maps showed the 63 soil series in three cities and counties should be classified as “thermal soil temperature regime”. In 2020, 244 soil series in 47 cities and counties will be belong to thermal regime as a result of climate change. Considering soil temperature change is necessary to reclassify the soil thermal regime in Korea.

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Biography

Yeong-Sang Jung, the speaker, is the professor in Soil Physics, graduated from the Iowa State University in 1980, and served as soil scientist in Rural Development Administration from 1971 to 1987, and professor in the Kangwon National University from 1987 to present. He was former president of the Korean Society of Soil Science and Fertilizers, and former vice chair of Section 4.2, Soil and Water Conservation, International Union of Soil Science. He published 32 books and over 150 papers in national and international journals.

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