Division-2-05

The Growth and Quantity of Potatoes by Fertilizer in the High-altitude Areas

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[Introduction]

In high latitudes, the free period for growing crops is very short, on average, about 130 days, so it is preferred to cultivate a variety of potatoes with a high number of premature ripening. For spring cultivation, potatoes are used for the crops in front of two crops, and early ripening varieties are cultivated because the cultivation period is short. The recently fostered potato varieties are mainly selected from soil with high nutrient content, and it is necessary to review the adaptability of cultivation in barren soil. This study was conducted to investigate the growth and quantity of potatoes according to the fertilizer amount in high-altitude barren land.

[Materials and Methods]

This experiment was sown on May 12, 2022 at the test bed of the Highland Agricultural Research Institute in Daegwallyeong, Pyeongchang, and harvested on August 12, 2022. Potato varieties were cultivated in Sumi, Seohong, Jopung, and Dami. The test tool was treated with no fertilizer, 0.5 times, 1 times, 1.5 times, and 2 times the test fertilizer, and compost was treated with 2,000kg/10a. The catabolic properties of test-tube soil (ph, EC, OM, AvP^2O^5, etc.) was analyzed. During the growth period, the average temperature, solar radiation, and sunlight time were investigated, and the growth and water quality of each fertilizer specific amount were tested.

[Results and Discussion]

Until the cultivation period (May-August), the average temperature is 17.9°C, the precipitation is 658.6mm, the sunlight time is 718.4 hours, and the solar radiation amount is 1982.9 (MJ/㎡). The results of the catabolic characteristics of the test soil show that pH 7.7, EC 0.3dS/m, OM 11g/kg, AvP^2O^5 97 mg/kg, Ca 15.3cmol (+)/kg, Mg 2.7cmol (+)/kg K 0.2cmol (+)/kg. It is estimated that PH and EC are high due to the high salt content due to the mass spraying of calcium chloride in winter. The flowering season is June 20 for morning winds, July 1 for Sumi, July 5 for Seohong, and July 9 for Dami. The quantity of potatoes per 10a is 6 tons without treatment, 32.5 tons for 0.5 times treatment, 38 tons for 1 times treatment, 37.1 tons for 1.5 times treatment, and 35.6 tons for 2 times the amount of fertilizer. When fertilizer was treated twice, it was 6 times higher than when it was untreated. The quantity of potato products is 0.9 tons without processing, 23.3 tons for 0.5 times processing, 30.9 tons for 1 times processing, 31.4 tons for 1.5 times processing, and 30.6 tons for 2 times processing, which is 30 times higher. According to the test results, potatoes are multi-crops, and there is a large difference in quantity depending on the amount of fertilizer. When growing potatoes, if the amount of fertilizer exceeds the standard ratio, the amount of growth on the ground increases, but the amount of potatoes increases to a certain level.

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