PA-94

The Effects of Seeding Period and Reflective Mulching on Growth and Yield in Soybean Biovars

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[Introduction]

Soybeans are representative summer field crops in Korea, which can be rotated with other crops and increase productivity as a result of nitrogen fixation by rhizobium. In order to effectually apply the positive effects of soybean cultivation, this study would like to find out the appropriate seeding period according to the soybean biovars. Also, in soybeans the higher the amount of solar radiation within the range of not being affected by drought damage, the more positive the growth, flowering, and harvesting. This study was conducted to increase the amount of photosynthesis in the middle and lower canopies of soybeans by using reflective mulching.

[Materials and Methods]

This study was conducted at the farm affiliated with Chungnam National University for two years from 2021 to 2022. The area of one experimental plot was about 3㎡, and the total field area was about 470㎡. The arrangement method of plots is a randomized block design of three replications. The planting distance is 60cm×15cm. And three cultivars of soybeans are used: Chamol-kong of the early maturing cultivar, Taekwang-kong of the medium-late maturing cultivar, and Sunpung-kong of the late maturing cultivar. The effect of growth and yield on these three cultivars was investigated by varying the seeding period and the use of reflective mulching. The seeding periods were divided into four sections: May 20th, May 30th, June 10th, and June 20th. Each seeding period was divided into a plot using reflective mulching and a non-reflective plot. Three times the growth investigations were conducted to obtain several factors.

[Result and Discussion]

In all cultivars' stages of the vegetative growth, the reflective mulching plots were reached about 1 to 2 days earlier than that of the non-reflective plots. And the germination rate was about 5% higher, especially in the reflective mulching plots. Since then, there was no significant difference in the date of reaching the growth stage of the reproductive growth period, and there were differences between cultivars according to the planting period and reflection mulching. When compared within the same cultivar, that Chamol was sown on May 20, Taekwang was sown on June 10, and Sunpung was sown on June 20 had better growth characteristics and higher yields. And even during the same seeding period, reflective mulching plots were better and more.

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