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Analysis of Internal Environmental Differences and Appearance Rate by Type of Nonwoven Fabric During Sesame Seedling

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[Introduction]

Sesame seeds are small grain seeds, and when cultivated directly, it takes a lot of labor to thin out, and the height of grinding increases, which is disadvantageous for machine harvesting and the quantity decreases. Early sowing (from late April to early May) to avoid the rainy season of sesame seedlings is increasing, and as a result, the cultivation of sesame seedlings is increasing. However, due to the large daily temperature difference during the sowing in April, farmers are having difficulties due to the low appearance rate. In order to distribute the cultivation of sesame seeds, this study attempted to develop a technology to secure a stable appearance rate using nonwoven fabric.

[Materials and Methods]

Sesame seeds were used as a “Geonbaek” variety, and one seed was sown in 128-hole and 200-hole seedling trays. The topsoil used a lightweight topsoil ‘baroker’. After sowing, the irrigation water was sprayed 450 ml per tray, and 500 ml of irrigation was performed from the 2nd after sowing. The types of nonwoven fabrics were covered with 80g, 130g, 200g, and 400g white nonwoven fabrics for each thickness and treated for 1, 2, and 3 days. The survey items investigated the temperature, humidity, and appearance rate in each nonwoven fabric.

[Results and Discussions]

The appearance rate of sesame seeds was higher than that of 200-hole trays in 128-hole trays. The appearance rate by nonwoven thickness was high in the order of 200g and 130g (94.27%) > 400g (93.40%) > control (90.43%) > 80g (85.81%) in 128-hole trays. The appearance rate by number of processed days was high in the order of 2 days > 3 days > 1 day. In the 200-hole tray, 130g (83.11%) > control (82%) > 200g (81.78%) > 400g (81.00%) were high. The incidence of one day treatment of 200g and 400g was less than 60%, which was low in the overall average. The temperature range inside the greenhouse was 14.1°C to 39.9°C and the average temperature was 24.1°C. The average temperature for each nonwoven thickness was 80g (27.6°C) > 130g (26.4°C) > 200g (25.6°C) > 400g (25.1°C) > greenhouse (23.9°C) and for humidity, 400g (77%) > 80g (74%) > 200g (58%) > 130g (52%). In the future, experiments will be conducted at lower temperatures to find ways to maintain a high standing rate at lower temperatures.

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