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**Aspects of spike damage by cold stress during young spike development period  
in wheat**

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**Abstract**

This study investigated the aspects of damage due to low temperature treatment in order to establish the damage criterion according to low temperature invasion during regeneration period in wheat after regeneration period in the early spring. We cultivated wheat cultivar 'Geumgang' in Wagner pots and treated them with three types of low temperature, and the gradual temperature change program was set in a low temperature incubator for 12.5 h per day for 5 days during the night time when the length of young spikes was about 1 mm. All treatments except for the control were treated in 5 steps for each temperature. Treatment 1 was treated at the lowest temperature  $-5^{\circ}\text{C}$  for 5 h, treatment 2 for 7 h at  $-5^{\circ}\text{C}$ , and treatment 3 for 9 h at  $-5^{\circ}\text{C}$ . The most common type of damage was partial infertility, and there were some discolored spikes. The damage rate of wheat spikes treated at  $-5^{\circ}\text{C}$  for 9 h was the highest, while the damage rates of wheat sprouts treated at 5h and 7h were not different from each other. It was found that the damage of wheat spikes exposed to low temperatures for a long time was large. It is necessary to investigate the aspects of spike damage by duration days of low temperature.

Keywords: wheat, spike, damage, cold stress

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