

## [P3] Abiotic Stress for Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 3 (Poster) (Abiotic Stress for Crop Production)

1:15 PM - 2:00 PM

### [P3-04] Characteristics of Photoassimilates Distribution in the Resistant Variety to the High-Temperature Damage to Rice Grain Ripening

\*Nominated for Presentation Awards

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Due to the rise in temperature caused by global warming in recent years, deterioration of the appearance quality of rice called "high-temperature damage to rice grain ripening" has frequently occurred in Japan. The purpose of this study was to clarify the characteristics of carbon distribution of resistant variety to the high-temperature damage to rice grain ripening under high temperature conditions from the heading stage to the ripening stage. As varieties, "Fusaotome", a resistant variety to the high-temperature damage to rice grain ripening, and "Akitakomachi", a sensitive variety, were tested. The heading time of these two varieties was the same. High temperature treatment and normal temperature treatment were set after the heading period. Compared to Akitakomachi, high-temperature treatment produced less immature grains in Fusaotome, and the deterioration of appearance quality due to high temperature was suppressed. The photosynthetic rate of Fusaotome was maintained higher than that of Akitakomachi regardless of the growth stage. The dry weight of the roots was heavier in Fusaotome than in Akitakomachi. Carbon dioxide labeled with stable isotope <sup>13</sup>C was exposed during the heading period, and the effect of high temperature on assimilation was investigated. During the heading period, the distribution ratio of assimilated products to the ears was higher in Fusaotome than in Akitakomachi. Based on these results, it was considered that Fusaotome, a variety resistant to high-temperature ripening disorders, maintains photosynthesis and water absorption from the roots even under high-temperature conditions during the heading period, and increases the rate of translocation to the ears to prevent deterioration in appearance quality.