ONLINE ISSN : 1349-1008
PRINT ISSN : 1343-943X

Plant Production Science
Vol. 7 (2004) , No. 2 184-188

Photosynthesis and Dry-Matter Production during Ripening Stage in a Female-Sterile Line of Rice

Morio Kato[1)], Keiko Kobayashi[1)], Eri Ogiso[1)] and Masao Yokoo[1)]

1) Institute of Agriculture and Forestry, University of Tsukuba

(Received: February 13, 2003)

Abstract: The relation between the source capacity of leaves and the sink capacity of panicles affects dry-matter production and determines grain yield in rice. The source-sink relation has so far been studied on rice plants from which panicles were artificially removed. We examined the source-sink relation using a female-sterile line FS1 with intact panicles each having a few fertile grains instead of panicle removal. The leaf photosynthetic rate during the ripening stage in FS1 was measured, in comparison with a normal counterpart Fujisaka 5, and the effect of losing sink function on dry-matter production in the rice plant was characterized. The photosynthetic rate in flag leaves was maintained at a slightly higher rate in FS1 than in Fujisaka 5 in the late ripening stage, though panicles did not function as a sink organ in FS1, and dry-matter production in this line was not lower than that in Fujisaka 5. In the early ripening stage of FS1, culms and leaf sheaths fulfilled the sink function instead of panicles, and the tillers that appeared in the late ripening stage became a new sink organ. Roots also functioned as a possible sink of photosynthates. Owing to the unique character of dry-matter production after heading, FS1 may be useful as a forage crop.

Keywords: Dry-matter production, Female sterility, Panicle, Photosynthesis, Rice, Sink, Source

To cite this article:

Morio Kato, Keiko Kobayashi, Eri Ogiso and Masao Yokoo: “Photosynthesis and Dry-Matter Production during Ripening Stage in a Female-Sterile Line of Rice”. Plant Production Science, Vol. **7**, pp.184-188 (2004) .

doi:10.1626/pps.7.184

JOI JST.JSTAGE/pps/7.184