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Optimal Topdressing Application Period by Major Rice Varieties in Jeollanam-do

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[Introduction]

Improving nitrogen utilization efficiency is also related to improving rice yield stability and lowering production costs by reducing nitrogen loss for the environment and sustainable agriculture. In the Jeollanam-do region, the rice production 481kg/10a(kostat, 2022), which is lower than other provinces and has low nitrogen utilization efficiency. Therefore, it is necessary to guide farmers on cultivation techniques that increase nitrogen utilization efficiency to improve yield stability and rice quality. This test was intended to predict the period for topdressing application for rice cultivars mainly grown in Jeollanam-do by considering the annual accumulated temperature and the number of days from transplanting to heading date and to identify the optimal period for topdressing application through the heading date.

[Materials and methods]

This study was conducted from 2021 to 2022 in the rice paddies of the Crop research Division of the Jeonnam Agricultural Research & Extension Services. The early-ripening varieties Jomyeong1, mid-late-ripening varieties Saecheongmu, Sindongjin, Ilme, Hyeonpum, Yeonghojinme used in this study. Transplanting was performed June 1th, June 20th and checked heading date and accumulated temperature from the transplanting to heading date.

[Results and discussion]

As a result of the test, the accumulated temperature from transplanting to heading date of early ripening varieties and the number of days from transplanting to heading date for mid-late ripening varieties were predicted well next year's heading date with little change. so, when the optimal period to apply topdressing is 25 to 15 before heading date, the optimal period to apply topdressing for each variety transplanted on June 1th is Jomyeng1(975°C~1,234°C), Saecheongmu(52~62 days after transplanting(DAT)), Sindongjin(49~59DAT), Ilme(49~59DAT), Hyeonpum(52~62DAT), Yeonghojinme(55~65DAT). transplanted on June 20th Jomyeng1(810°C~1,076°C), Saecheongmu(43~53DAT), Sindongjin(38~48DAT), Ilme(41~51DAT), Hyeonpum(42~52DAT), Yeonghojinme(46~56DAT). When classified by ecotype, the optimal period to apply topdressing early ripening varieties(975°C~1,234°C), mid-late ripening varieties(55~59DAT) transplanted on June 1th and early ripening varieties(810°C~1,076°C), mid-late ripening varieties(46~48DAT) transplanted on June 20th. These results would be suggested that optimal period to apply topdressing for farmer cultivation similar transplanting period and variety.

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