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Application of Fertilization at Panicle Initiation Stage using Program for Nitrogen Application Prescription in Rice

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Objective

To investigate the method of fertilization at panicle initiation stage using program for production of high quality in rice by nutritional diagnosis information.

Materials and Methods

- o Variety and location : Nampyoengbyeon, Iksan(Jeonbuk)
- o Amounts of Nitrogen application : 7, 11, 15, 19(kg/10a)
- o Seeding and transplanting day : 30 April, 27 May 2003
- o Planting space(cm) : 30 × 14
- o The application of nitrogen fertilizer : control, program
- o NIRS Model : 6500, Program version : WinISI 1.5
- o RN Model : 500

Results and Discussion

- o The total nitrogen contents in leaf showed a decrease as a time goes by growth stage, there was no difference between control and program application.
- o The chlorophyll contents were increased as a increase of nitrogen application, but decrease as a time goes by growth stage. And the chlorophyll contents were high as a increase of nitrogen application after fertilization at panicle initiation stage.
- o The yield was increased as a increase of nitrogen application but decreased over the 15kilrogram per 10 are.
- o According to the application method of fertilization at panicle initiation stage, brown rice quality by program application was no signification between the yield. Head rice ratio was high in program application method. According to the application method of fertilization at panicle initiation stage, toyoimidometa value was decrease as a increase of nitrogen application. Protein was high as a increase of nitrogen application.

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Table 1. The concentration of nitrogen in rice leaves at the spikelet differentiation stage and amount of nitrogen application at the panicle initiation stage.

Amount of nitrogen application (kg/10a)		7	11	15	19
Nitrogen concentration in leaves(%)		2.68	2.73	2.86	3.00
Application amount of FPIS ^b (kg/10a)	control	4.5	7.2	9.8	12.3
	program	10.7	9.9	8.1	6.2

▷ FPIS : fertilization at panicle initiation stage

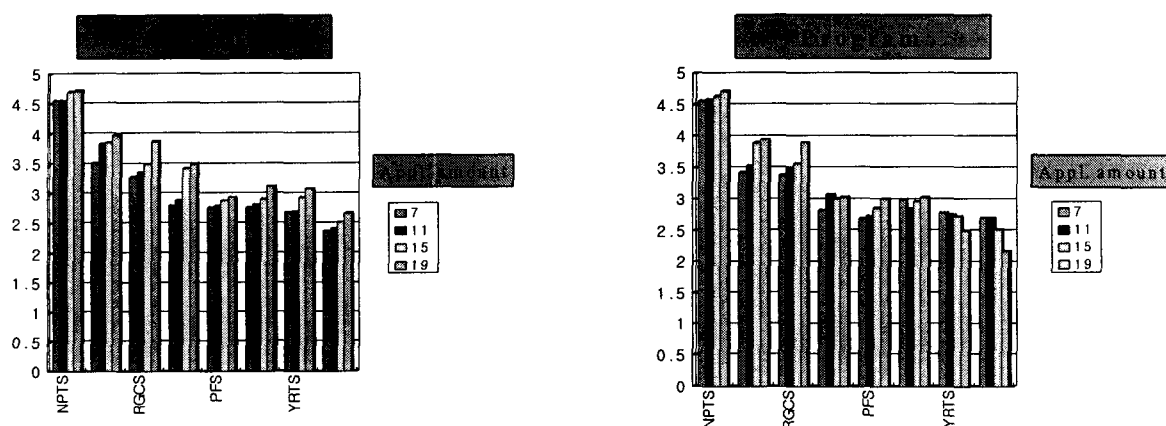


Fig 1. The nitrogen contents in leaf by the rice growth stages as nitrogen application amount.

▷ NPTS:non-productive tillering stage, RGCS:reproductive growth conversion stage PFS:panicle formation stage, YRTS:yield reduction tillering stage

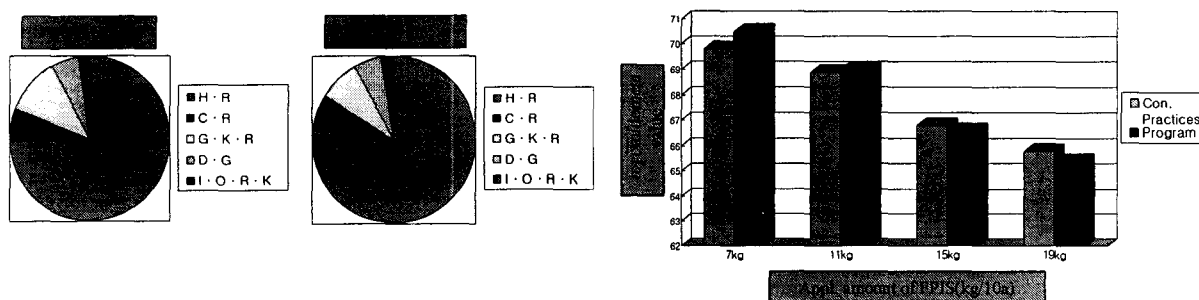


Fig 2. The brown rice and the toyomidometa value by nitrogen application amount as application method of fertilization at panicle initiation stage.

▷ H-R : head rice, C-R : crack rice, G-K-R : green kernal rice
D-G : damaged grain, I-O-R-K : immature opaque rice kernel