

## **Effects of Second Crops, Flax and Kohlrabi on Growth Characteristics and Grain Yield of Rice**

Sang-Kuk Kim<sup>1\*</sup>, Jong-Hee Shin<sup>1</sup>, Chae-Min Han<sup>1</sup> and Se-Jong Kim<sup>1</sup>

<sup>1</sup>Division of Crop Breeding, Gyeongsangbuk-do Provincial Agricultural Research & Extension Administration, Daegu 41404, Korea

### **[Introduction]**

Allelopathy is a natural ecological phenomenon. Allelochemicals can stimulate or inhibit plant germination and growth, and permit the development of crops with low phytotoxic residue amounts in water and soil, thus facilitating wastewater treatment and recycling. The use of potentially positive allelopathic crops in agriculture is currently being realized as components of crop rotations. The study was conducted to find possible positive effect on promotive growth of rice influenced by two second crops, flax and kohlrabi.

### **[Materials and Methods]**

Flax and kohlrabi crops were sown commonly on 10th March 2015, and also harvested on 25th May and 9th May 2016, respectively. Rice cultivar, Jopyeong grown for 35 days were transplanted on 18th June. In order to analyze growth and quality of rice, Rice grains were harvested at 50 days after heading.

### **[Results and Discussions]**

Growth and grain yield of rice were markedly influenced by the paddy field which flax were grown. culm length of rice grown in the paddy field which flax grown were 4cm longer than that grown in the paddy field which kohlrabi were grown, although heading time was not affected by the second crops. Number of panicle per rice plant was also increased in the paddy field which flax grown. Meanwhile, number of spikelet per rice plant was decreased compared to the rice in the paddy field which kohlrabi grown. Consequently, rice grain yield showed a significant increase in the in the paddy field which flax grown. Rice yield in the in the paddy field which flax grown was increased to 71kg compared to the rice in the paddy field which kohlrabi grown. However, protein content and ratio of chalky rice were negatively increased by possible flax residues. In addition palatability showed the lower value in the rice in the paddy field which flax grown.

\*Corresponding author: Tel. +82-45-320-0224, E-mail. sk2@korea.kr