

PA-24

Effect of Nitrogen Fertilizer Application on Yield and Quality of Korean Noodle Wheat

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[Abstract]

As various wheat variety for bread, all-purpose, and cake flour have been developed, suitable cultivation method for the end-use of the new variety need to be revised. This study was conducted to suggest an optimal nitrogen(N) fertilizer method for wheat Variety ‘Saekeumgang’ and ‘Hojoong’ with good noodle quality. In order to analyze the yield and quality changes of ‘Saekeumgang’ and ‘Hojoong’ as nitrogen fertilizer amount and timing, these varieties were sown on paddy soil in Jeonju, Republic of Korea. The amount of N fertilizer was divided into 4 levels (7.1, 9.1, 11.1, 13.1kg/10a). In each level, N amount in sowing date fixed as 3.6kg/10a, N amount in 10 days after heading(DAH) were treated 0 or 2kg/10a, and the other N amount was treated in regrowing stage. As N amount in regrowing stage increased, culm length of ‘Saekeumgang’ was increased, but culm length of ‘Hojoong’ was not affected. Spike number/m² was increased when N fertilizer amount in regrowing stage increased as 3.5 to 7.5kg/10a. But, spike number/m² wasn’t increased compared N amount 7.1kg/10a conditions when N fertilizer amount 9.1kg/10a. When the N fertilization amount in regrowing stage was increased by 1kg/10a, grain yield increased by 45.7 kg/10a in ‘Saekeumgang’ and 21.4kg/10a in ‘Hojoong’, so the fertilizer effect of ‘Saekeumgang’ was higher. when N fertilizer amount was increased to 2kg/10a at 10DAH, 1000-grain weight increased, but spike number/m² and grain yield were not affected by N fertilizer at 10 DAH. Protein content and SDS-sedimentation value were increased as increasing N fertilizer amount in regrowing stage and 10 DAH. Among them, N fertilizer amount in 10 DAH had higher impact on protein content and SDS-sedimentation value. As N fertilizer in 10 DAH, hardness of noodle was increased and chewiness of noodle was decreased

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