Effect of top dressing of nitrogen on the yield of legumes grown as a rainfed crop in paddy lands during yala season

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Cultivation of early maturing legumes under rainfed conditions in paddy fields during Yala season (March-Sept.) after Maha season (Sep.-March) rice crop has been recognized as a beneficial cropping system. Most of the crop management practices developed so far are to increase the productivity in this cropping system except the fertilizer management. Three separate field experiments were conducted at Field Crops Research and Development Institute, Mahailluppallama, in a paddy field with moderately well drained soils during yala 1998 season to determine nitrogen fertilizer requirement for greengram (*Vigna radiata*, cowpea (*Vigna unguculata)* and blackgram (*Vigna mungo*) in this cropping system. Three nitrogen levels, 0, 30 and 60 kg/h were tested. An additional nitrogen dose of 90 kg/ha was applied for cowpea crop. The crops were row seeded on rice stubbles at 30 cm raw spacing using 'Inverted T seeder' with no land preparation. Immediately after seeding, a total weed killer 'Paraquat was sprayed at the rate of 4 L/ha to control the weeds and rice ratoon. At flowering all the nitrogen was applied in the form of urea as a band application and was not incooperate to the soil. The grain yield of all legumes increased significantly with the increasing nitrogen level up to 30 kg/ha and increase was not significant thereafter. The yield increase from 0 to 30 kg N/ha was 150, 187 and 118 kg/ha respectively for cowpea, greengram and blackgram. Therefore, the profit of application of 30 kg/ha calculated as Rs.3200, 4310 and 2240/ha respectively for cowpea, greengram and blackgram. This result indicates the application of 30 kg N/ha is adequate and profitable for cowpea, greengram and blackgram grown as rainfed crops in paddy fields during yala season.

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