An Analysis of Potential Effects of Alternative Urea Rationing Options on Paddy Yields and Production in Sri Lanka

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Restriction of imports of chemical fertilizers in the midst of the economic crisis of Sri Lanka has caused serious effects on its agricultural production. Even after the lifting of the import ban on chemical fertilizers, provision of urea was inadequate to fulfil farmer demand. As a result, urea became a scarce resource for the paddy farmers. This study analyses potential effects of alternative urea rationing methods on paddy production in Sri Lanka. The specific objectives are to estimate the technical relationship between the paddy production and the usage of raw materials paying special emphasis on urea and to examine the potential to enhance paddy production by allocating limited amount of urea available, among different types of paddy farmers. Data gathered from an island-wide survey conducted among 439 paddy farmers was used for the analysis. Several production functions were estimated in Cobb-Douglas form treating paddy yield as the dependent variable. Even though the results of the estimation showed a positive relationship between paddy yield and urea, a decline in marginal product of paddy with respect to urea was observed when land size increases. These results suggest a higher response to urea among small and medium scale farmers compared to those of large farmers. The simulation analysis performed to ascertain the changes in yields and total production under alternative urea rationing schemes clearly showed significant adverse effects of a blanket reduction of urea on yield as well as total production of small and medium size paddy lands. Accordingly, a higher production was observed when available urea was rationed prioritizing small and medium paddy lands. It is recommended to ration urea prioritizing small and medium category farmers to enhance production of paddy using limited quantity of urea available.

Key words: Land size, Paddy production, Paddy yield, Sri Lanka, Urea

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