NITROGEN MANAGEMENT AND USE EFFICIENCY WITH CHLOROPHYLL METER AND LEAF COLOR CHART

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ABSTRACT

Nitrogen is the most limiting nutrient in almost all the soils. Blanket fertilizer recommendations over large areas are not efficient because N supply varies widely from field to field. Crops thus require different amounts of nutrients in different fields, depending on native nutrient supply and crop demand. It is more beneficial if N inputs could be adjusted to actual crop conditions and nutrient requirements. The chlorophyll meter (CM) and leaf color chart (LCC) can be used to monitor plant N status in situ in the field and to determine the right time of N topdressing to crop. CM and LCC are reliable, quite simple, and useful tool to assist farmers in decision making regarding top-dress N application to crops. The determined critical levels of chlorophyll meter reading (CMR) were 37.5, 42 and 52 for rice, wheat and corn, respectively. Limited experimentation with leaf color chart indicated that N management in rice based on LCC values of 4 was the more economical. Further, results presented in this paper provide evidence that current farmer's fertilizer practices are inadequate to get the maximum crop yield. Either the farmers are underutilizing or over applying the N fertilizer to rice. There is need to improve N management a lot to achieve maximum grain yield and fertilizer use efficiency. Nitrogen management with CM and LCC not only suggest the saving with no yield loss by revising the blanket N fertilizer recommendation but also improves N use efficiency. This paper reviews the development and adaptation of the CM and LCC technique for efficient N top dressing.