Evaluation of Variable Seeding and Nitrogen Rates for Corn. (A08-ebelhar145119-Poster)

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Abstract:

A field study was conducted from 1999 to 2001 to determine the effects of variable seeding and nitrogen (N) rates on corn (Zea mays L.). Variable seeding rates ranging from 44,500 to 93,900 seed ha-1 were combined with variable N rates from 0-224 kg N ha-1. The field was divided into three productivity levels based on a 5-yr previous yield history. Productivity levels were identified as low (<95%), medium (95-105%), and high (>105% of normalized). Two replications of this study were placed within each of the three productivity levels. Economic optimum seeding rates were 66,050, 81,670 and 89,720 seed ha-1 for 1999, 2000, and 2001, respectively. In 1999, there was no economical response to N rates regardless of productivity level. In 2000 and 2001, the optimum N rate was 143 and 117 kg N ha-1, respectively. Corn yield from the three productivity regions suggested that a greater N use efficiency was achieved in the high yielding areas than in medium and low yielding areas. The seeding rate x N rate interaction suggested that optimum seeding rates should only be determined at optimum or higher N rates, and vice versa. In this study the optimum N rate was 128 kg ha-1 at the optimum seeding rate of 75,750 seed ha-1.

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