A PRODUCER-BASED EVALUATION
OF CORN NITROGEN TESTS FOR THE NORTHEAST

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Field experiments were conducted in Orono, Maine during 1995-1996 using corn (*Zea mays* L.) to evaluate early and late season N tests. The two studies used, Low-N and High-N, consisted of a randomized complete block design with four replications and six levels of N; 0, 30, 60, 90, 120, 150, N a^{-1} and 0, 75, 150, 225, 300, 375 N a^{-1}, respectively. At the time of sidedress application (late June - early July), the main plots of the Low-N study were divided in half (creating a 6x2 split plot factorial) to which 0 and 30 lb sidedress N a^{-1} was added.

One objective of this study was to evaluate the accuracy of the following N tests using previously established critical values: presidedress soil nitrate test (PSNT),the leaf chlorophyll nitrogen test (LCNT), and the stalk nitrate test (SNT). This was done to simulate the use of these tools by producers. Accuracy levels for correctly predicting N status ranged form less than 50 percent, for the LCNT conducted at the V8 stage, to 64 percent for the PSNT. Theses levels were much lower than those reported in past studies. The main reason for this low accuracy was the use of previously established critical values. When new critical values based on this data set were used to evaluate the same N tests, accuracy levels increased by as much as 31 percent. The second objective of this study was to determine the adequacy of 30 lb sidedress N a^{-1} to optimize yield. Due to the lack of

N deficient plots, however, we were unable to conclusively determine whether this N sidedress rate is sufficient to maximize yield. The third objective of this study was to assess the economic costs and benefits of using PSNT and LCNT. When the costs and benefits of these N tests were compared to a control (non N test users), no significant differences were found.