

to readings taken from high N

reference plots that have been

adequately fertilized with N

fertilizer. Additional N is

required for optimum corn

yield if the average meter read-

ing of the field is less than 95

percent of the high N reference

value. An N fertilizer estimate

can be calculated using meter

EARLY SEASON CHLOROPHYLL METER NITROGEN TEST FOR CORN

#### Doug Beegle and Dwight Lingenfelter Penn State

The chlorophyll meter is a portable, hand-held device that instantaneously measures the greenness (or chlorophyll content) of a plant in the field.

Nitrogen (N) is closely associated with leaf chlorophyll; thus chlorophyll meter readings of corn leaves reveal the N status of the plants.

The early-season chlorophyll meter test consists of taking meter readings of corn leaves when plants are between the six- and the eight-leaf stages (when plants are about 10 to 20 inches tall), which allows time to sidedress if necessary.

Meter readings taken from plants in a field are compared readings and field factors.

Advantages of the earlyseason chlorophyll meter test:

 Chlorophyll meter readings are quick, easy and provide instantaneous values.

- No samples need to be collected, processed, and sent to a laboratory for analysis.
- · Cost of sampling involves only labor costs.
- · N recommendations are accurate (comparable to the Pre-sidedress Soil Nitrate

Disadvantages of the earlyseason chlorophyll meter test:

- · Initial expense is high (the meter costs about \$1,400).
- · Early-season corn leaf chlorophyll levels are affected by hybrid selection and environmental stresses; therefore, high N reference plots must be established.
- This test is not applicable to fields that have received a preplant or an at-plant N fertilizer application beyond starter

This test provides another option in addition to the already widely used presidedress soil nitrate test for corn (PSNT) for assessing nitrogen status of the corn crop and making economically and environmentally sound N recommendations. Both tests appear to give similar results.

This test has been studied extensively in Dr. Richard Fox's research program here at Penn State and at other research centers. Also, we conducted an extensive three year

field evaluation of the test involving county agents, crop consultants, and fertilizer dealers who used the test under actual farm conditions. On that basis, we are now recommending that the early season chlorophyll meter nitrogen test for corn can be used as a nitrogen management tool in Pennsylvania.

A new Agronomy Fact sheet #53 "The Early-Season Chlorophyll Meter Test for Corn" has been published which gives all of the details on this new test.

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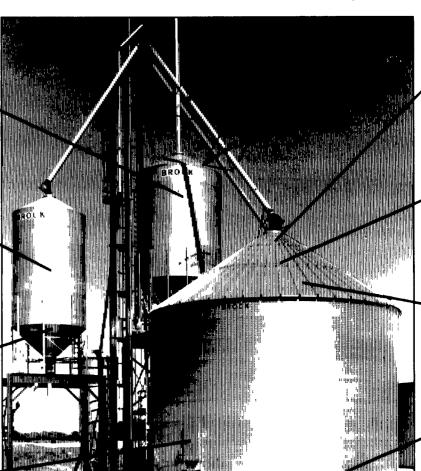
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