COLLEGE OF AGRICULTURE & NATURAL RESOURCES
DEPARTMENT OF PLANT SCIENCE AND LANDSCAPE ARCHITECTURE

MARYLAND GRAIN PRODUCERS UTILIZATION BOARD

On-Farm Trials 2026
Wheat Nitrogen Rate Protocol

Objective:

The objective of this study is to evaluate current nitrogen (N) fertilizer recommendations to high management wheat in Maryland.

Varieties:

Cooperator preference; any commercially available wheat variety but it must be reported to On-Farm Trials (OFT) Coordinator.

Field Selection:

Please provide a copy of your most recent soil test report, targeted seed population at planting, and at least five years of yield monitor data to OFT Coordinator.

Treatments:

We will utilize five treatments in this protocol:

1. Farmer standard practice for wheat N management
2. Total N applied based on 1 lb N/ bu expected yield plus 20 lb additional N with no fall N applied**
3. Total N applied based on 1 lb N/ bu expected yield plus 20 lb additional N with 30 lb N applied in the fall
4. Total N applied based on 1.5 lb N/ bu expected yield plus 20 lb additional N with no fall N applied
5. Total N applied based on 1.5 lb N/ bu expected yield plus 20 lb additional N with 30 lb N applied in the fall

Example treatment structure for field with expected yield of 80 bu/ac wheat:

Treatment	Fall N application	Greenup application lb N	Jointing application lb N	Total N applied, lb/ac
1 (FP)	Farmer standard practice			
2 (1x)	0	60	40	100
3 (1x + Fall N)	30	60	40	130
4 (1.5x)	0	60	80	140
5 (1.5x + Fall N)	30	60	80	170

**If not applying fall N is not feasible for you, we can modify the treatment structure. Please let us know!

All treatments will be replicated 3-5 times in the field. We prefer cooperators use commercial-scale equipment for treatment application but UMD Agronomy Trials Center personnel can be available to apply treatments if necessary. Plot length may be decreased to accommodate small-plot scale University equipment.

Plot Size:

Plots should be sized such that they are at least one combine width wide. Plots should be at least 300' long or the length of the field, depending on treatment product availability.

Harvest:

Grain weight should be measured with a weigh wagon OR in a grain cart using calibrated truck scales OR export of yield monitor data so long as cooperator's combine is calibrated with a weigh wagon prior to harvesting strips.

Data to be collected by OFT Coordinator:

- Fall soil sample to analyze fall soil nitrate test (FSNT)
- Weather data
- Lodging ratings
- Grain yield, moisture, test weight

Expectations for Cooperators:

For this protocol, all planting, treatment application, and harvest will be carried out by the Cooperator using their equipment (or equipment procured by the Cooperator). UMD personnel can provide small-scale equipment to apply treatments if necessary.

We expect the Cooperator will clearly communicate with OFT Coordinator about their plans for planting, treatment application, and harvest to allow OFT Coordinator to be present to assist.

Timeline:

Prior to October 1 – Indicate your interest in participating through Google Form

September – meeting with Dr. Fiorellino and OFT Coordinator to discuss trial location, execution of protocol, determine plot layout, mark field location of trial (if applicable)

September-October – Cooperator communicates with OFT Coordinator their plans for planting, OFT Coordinator is present for planting and treatment application

Winter – OFT Coordinator visits trials periodically and collects weather data; begins planning for lodging data collection and treatment application

March-April – Cooperator communicates with OFT Coordinator their plans for N applications, OFT Coordinator is present for treatment application

June – Cooperator communicates with OFT Coordinator their plans for harvest, OFT Coordinator is present for harvest

Cooperator Report:

Cooperators will receive a preliminary statistical analysis of all harvested trials as soon as possible. Cooperators will receive a copy of the final On-Farm Trials Summary Report when completed.

Data Use:

Data collected will be aggregated prior to reporting, with no identifying information or location shared publicly. General farm location (region or area of county) may be identified on a map, but individual field locations will not be shared.

Compensation:

Participants will be compensated from MGPUB based on successful completion of the trial, including implementation of field protocol to the best of your abilities, communication with OFT Coordinator for assistance with treatment application and harvest, and provision of all requested data. Participants in this trial are eligible to receive $2,000 for completion of this protocol. We require a current W-9 to provide payment to the cooperator.

Contact:

Mr. Gene Hahn, On Farm Trials Coordinator, can be reached via email at ghahn@umd.edu or (301)514-8569.