

## Iowa Soybean Association On-Farm Network® Ultimate Nitrogen Replicated Strip Trial Protocol

### Objective:

The purpose of this project is to apply 2 rates near the optimal N rate that differ by 25 lbs. across the field. This will provide enough information about the spatial patterns occurring to define categories. These categories can be used to identify spatial responses to nitrogen fertilizer. Once adequately identified, variable-rate application or targeted monitoring can occur.

### Brief summary:

Growers with yield monitors equipped with GPS will compare two rates of N with a 25 lb. N/a difference in alternating strips across the whole field. Based on past replicated strip trials an optimum N rate will be determined and two application rates of 12.5 lbs. above and below the optimum will be applied. Each rate must be uniformly applied. A field with straight rows is preferred having variability of soil type, topography, etc. An example of a trial is shown on the right for a field with a historic optimum N rate of 112 lbs. The width of a strip must be at least as wide as the combine pass and preferably wider. Harvesting must ensure at least one “pure” combine pass (not mixing yields from two strips) within each treated and untreated strip. Mixed passes are acceptable when the application width is wider than individual combine passes, but the grower must be able to harvest at least one pure pass from each treated and untreated strip. Loads should be used in the yield monitor to identify 100 lbs. N passes, 125 lbs. N passes, and mixed passes.

100 lbs. N
125 lbs. N
100 lbs. N
125 lbs. N
100 lbs. N
125 lbs. N
100 lbs. N
125 lbs. N

### Grower Requirements:

1. Contact Christine Borton at ISA to confirm intent at (800) 383-1423 ext. 233 or [CBorton@iasoybeans.com](mailto:CBorton@iasoybeans.com).
2. Complete and submit a replicated strip trial registration form by June 11, 2008 along with a field boundary in shapefile format (.shp, .dbf. & .shx) or FSA map with the field clearly outlined.
3. Apply four alternating strips of commercial N at 2 rates, the length of the field. The length of the replicated strips should be a minimum of 1,320 feet. Areas containing waterways and or point rows should be avoided. All other factors in the trial area must be managed the same (planting date, hybrid, etc).
4. Accurately record where nitrogen treatments were applied using GPS equipment or hand drawn maps that include the time of application, application starting point, width of treatments, and number of replications.
5. Complete and submit an application log form and as-applied map by August 9, 2008.
6. Trial must be harvested with a calibrated yield monitor equipped with GPS. If possible, harvest the entire trial area on the same day. GPS yield data must be submitted within 30 days of harvest or no later than December 1, 2008 in the following format: raw yield from the memory card or exported shapefile (.shp, .dbf. & .shx).
7. Allow ISA to use submitted and collected data for research, educational, and informational purposes.

### ISA Agrees to:

1. Cover any yield loss caused by the lower rate treatment in the replicated strip trial. The price of corn is preset at \$4.50/bu and is limited to the lower rate treatments of the field. If more replications are applied over 20 acres, reports will be analyzed, but yield loss will be capped at 10 acres.
2. Pay the producer a \$200 trial hassle fee after the successful completion of the project.
3. Attempt to collect aerial images and stalk nitrate samples from each field and provide them to the grower at no cost.
4. Return a report analyzing the treatment differences.
5. Keep data in a confidential manner that can't be linked back to the individual producer by other parties.

