The Northwest Iowa on-farm research project

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Introduction
ISU Extension, the Iowa Corn/Soybean Initiative, ISU Research and Demonstration farms and the NW Iowa Experimental Association partnered together to form the Northwest Iowa On-farm Research project which is now in its 5th year in Lyon, Sioux and Osceola Counties in the NW corner of Iowa. The goals of this project are to implement on-farm research projects that are beneficial to the cooperator and other NW Iowa farmers; to cooperate with producers to provide up-to-date research that affects their operation; and to provide unbiased, statistically analyzed data for farmers on compared production practices. We want to answer the crop production questions they have using replicated randomized studies. We strive to make these projects simple, informative and practical for our cooperators. During the past two years additional cooperators have been added in Buena Vista, and Sac counties in NW Iowa.

Project information
We have had 28 different producers work cooperatively with us the past four years, and they have conducted over 130 replicated trials over that time. Some have been unique to one site; others have been repeated in several locations over several years. Some examples of projects include corn and soybean plant population comparisons, corn and soybean foliar fungicide trials, soybean seed treatments trials, corn and soybean trait comparisons, tillage system experiments, seed treatment trials, and planting speed evaluation. Results of trials from each of the previous years can be found on-line at the Northwest Iowa On-farm Research web page: http://ofr.ag.iastate.edu/

A good example of what we are trying to accomplish with this project is evaluating different soybean plant populations. Palle Pedersen, ISU Extension Soybean Specialist, and his research team found that 100,000 well spaced soybean seeds at the end of the year created an adequate soybean stand that did not limit yield potential. Therefore, in 2007, the ISU soybean seed planting population recommendation was dropped to 125,000 to 140,000 seeds per acre (assuming good seed placement, germination and management). This was quite a bit below the level that many of our cooperators had been using in past years, and they were uncomfortable with making changes without “seeing it for themselves.” To keep comparisons simple, cooperators agreed to try two planting at two different populations, 125K and 175K per acre. In 2006 we had nine replicated locations of this trial design. There were two that showed a statistical difference in yield between plant population levels that year, one showed 1.6 bu/acre more on average (P = 0.10), and the other had 1.8 bushels more from the additional 50,000 seeds dropped (comparing 88K and 156K in this trial only). The other seven were not statistically different, and the overall average for 125K was 60.8 bu/acre, and 61.5 for 175K. In 2007 there were five more trials completed, none showed a significant difference. During 2007 the lower population level yielded 56.7 bushels per acre, and the higher population averaged 56.9 bu/acre. In 2008 the project was repeated on five more farms, with the population averages for 175K at 52.1 bushels per acre, and at 125K yielding 51.4 bushels per acre. One site was statistically better at the higher population rate, and it yielded about 3 bushels more at 175K.

Information from these projects has been presented at several NW Iowa meetings over the last 3 years. At the NW Iowa “Crop Advantage Series” meetings held last winter almost 200 attended sessions about these topics. Surveys conducted of these participants during those meetings indicated that 80% have reduced their soybean seeding rate in the last five years. 70% of the 160 survey respondents said they have used the data from the NW On-farm Research project to make management decisions, and additional 24% said they would in the future.

Some examples of soybean projects conducted in 2009 include a rolled vs. not rolled comparison, 15” vs. 30” row spacing, and no-till vs. conventional tillage. The 2009 corn projects compared corn populations, fungicide use, crw with and without insecticide, and corn planting speed.