BACKGROUND
In the late 1990’s, agricultural producers were mega-media blitzed, along with the agricultural vendor release of new variable control and computerized developments. These were being touted to revolutionize agriculture and agricultural crop production as we knew it. The new production concept became commonly known as Precision Agriculture (PA) or site-specific agriculture. Coming on the heels of a similar surge irrigation campaign, agricultural engineers recognized necessary data to support control of the new computerized equipment was not available, as well as the electronic field input data needed to adequately analyze and then program the controllers. The ultimate question was how much of this new, expensive technology would actually make a profit over existing production operations? There was considerable concern among researchers that procurement of new PA equipment was not going to pay back the returns promised by many. Area producers and agriculturalists indicated one of the most useful outcomes from the research investigations may be that “they should not buy any of the tools that didn’t show an increased net profit.”

OBJECTIVES
1) Investigate and assess new feasible and applicable PA tools and concepts for area producers that provide an increased net return.

RESULTS
Researchers at the North Plains Research Field (NPRF) conducted several PA-related studies, such as that of electroconductivity (EC), soil texture analysis, depth-to-caliche, fertility, weed control and variable-rate irrigation. These were conducted to determine if adequate field and crop sensitivity and ultimately net returns were warranted in regards to procuring equipment capable of implementing small, in-field variations in application of production inputs. After several years of investigation, it was found that the only adoptable PA items that were to readily benefit producers were those related to global positioning (GPS) and yield mapping of production fields. This was witnessed as the area first had only one of the yield mapping combines and today there are approximately 125 units in the area. While these units provide a detailed record of production per field, analysis of the volumes of data produced by these acquisition systems boggles the minds of most producers and most consultants don’t master the statistical techniques to properly analyze and interpret the reams of annualized data. Crop consulting firms that have offered acquisition and interpretation services have found producers are not willing to pay for these services due to a net loss of revenue over their already intensive high-input, highly efficient production operations currently being practiced. Avoiding large, new amounts of debt for area producers with promised PA tools has been related as possibly being one of the best benefits of the PA investigations conducted at the NPRF.