**2016 Phase II Crop Report Analysis**

June 8, 2017

RE: 2016 Crop Report Data

The following information was derived from over 900 Phase II crop reports that were submitted online, through the Districts web site. I sorted the data and threw out any data that was incomplete or was outside realistic parameters of crop production. The main analysis points are nitrogen use in corn and all water use. The accuracy of this information is completely dependent on those supplying the information. It was easy to pick out producers that didn’t want to report accurate nitrogen or irrigation water numbers as it was those that did not fill out the forms themselves. The irrigation information is based on well capacities and hours ran due to limited numbers of flow meters. However, it is the best information that we have and the trends should be accurate information that decisions can be based on.

**Acres Reported**

Corn is king and represented over 70% of the over 110,000 Phase II acres reported. ¼ of the acres were in soybeans leaving 5% of the acres in specialty crops or corn grown for silage/earlage (Figure 1). Figure 2 shows 45% of the corn was planted after a non corn crop the previous year. This would indicate that a majority of corn acres are involved in a crop rotation of some kind. The most popular being some type of corn-soybean rotation. No cover crop or consultant information is integrated in the reporting form which I would like to see added for future use.

**Figure 1 Figure 2**

**Water Usage**

Irrigation water usage by crop was only significantly different for misc. bean crops, which is a very small number of reported acres. The majority of reported acres received 13 to 14 acre inches of water (Figure 3). The water usage averages were down from 2015 when 15.2 acre inches were used. One issue with the reporting that I plan to emphasize in Nitrogen Management Training is the simple fact that someday this information may be needed to make important decisions. For example, the reported average for water used to irrigate corn would have dropped 2.5 inches if the reported zeros would have been included in the average. That is a huge difference if you are trying to establish a baseline average for any water quantity based decisions.

**Figure 3**

**Nitrogen Usage**

The overall nitrogen use reported shows that producers put on an average of 201.8 lbs. of nitrogen per acre (Figure 4). That was 30 lbs. per acre over the UNL recommended amount and resulted in a -.9 bushels per acre difference in expected vs. actual yield (Figure 5). The largest amounts of nitrogen were applied to corn after a previous specialty crop (218.6 #/ac), followed by corn-on-corn acres (209.6 #/ac) (Figure 4). The largest amount of nitrogen applied over the UNL recommended amount was on corn-on-soybean acres (43.835 #/ac) followed by corn-on-specialty crop acres (37.5 #/ac) (Figure 5). Thus, the over application of nitrogen is not resulting in significant increases in yield. An emerging trend in the 2015 and 2016 data is the significant over application of nitrogen to corn-on-soybean acres with no significant increase in yield.

Also, 75% of reporting producers are applying nitrogen over the UNL recommended rate (Figure 6). Of this percentage, only 27% are applying more than 50# over the UNL recommendation.

**Figure 4** The crop reporting data shows that the UNL recommended nitrogen rates are most likely rates that are past the point of diminishing returns, as evidenced by the decreased nitrogen efficiency.

**Figure 5** The averages of 547 (70,000 acres) irrigated corn fields show no significant advantage in actual yield over expected yield when you apply more than the UNL recommended amount of nitrogen.

**Figure 6** While the percentage of fields using over the UNL recommended nitrogen rate has decreased from 92% in 2013 to 75% in 2016, the total nitrogen applied has continued to increase (+16 #/acre) due mainly to increased yields (18 bu./acre). Also in 2013, 27% of fields received more than 100#/acre of nitrogen over the UNL recommendation. In 2016 27% had used more than 50#/acre of nitrogen over the UNL recommendation.