**Summary of Wheat Diagnostic Analysis, 2015**

Funded by Michigan Wheat Program

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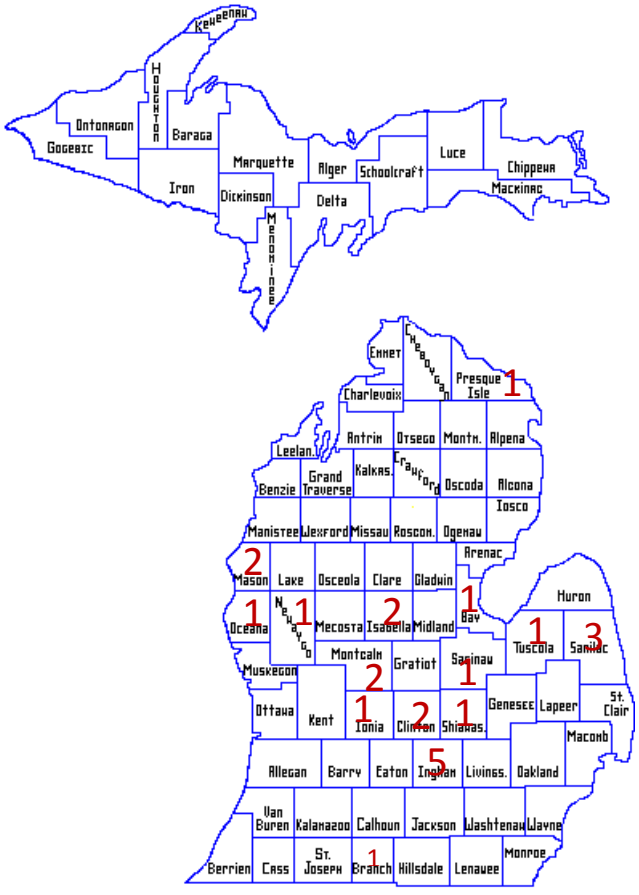
Twenty-five samples, from fifteen counties, were submitted to the lab for diagnostic evaluation. These samples were submitted by MSUE educators, agribusiness professionals, and growers. Each sample was examined for signs of disease and abiotic issues. Six samples were tested with ELISA tests for four specific pathogens.

Over half of the wheat samples submitted had symptoms caused by nutritional deficiencies and/or high or low soil pH levels. Fifteen of the samples received were forwarded to the MSU Soil and Plant Nutrient Lab for nutrient testing. Depending on the material available and the symptoms present soil and/or tissue samples were tested for nutrient content. Many of the samples submitted contained wheat plants taken from "good" and "bad" areas of the affected field. This greatly enhanced diagnostic testing and the value of the results. For example, good and bad samples taken from a single wheat field in Isabella County had soil pH levels of 6.4 and 7.6, respectively. Micronutrient deficiencies were commonly detected; including deficiencies of sulfur, magnesium, and manganese. Sulfur levels were below the defined sufficiency level in five of the nine samples for which the sulfur level was determined by tissue testing.

Fewer samples with diseases were received than in other years of this program. A few samples with disease related issues were received later in the production cycle (June – early July). Environmental conditions that were favorable for head scab were fairly prevalent across the wheat growing areas of the state. It is possible that fungicides used to control head scab also limited foliar fungal diseases. A list of diagnoses, and their incidence, is included below; note that some samples had multiple diagnoses. The distribution of the sample origins are also shown below.

## Incidence of Diagnosis

| Diagnosis | Number of Samples |
|---|---|
| Nutrient deficiency | 15 |
| *Stagnospora* blotch | 2 |
| Leaf rust | 1 |
| Head scab | 1 |
| Take all | 1 |
| Lesion nematodes | 1 |
| Cold damage | 1 |
| No pathogen found | 1 |
| No viruses detected | 6 |

## Geographic Distribution of Samples