**Brief Summary of Minutes of Annual Meeting:**

The annual NC1197 meeting was hosted by Tom Welacky at the Montreal Marriott Chateau Champlain. The meeting was called to order at 8:30 AM on 7/20/2016 with introductions, announcements, and discussion of meeting format. Steve Pueppke (administrative advisor) briefly discussed the new project and started a discussion about funding allocations and possibilities. Greg Tylka and Albert Tenuta discussed the upcoming SCN conference in December of 2016. Most of the state representatives gave their state reports. The meeting ended on 7/20/16 by selecting Fargo, ND as the meeting site for 2017. Guiping Yan agreed to make the local arrangements for the 2017 meeting in Fargo. Haddish Melakeberhan was elected chair and Greg Tylka was elected as secretary for 2017.

The primary goal of this meeting was to present and discuss research results related to the previous project objectives. A summary of the results are presented below by objective:

**Objective 1: Develop, evaluate, improve, and integrate management techniques for plant-parasitic nematodes in the North Central Region to increase grower profitability.**

**A. Evaluation of SCN-resistant soybean lines and cultivars.**

Several states (AR, IA, IN, KS, MN, ND) and Ontario, Canada, have performed resistance and agronomic evaluations for soybean cyst nematode and other soybean parasitic nematodes. Across these states and province, cultivars and breeding lines were tested in the greenhouse and/or in the fields. Some of these tests were performed in multiple locations. Results of the evaluations were presented online and in extension publications or extension talks. These reports present a valuable source of information for growers, breeders and seed companies.

**B. Assessment of HG Types and other aspects of virulence.**

Several states (AR, IN, KS, MN, ND, WI) and Ontario, Canada, have had ongoing evaluations of SCN HG types/races. Assessment of HG types in most of the states was performed using the standardized bioassay under controlled conditions. Various HG types were reported among states but HG Type 2 populations (capable of reproduction on PI88788) were common. This indicates that the most common source of resistance (PI 88788) to SCN is not as effective in controlling the SCN populations in the North Central region. Monitoring SCN populations for changes in virulence across states or within a state is important to navigate the use of resistance sources by growers and for help in development of new resistance sources. While the Peking source of resistance has shown effective resistance in most states, it should not be used continuously if it is to be retained as an effective and durable SCN management tool.

**C. Evaluation of new nematicidal seed treatments for management of SCN and corn-parasitic nematodes.**

New seed treatment products have been introduced into the commercial market by several companies to help in the management of soybean and corn-parasitic nematodes. Producers expect and receive result of these efficacy trials in printed publications or extension talks. Assessment of these products is being performed in several states (IL, AR, IA, IN, KS, MN, ND) and Ontario Canada. The effectiveness of these products on crop yield and reduction of nematode population densities has been variable.

**D. Evaluation of rotational crops and cultural practices for soybean and corn-parasitic nematode management.**

North Dakota evaluated the use of edible bean and its effect on SCN when it is used in a rotation with soybean.

**E. Investigation of pest interactions involving plant-parasitic nematodes and their contribution to yield losses in North Central Region crops.**

Wisconsin studied the interaction between the root-lesion nematode *Pratylenchus penetrans* and the fungal pathogen *Fusarium verticilliodes* on corn.

**Objective 2: Determine the relationships among nematode population characteristics, crop injury, and soil health.**

**A. Develop a list of damaging nematodes for corn and other major crops in the North Central Region.**

Plant-parasitic nematodes associated with corn, wheat, sugar beet and mint were studied in several states (IN, MN, ND, OH). Lesion and Spiral nematodes were the dominant plant parasitic nematodes found in Indiana and Ohio. Population densities of Lesion and Lance nematodes in Ohio were negatively impacted as the silt content of the soil increased.

**B. Determine damage thresholds for major corn-parasitic nematode species.**

There are relatively few studies documenting the impact of root-lesion nematodes on grain yield. Wisconsin conducted growth chamber experiments to determine the impact of *P. penetrans* on the growth and yield of soybean. No significant differences were found in plant growth with increasing levels of initial nematode inoculum. Field studies on relating population densities of nematodes at different time points with yield is under way.

**C. Characterize infraspecific variation in host-parasite interactions across the North Central Region.**

**D. Develop predictive models of nematode population dynamics for SCN and other regionally-important plant-parasitic nematodes.**

The Melakeberhan lab investigated the role of cover crops in vegetable production systems and their impact on free-living and plant parasitic nematodes. On-going are studies and analyses on a) integrating the soil food web and fertilizer use efficiency models for improved decision-making and b) scalability of soil health management across ecoregions.

**E. Identify sampling and extraction issues related to management of economically important plant-parasitic nematodes in the region.**

At the proper sampling time for assessment of damage potential due to plant parasitic nematodes surveys of plant parasitic nematodes were conducted in IN, ND, OH and WI.

**Objective 3: Develop tools for technology transfer for management of regionally important nematodes with special reference to soybean cyst nematode and corn parasitic nematodes.**

**A. Assemble a dynamic database of soybean cultivar characteristics related to SCN resistance.**

Disease rating for Arkansas soybeans (SCN, SRKN, RN, stem canker, frogeye leaf spot) 2003-2015 can be obtained at <http://www.arkansasvarietytesting.com/>. Information on the level of resistance in commercial soybean cultivars to Kansas SCN populations is published annually at <http://www.agronomy.k-state.edu/services/crop-performance-tests/soybean/>.

**B. Provide reliable information on the distribution of virulence phenotypes for SCN populations in the North Central Region.**

Most states are currently monitoring virulence changes in SCN populations, and investigating the distribution of virulence phenotypes in association with HG Type testing, as described in Objective 1B.

**C. Provide readily accessible and reliable information on rapidly evolving nematode management strategies such as the new commercial seed treatments for nematode control.**

All states provided information regarding plant-parasitic nematodes to stakeholders through grower talks, online publications and individual consulting.

**D. Provide a consensus damage threshold for each of the major corn-parasitic nematodes in the NCR.**

A manuscript is in preparation by several state representatives and is close to submission for publication in Plant Disease describing a new risk matrix for corn-parasitic nematodes.