October 29, 2013

REFLECTIONS FROM A STUDY TOUR

I lead a University of Nebraska Extension Educators Study Tour to Iowa State University and the University of Minnesota from October 24 to October 27. This column is a reflection of some of the topics we addressed on the tour.

The cellulosic ethanol plant under construction will use 600,000 large square bales of corn stalks to feed the 30 million ethanol production facility. Farmers will be paid on a basis of phosphorus and potassium nutrient removal and the bales will be custom harvested and stored in numerous staging locations prior to movement to the plant. The harvest rate will be about 2 tons per acre of stalks, which would be about 40 percent of the stalks covering the soil after harvest. The output of the plants will be ethanol, soil separated during the preconditioning process which will be applied back to crop fields, and ash from the burning of the lignin which contains minerals like phosphorus, potassium, zinc, etc. The ash will be used as a fertilizer product, applied to crop fields. The question in my mind is the carbon. What effect does the loss of 2 tons per acre of organic material have on the long term organic matter of the fields and soil health? This is a complex question with one set of possible answers in today's crop yield and crop management systems being used in Central Iowa and another possible outcome if we look at future changes in those systems.

NC+ was a foundation seed corn company from Nebraska. We visited some of those Nebraskan's transplanted to Iowa who are major suppliers of organic corn, soybean, milo, sunflower and alfalfa seed. The organic division of the company was spun off when NC+ sold out to a major. Blue River Hybrids located at Kelley, Iowa Serves an important function of providing quality high yielding seed to the organic growers.

Environmental Protection Agency mandated State Nutrient Reduction Strategies for nitrogen and phosphorus loading of the Mississippi River and the Gulf of Mexico's hypoxic zone is a significant focus of Iowa State and University of Minnesota soils and crops research and extension work. Fortunately Nebraska is not one of the twelve states designated to develop and implement plans. The focus is on states to the east with more rainfall, higher organic matter levels and more tile drainage. Finding the balance between top yields and reductions in losses of nutrients will require complex management systems embraced and applied by farmers and associated agronomic suppliers. We visited a farmer developed strip tillage plant in Fairbault, Minnesota which has some hope of reducing tillage in the area and improving soil health which could reduce nutrient loss potential while maintain yield potential.

The genetic diversity of our crops is of critical importance to our future abilities to adapt crops for higher production and cope with plant disease, insect and nutrient challenges. The North American Plant Introduction Station on the Iowa State Campus preserves and sources more than 25,000 unique corn genetic lines and 26,000 other seed types like carrots, cabbage, eastern gamagrass, pumpkins, etc. I have worked with them in the past to bring some unique or historical crop seeds for 4-H members to grow and experience. It is fun to meet in person someone like the corn curator, Mark Millard, who I have traded e-mails and occasional phone calls with over the years.

A number of years ago we raised some sweetcorn in the Plymouth area for Green Giant brand, Seneca Foods in Blue Earth, Minnesota. The fieldman, Greg Mastin, gave us a great tour, including updates of corn and pea hybrids, vegetable yields, planting and harvest equipment, and international sales. They had some contract acres in Nebraska last year in the Norfolk area (a bit closer than we are to the plant).

Paul C Hay, Extension Educator
University of Nebraska-Lincoln Extension in Gage County ● 1115 West Scott Street, Beatrice NE 68310
(402) 223-1384 ● FAX: (402) 223-1370 ● email: phay1@unl.edu