

# Corn and Nitrogen Field Day held at Weiss Family Farms

By Steve Carlson  
Editor

On Thursday afternoon, Sept. 20th, a Corn and Nitrogen Field Day was held at Weiss family farms in Lima Township. Approximately 40 individuals including local farmers and agricultural business representatives were gathered in a conference room to hear presentations from Kevan Klingberg of the University of Wisconsin Discovery Farms, who presented data on the nitrogen use efficiency trials being conducted at eight (8) farms in Pepin County as related to growing corn; and from Walter Goldstein of the Mandaamin Institute, who has been breeding corn for over 25 years. His presentation related to sharing his work and the science behind it on isolating and developing corn varieties that have natural nitrogen efficient properties. Following the presentations, those gathered were treated to see the results from a trial conducted in Pepin County comparing the growth of conventional corn hybrid seed to that of Goldstein's hybrids generated from corns found in Mexico, Central and South America, under conditions where no Nitrogen was added to the soil. Both presentations and the comparative corn hybrid trial were meant to highlight efforts at finding ways for farmers to be more efficient at and/or reduce the usage of Nitrogen in the growth of their crops while maintaining profitability, so as to have a significant impact on the reduction of nitrates going into surface and ground water that in recent years has been on a steady upward trend, approaching and in some cases surpassing the levels acceptable for safe drinking.

Klingberg detailed, how he and others with Wisconsin Discovery Farms have studied on local farms, through the use of pre-plant soil samples testing for nitrate levels, nitrate tests at the mid-growth stage of the growing season, and yield checks at the end of the growing season to determine nitrogen efficiency. The formula for this determination is calculating the yield, dividing it by the amount of nitrogen supplied. A graph of points showing the study of numbers determined by this formula that were derived from Pepin County farms indicated that de-



These are the root systems of conventional corn hybrids that are produced using the seed of the large agricultural seed companies.



These are the root systems of Dr. Goldstein's corn hybrids from Mexico, Central and South America that spread out more horizontally, dominating other competitors for soil nutrients.



These are other root systems of Dr. Goldstein's corn hybrids that are longer and thus work harder than conventional corn hybrids at extracting nutrients from the soil.



Dr. Walter Goldstein makes a presentation on his nitrogen fixing corn hybrids at Weiss Family Farms in Lima Township.

pending on soil types and other growing conditions, there is a diminishing rate of returns in corn yield beyond a certain number of pounds of Nitrogen applied to fields.

Goldstein and his institute have several ongoing projects including the development of "corn with enhanced protein quality that provides superior nutrition to the people and animals that eat it"; breeding corn that cannot get contaminated with pollen from genetically modified/engineered corn because its genetic "recognition system" will not accept pollens without the same genetic system for fertilization; and "finding and increasing wheat varieties that do not cause a gluten intolerance response in sensitive people"; and developing varieties of corn "that are extremely efficient at obtaining nitrogen and other nutrients

from the soil, and possibly even fix (extract/convert) some nitrogen from the air with the help of endophytic bacteria." As Goldstein himself points out, such varieties need less or no fertilizer. It is this last project that was the subject of his presentation. The efforts of this project have sought out to find strains of corn from parts of the world that have successfully been grown in areas with soils with limited concentrations of nitrates and nutrients because it is looking for strains of corn that grow well without need for fertilizer. These strains have been found (that also have enhanced protein and carotene quality, that will not accept the pollen of genetically modified/engineered corn) in old sweet corns and old pop corns that have historically been grown in Mexico, as well as in Central and South America. Goldstein



A cob of corn grown from conventional seed. On the left is a cob of corn grown from one of Dr. Goldstein's hybrids. Note the more orange color of the cob on the left, a sign of higher carotene content.



These are two samples of corn run in a field trial this past summer in Pepin County. On the left is a conventional variety, on the right is one of Dr. Goldstein's hybrids. They grew for the same maturation period but without application of nitrogen.

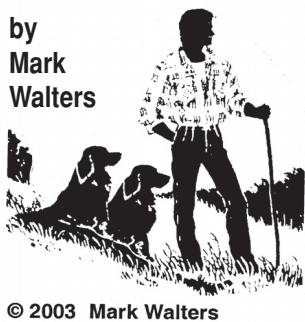
more remarkably from the air in very significant quantities, and ultimately aid the corn plant to convert that nitrogen into protein. The result is that under low nitrogen conditions, these strains are producing a lot more protein per acre than conventional hybrids of corn.

After the presentations were done, Goldstein, through an outdoor presentation of corn plant root systems from conventional corn hybrids as well as differing types of hybrids he has been breeding, showed the real-life evidence of the thinner, shallower root systems of conventional corn hybrids as compared to the thicker more rugged root systems of his own hybrids. The former he reasons are thinner and shallower because they don't have to work as hard to access the nitrogen that is applied heavily on fields. The latter hybrids have root systems that grow more horizontally, dominating the soil they occupy over and against

weeds that would rob the corn of nitrogen and other nutrients, or that grow more vertically, working harder to obtain nitrogen and other nutrients from the soil in addition to gaining it through the use of "nitrogen fixing bacteria".

Also as a part of the outdoor presentation, participants were treated to seeing how conventional corn and Goldstein's hybrids grew in a test plot in Pepin County where nitrogen was not applied. Samples of both showed two key differences. Not only does conventional corn not grow as well as Goldstein's hybrids, all other things being equal, but participants got to see how Goldstein's hybrids produced cobs with a more orange tinted coloring than conventional corn. This is visual evidence of the carotene that is present in Goldstein's hybrids which contain a greater amount of nutrition in each kernel of corn.

by Mark Walters



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## Sturgeon on the Flambeau River

Hello friends,

I like to catch big fish and I like to catch big fish out of a canoe. This week I spent 21 hours in a row living in my canoe and trying to catch a legal sturgeon (60 inches). I was alone and anchored on the Flambeau River in Rusk County southwest of Ladysmith.

**Sunday, September 16th**  
**High 85, low 50**

So here is my plan and I have been looking forward to this adventure since the last time that I was here. I think that was two years ago. I would canoe up to the "sturgeon hole" where I would drop two anchors and settle in until noon the next day. If I got a big fish on I would

## An Outdoorsman's Journal



Mark Walters caught and released this 19-inch smallmouth bass while sturgeon fishing on the Flambeau River.

pull anchor, and let my monster from below pull me around (the last time that I did this I caught a 54). Catching a large sturgeon out of a canoe in a fast flowing river is Krazy with a capital K, and that is why I do this. I also fish sturgeon because once you are set up it is time to relax.

What is my version of set up? Two rods out, both have 65-pound braided line and are weighted with 1.5 ounce egg sinkers, a large hook, and each has two night crawlers on it.

So I am truly in paradise and anyone that has spent time on the Flambeau or Chippewa Rivers knows what I mean, a constant view, lots of wildlife, and excellent fishing.

that the longest I could fish without having up to three pounds of weeds on each line was 10 minutes. Weeds covering your bait means no fish.

On the other hand, almost as soon as I started fishing I caught a 15-inch small mouth bass. An hour later I caught a 19-incher that gave an excellent aerial show, and just before dark I caught my first sturgeon, which was only 32 inches.

I did have a huge sturgeon clear the water not 30 feet from me and that was very inspiring.

Just about dark I figured I was settled in for the night and very comfortable in a lawn chair when my good buddy, Joe Flater, gave me a call and informed me that I was not in

the "sturgeon hole." Joe, or "Muskie Joe," guides on this river and if he told me to move I was going to.

So I paddled in the dark down river for one mile and found the "sturgeon hole," which I did by hitting the bottom of the river with my paddle until I found seven feet of water.

I caught a catfish right away and another small sturgeon and the problem with the down river vegetation was really bad.

Once I fell asleep and had a dream that I was in Antarctica in this canoe doing this same thing. There were icebergs everywhere, and I was laying on the floor of my canoe watching the stars when a giant fish grabbed my bait and pulled my canoe underwater with me in it. That fish pulled my rig and me at breakneck speed and when I woke up listening to the current of the Flambeau I have to admit I was a bit scared.

Anyhow, I never got out of my rig until 1:00 p.m. the next day. I drove home in a powerful thunderstorm, just about crashed my truck, and that is my sturgeon story. Sunset

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