Vol. 1, No. 4

Miller Hi-Lights™ November 2005 Newsletter

By Monty Burns and Bob Miller

Harvest comments for 2005

This is a time of thanksgiving for many farmers in Eastern Iowa. Although we struggled through one of the driest production seasons on record (June through mid-August), many fields yielded about average. This was based in part on the early planting season and the fact that much corn flowered in early July before the critical moisture shortage and excess heat occurred.

The difference between light soil and medium soil in the same field was often over 100 bushels per acre. The same can be said for compacted or eroded clay spots compared to the better soils. This was often due to a combination of poor silk emergence and delayed silk emergence due to the drought and high temperatures. This year we had an unusually large number of adult rootworm beetles (especially the small green, Northern Corn Rootworm beetles). They also were around earlier than normal (beginning around July 18) and therefore the late silking plants were often totally barren because these beetles not only ate the silks which emerged in late July, but they also ate late pollen. This was especially true on continuous corn fields that were highly stressed. It also appears that poor planter setup or excessive speed during planting was quite damaging this year, because poorly spaced plants (especially doubles) often have no ear. Early planting dates generally were favorable, unless frost damage required replanting. Some fields received excess rain in May, which combined with the cool temperatures to keep root systems shallow and this is one reason why corn was often considerably better over tile lines where the roots grew deeper. Carefully observing and reacting to field maps for correctable problems such as compaction areas, areas in need of tile, and weedy spots will pay dividends in future years.

The same corn varieties often performed very differently in neighboring fields, simply due to an interaction with the conditions mentioned above. The reproductive stage of development when Iowa City, Iowa experienced 3 days (July 23 to 25) of 100°F, was a key factor in hybrid success or failure. It appears to us that corn that flowered between July 12 and 14 had the most severe tip-back of the ears during the hot spell.

How do you choose hybrids for 2006 based on data from 2005?

Fortunately there were totally different environments in Central and Northern Iowa, compared to Eastern and Southeastern Iowa. Even within Eastern and Southeastern Iowa there were many microclimates depending on rainfall. If you use data from these areas, where yields were generally high, and combine them with yields from the stressed areas you can make very good predictions for future performance. It also is very important to compare yields in the corn-on-corn with corn following soybeans and to compare the same hybrid under different planting dates in the same area. Combining data from areas that were closer to the typical climate (based on a 10 to 30 year average) for Eastern Iowa, instead of overweighting performance differences from highly stressed locations will ultimately allow for better hybrid decision making for 2006. Most ISU corn variety tests and many of the F.I.R.S.T. trials in Iowa were grown in areas with moderate or low levels of moisture stress and they can serve as good data sources for hybrid selection.

Vol. 1, No. 4

Tillage Considerations for this Fall

This is a good year to deep till areas where you observed excess compaction, as there should generally be much better soil fracturing under the dry soil conditions. Because the soil may be quite loose, it is important not to till highly erodable ground. Do not till along side or through waterways or any area of a field that is prone to wash! Leave adequate residue to meet your conservation plan and to trap snowfall and conserve moisture. Here is an interesting article from Joel Delong, ISU extension, about tillage:

Think Before you Till!

by Joel DeJong, ISU Extension Crops Field Specialist

Tillage management decisions for 2006 have already started. My hope is that the harvest completes early, and weather stays good - but crop producers do not choose to do "recreational tillage" just because the weather is good and they should be working on something! Remember that each pass costs more this year - so make certain it really is needed!

If the goal is a conservation tillage program with at least 30 percent of the previous year's crop residue cover after planting (which should be the minimum), then options of no-till, strip-till, ridge-till, and minimum tillage are effective. Conservation tillage is a key solution to reduce soil erosion and improve water quality by reducing sediment in surface waters. As Iowa producers go through the decision-making process for 2006, site-specific conservation plans and tillage management that prevent soil erosion should be major considerations in any field.

Many producers (and research has supported this) have found that no-tilling soybeans into cornstalk residue yields the same, and reduces production costs. The main challenge is to manage that system to make it successful. Timeliness, proper and well-maintained equipment for the situation, having a combine that adequately spreads residue during harvest, good soil fertility and drainage - all are factors that can make this system successful. Like all systems, to get great results you need to do all the little things right, first! Visit with those who are successful no-tillers if you think you want to try a switch on your operation.

If you decide to use a tillage system, make certain you have a good answer for the question "Why do I have to make that tillage pass?" If you decide you need fall tillage, then ask if it is dry enough to work it. Tilling wet soils can contribute to a soil compaction problem, not correct it.

This fall make an informed decision about tillage, and establish a goal of at least 30% residue cover after planting. If you are an internet user, try this web page where you can calculate residue levels after planting: http://extension.agron.iastate.edu/soilmgmt/ . Also, be diligent about equipment quality and the work performed. Not all yield reduction reports during the conversion process are caused by the tillage system. Reductions may occur while learning the correct responses to the challenges of a new tillage system and failure to recognize the different management requirements for a new system to be optimal.

Tillage changes require not only equipment changes, but management changes, too. Get as prepared in advance as you can, and ask for assistance if you need it!

Vol. 1, No. 4

Nitrogen Fertilizer Economics & Corn Yield

(Adapted from article by Dr. Maury Vitosh, Michigan State University)

Nitrogen (N) is the most limiting and therefore the most important fertilizer element for corn. An inadequate N supply can greatly reduce yield and profit. Recent changes in corn and fertilizer prices require another look at the economics of fertilization. Higher nitrogen fertilizer prices require a closer look at the most profitable N rate and how reduced rates affect total profit per acre. Higher priced fertilizers also provide the incentive to make the most efficient use of available N supplies.

Yield Response to Nitrogen

The response of corn to N under varying soil and climatic conditions follows the law of diminishing returns. As the N rate increases, the additional yield produced by each additional increment of N decreases until, ultimately, there is no additional yield. In order to predict yield response to N fertilizer at all levels of production, a computer model was developed using field experimental data.

Yield response to N can be obtained by providing some basic information about the soil, climate and existing management. Some soils have the natural ability to produce more corn than others, therefore, each soil has its own yield potential (YP). Climate and existing management are important clues to selecting the proper yield potential. If a soil is not adequately drained or moisture is limiting, or plant population, planting date, hybrid and weed control are not optimum, the yield potential will be lower than where all factors are optimum. Crop rotation and past fertilization also affect the yield potential. Only after taking all factors into account can one select a realistic yield potential for the soil or field being considered.

Most Profitable N Rate

Both N and corn prices affect the most profitable N rate, therefore we can show the combined relationship by calculating the corn to N price ratio. Table 1 contains the corn to N price ratios, which cover a range of corn and N prices. It is evident that as long as the corn to N price ratio remains the same, so does the most profitable N rate. The most profitable rate for $2.00 corn and 20 cent N (10:1 corn to N ratio) is the same as for $3.00 corn and 30 cent N (10:1 corn to N ratio). The most profitable rate for either situation at the 100 bushel yield potential, is 110 pounds of N per acre. This does not mean that $2.00 and 20 cent N will be as profitable as $3.00 corn and 30 cent N. The latter will be more profitable (i.e., 50 bushel increase x $3.00 - 110 pounds N x $.30 = $117 profit, whereas $2.00 corn and $.20 N equals $78 profit).

The most profitable N rates for eight yield potentials and five corn price to N price ratios based on the computer model are shown in Table 2. Thus, if yield potential is 130 and the corn to N ratio is 10:1, the most profitable N rate = 140 pounds/acre.

Vol. 1, No. 4

Table 1. Corn: Nitrogen Price Ratios
Based on Various Prices of Corn and Costs of Nitrogen

Nitrogen Cost ($./lb N)	Corn Price ($/Bu)						
	$1.00	$1.50	$2.00	$2.50	$3.00	$3.50	$4.00
.10	10:1	15:1	20:1	25:1	30:1	35:1	40:1
.15	7:1	10:1	13:1	17:1	20:1	23:1	27:1
.20	5:1	8:1	10:1	12:1	15:1	18:1	20:1
.25	4:1	6:1	8:1	10:1	12:1	14:1	16:1
.35	3:1	4:1	6:1	7:1	9:1	10:1	11:1
.40	2:1	4:1	5:1	6:1	8:1	8:1	10:1

Table 2. Most profitable nitrogen rate (lbs N/acre) for corn
Based on computer model for predicting yield and corn to nitrogen price ratios

Bu/acre Price Ratio	Corn Yield Potential (Bu/acre)							
	85	100	115	130	145	160	175	190
5:1	80	90	100	110	130	140	150	170
10:1	90	110	130	140	160	180	190	210
15:1	100	120	140	160	180	200	220	240
20:1	110	130	150	170	190	210	230	250
25:1	120	140	160	180	200	220	240	260

Miller Hybrid performance

The October Miller Hi-Lights™ Newsletter listed many examples of outstanding performance by Miller Hybrids. We continue to roll along with additional evidence provided here. Our Company average of hybrids in the Manchester ISU plot was considerably better as a company average than most of our major competitors. M63-62B returned the most $/acre out of 137 entries in the ISU district 3 summary. M57-53H won the Miles F.I.R.S.T. trial with a yield of 252 Bu./acre. M57-52L was one of the best herbicide only hybrids (no CB or CRW) in Farmersburg and Central City, Iowa. M69-71B and M72-75B excelled in district 5 of the ISU trials. Excellent regional average performance in the IAEC F.I.R.S.T. trials were recorded for M69-71B, M57-53H, and M58-54B. M76-72B and M72-75B outyielded the three competitive checks (Pioneer 33B51, Dekalb DKC60-16, and NK N70-T9) by 20 Bu./acre, in our advanced test in Packwood, Iowa. For more complete summaries, please view the performance page at www.millerhybrids.com.

Miller Hybrid Programs

We outlined in our October Newsletter some of the Miller Hybrid programs including:

a) Receive 2.5 gallons of Liberty® Herbicide ($150-$160) for a 48 bag order of Miller Hybrids.
b) Receive a $3 to $6 rebate from Syngenta for each Agrisure™ CB Miller Hybrid unit, when you use Syngenta herbicides in the Agriedge™ program.
c) Receive a $8 rebate for each Agrisure™ CB Miller Hybrid unit on Force® insecticide
d) Pay early for discounts of: 8% (November 18), 7% (December 16), and 6% (January 13)
e) Let us discuss Miller Hybrids and receive a pocket field planner and a dollar coin.