Department of Crop Sciences---University of Illinois
COLLEGE of AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

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Lyle Paul - Agronomist
David Lindgren - Farm Foreman
14509 University Rd.
Shabbona, Il 60550
Phone/Fax 815/824-2029
e-mail lylepaul@uiuc.edu
http://www.cropsci.uiuc.edu/research/rdc/dekalb

2006 Weather Data

	January	February	March	April	May	June
Air Temperature (F°)						
Monthly Average High	38.4	35.3	45.5	64.5	69.9	78.2
Monthly Average Low	26.3	16.3	26.6	39.5	49.0	56.5
Daily Average	32.4	25.8	36.3	52.7	59.4	67.8
Departure from Average (40 year)	+12.0	+0.0	- 0.4	+3.5	- 0.7	- 2.3
Observed High (date)	52.5 (19)	57.4 (14)	66.4 (30)	78.4 (14)	92.5 (28)	89.1 (16)
Observed Low (date)	11.7 (26)	-10.2 (18)	10.6 (4)	25.2 (9)	37.2 (12)	45.6 (10)

	July	August	September	October	November	December
Air Temperature (F°)						
Monthly Average High	83.2	79.6	71.4	58.0	49.3	37.2
Monthly Average Low	63.5	59.6	48.6	36.1	31.4	22.4
Daily Average	73.4	69.8	59.7	47.1	40.0	30.1
Departure from Average (40 year)	+0.0	- 1.1	- 3.9	- 4.9	+1.25	+4.1
Observed High (date)	93.0 (31)	91.7 (1)	84.0 (17)	87.1 (3)	67.2 (9)	53.2 (31)
Observed Low (date)	53.5 (6)	49.6 (16)	33.7 (28)	22.1 (25)	16.9 (3)	-9.0 (8)

2006 Precipitation (Inches)

Month	Total	Departure from Average	Year Accumulation	Total Departure 124 Yr
January	2.04	+0.49	2.04	+ 0.49
February	0.66	- 0.78	2.701	- 0.29
March	2.11	- 0.32	4.81	- 0.61
April	3.55	+0.35	8.36	- 0.26
May	4.01	+0.05	12.37	- 0.21
June	3.19	- 0.95	15.56	- 1.16
July	2.45	- 1.13	18.01	- 2.29
August	2.30	- 1.36	20.31	- 3.65
September	4.11	+0.52	24.42	- 3.13
October	3.36	+0.58	27.78	- 2.55
November	2.47	+0.08	30.25	- 2.47
December	1.78	- 0.08	32.03	- 2.55

2006 Growing Degree Days (Base 50)

Month	GDD	30 Yr. Ave.	Departure	4/15 to EOM	Ave YTD	Departure
April (15-30)	136.0	111.9	+ 24.1	136.0	111.9	+ 24.1
May	349.0	379.3	- 29.7	485.0	491.2	- 5.6
June	521.8	567.5	- 45.7	1006.8	1058.7	- 51.3
July	709.3	672.5	+ 36.8	1716.1	1731.3	- 14.5
August	602.1	610.1	- 8.0	2318.2	2341.48	- 22.5
September	360.0	424.8	- 64.8	2678.2	2769.2	- 87.3
October (1-15)	97.2	119.6	- 22.4	2775.4	2888.9	- 109.7

University of Illinois Oat Drill Plots – DeKalb

2006			2005		2 Year Average			
Name	Yield	Test Weight	Yield	Test Weight	Yield	Yield Rank	Yield % of Mean	Test Weight
	(bu/A)	(lbs/bu)	(bu/A)	(lbs/bu)	(bu/A)			(lbs/bu)
Spurs	147.1	33.2	122.7	36.6	134.9	1	109	34.9
Rodeo	148.8	31.8	117.2	31.7	133.0	2	108	31.8
Leonard	142	30.3	121.1	32.0	131.6	3	106	31.2
Jim	159.9	33.5	100.6	32.2	130.3	4	105	32.9
Ogle	155	32.6	99.5	32.3	127.3	5	103	32.2
Blaze	147.9	34.2	99.6	33.2	123.8	6	100	33.7
Winona	158.4	35.0	87.1	33.1	122.8	7	99	34.1
Chaps	151.2	31.8	93.5	32.8	122.4	8	99	32.3
Wabasha	135.3	31.9	106.3	33.6	120.8	9	98	32.8
Sesqui	132.8	33.5	108.3	33.7	120.6	10	98	33.6
Jay	144.9	32.7	95.05	35.4	120.0	11	97	34.1
Don	138.9	32.3	97.4	34.7	118.2	12	96	33.5
Dane	131.8	30.6	71.6	29.9	101.7	13	82	30.3
Baker	166.2	34.1						
Woodburn	159.5	34.9						
Esker	155.0	32.2						
Jerry	141.9	35.1						
Robust	139.5	33.4						
Kame	137.4	31.5						
GRAND MEAN	**151.2**	34.1	**101.5**		**123.6**			34.1

Data courtesy of Frederick Kolb, Norman Smith, and Eric Brucker.

University Variety Trials: Complete yield results for variety trials for all crops can be found on the internet at the web site: http://vt.cropsci.uiuc.edu/. Results on this web site can be downloaded as Excel files. With those files, the varieties can be sorted as one might want. This sort can be according to 2006 yield, 2 or 3 year yields, seed treatment, maturity or genetic traits.

For a program on soybeans in Kankakee County, I worked up some numbers on variety selection. An elevator bid on Friday, February 9 was $7.21 for March delivery. Using the 2006 Region 1 (Erie, Mt. Morris, & DeKalb locations), group 2 Round-up Ready varieties trial yield results, the averages were:

Top 10 varieties	65.4 bu/A	$ 471.53
Middle 10 varieties	60.2 bu/A	$ 434.04
Bottom 10 varieties	55.2 bu/A	$ 397.99

The difference of $ 73.54 between the income between the top 10 varieties in the region and the bottom 10 varieties on about 530 acres of soybean is approximately equal to the average annual family income in Illinois at $39,000.

Admittedly, the seed companies have already determined what you will plant in 2007 by what varieties they have produced and offered for sale. A farmer can still make some changes in the mix from available varieties that they want to use. Picking the right varieties can make a big difference. Use all available sources of information to help make the decision.

Task Force Committee Report to Provost:

In the summer of 2006, a Task Force Committee of eleven people with ties to agriculture was appointed by the University of Illinois Provost to review the College of Agriculture Consumer and Environmental Sciences (ACES) field stations. Their charge was to develop recommendations for the foundation for the reorganization and revitalization of the Field Research and Educational Center system. In addition to all Department farms located near campus, the present system has three centers operated only by the Department of Crop Sciences (CS) (Brownstown, DeKalb & Monmouth), one site operated only by the Department of Natural Resources and Environmental Sciences (NRES) (St. Charles), one operated by CS and the Department of Animal Sciences (AS) (Orr – near Pittsfield) and one operated by CS, AS, NRES and College of Veterinary Medicine (CVM) (Dixon Springs).

Following is a very short summarization (by Lyle Paul) of the committee recommendations (final printed version = 25 pages:

a) CS should close the Monmouth and DeKalb Centers and establish a new larger Northwestern Illinois Center - location undetermined.
b) CS should continue to operate and expand the Orr Research Center.
c) CS should close the Brownstown and the crop sciences portion of the Dixon Springs Centers and establish a new larger Southern Illinois Center between Marion and Mt. Vernon.
d) NRES should expand the St. Charles Center.
e) NRES should expand and revitalize its programs at Dixon Springs and link these with SIU.
f) AS should not liquidate assets (beef cattle) at Dixon Springs or expand the beef herd at the Orr Center.
g) Animal Programs at Dixon Springs should be revitalized and consolidated by expanding AS beef herd, withdrawing or consolidating the CVM beef herd into the AS herd and withdrawing the CVM swine herd by the end of the year.

As one could imagine, the recommendations were received with different reactions. Of most direct effect to the northern Illinois would be recommendations a) and d). Concerning the number of facilities and the replication of studies, suggestion a) seems to have the possibility of having the most detrimental local effect.

The decision to follow any of the recommendations must be supported by a plan that makes that decision sustainable in the future by providing adequate staff, funds and land base to support future research needs.

The DeKalb County Farm Bureau Board invited Dean Robert Easter of ACES to a meeting to discuss the report. In addition to Farm Bureau Board members and staff, other people attending included members of the Research Center Advisory committee, some local farmers and a representative from Senator Brad Burzynski office. On a snowy March 6th, not everyone who planned to attend was able to do so. Dean Easter addressed some of the points of the report and Dr. Emerson Nafziger presented the Department of Crop Sciences perspective on the report. They both took recommendations and suggestions as well as answered questions.

In my opinion, any decisions on the operations and future of the Research Centers will be partially based on finding new sources of money and/or on the planned annual 3% per year budget reduction and reallocation of state funds within the University for the next 4 budget years for all Departments within ACES including the Crop Sciences Department. Each Department must determine ways to meet these planned reductions in the state funds which are mostly used to support salaries. Unless some other sources of funds or additional money to fund the Research Centers are identified, the Research Centers and their operations will be affected in some manner. What this effect might be would be determined in the future.

If you have any comments or ideas that you would like to share, you can write to the Dean or the Provost. If you need their addresses, I can supply those to you.

Crop Rotation and nitrogen effects:

With the current prices of corn and soybeans, there is interest in planting more acres of corn. Planting second year corn for many farmers is not new. In the two northern Illinois crop reporting districts in 2006, there were about 1.6 acres of corn for every acre of soybeans. Traditionally many operators have used a corn – corn – soybean rotation. For others, there is concern as to what effect second year corn or continuous corn will have on yields. In 2006 in this area, there were some good to excellent corn yields in fields where corn was grown in 2005.

The 2006 results of our crop rotation and nitrogen rate study had similar results to what many local area farmers had. The yield response to nitrogen was not as great as in past years and that continuous corn (CC) yielded more closely to rotated corn (SB-C) at the same nitrogen rate. Our study area has been chiseled every year in both the continuous corn and corn-soybean rotation. Each nitrogen rate has been applied to the same areas every corn year for the 8 years of the study.

Year(s)& Rotation	**Nitrogen Rate pounds/acre**					
	0	45	90	135	180	225
2006 CC	95	141	172	184	198	204
2006 SB-C	125	177	194	202	202	206
99-06 CC	76	109	138	155	171	174
99-2006 SB-C	117	154	175	183	188	193

The lower response to nitrogen applications was due, in part, to the low corn yields in some area fields in 2005, so the nitrogen that was applied for the corn crop was not all used. Additionally, with the fairly dry winter of 2005-06 and dry spring of 2006, very little of the remaining applied nitrogen or the nitrogen mineralized from soil organic matter was lost due to denitrification or leaching.

The nitrogen rate responses in Emerson Nafziger's on-farm research trials in northern Illinois showed similar results. Less nitrogen was needed to get better yields, especially in continuous corn. These results will affect the suggested nitrogen rate ranges on the nitrogen estimator at the web site:http://extension.agron.iastate.edu/soilfertility/nRate.aspx?mode=advanced. The web site has three areas for use in Illinois and Illinois has the more data on nitrogen trials than any of the other states taking part at this web site. The 2006 response numbers have not been added to the data base at this time. Watch the Pest Management and Crop Development Bulletin for the announcement of when the 2006 numbers are added for the nitrogen rates recommendations. The web site for the Bulletin is: http://ipm.uiuc.edu/bulletin/index.php.

Crop Rotation:

Following are the results from a study that was started in 2002. The field at the Research Center was all in soybeans in 2000 and all in corn in 2001. In 2002, all of the crop rotations were started. All rotations were in place and had completed a full cycle by fall of 2004. Some of the rotations have been in place much longer, continuous corn was in its 6th year in 2006 and the corn soybean rotation had been in place at least since 1980. Following are this year's results and the average results of the rotations from 2004 - 2006. The yields are for the crop and crop position in the rotation during that growing season that is listed in bold type.

Crop Rotation	2006 Yield Bu/Acre	2004-2006 Yield Bu/Acre
Continuous corn	195	174
Corn – soybean - **Corn**	210	207
Soybean – **Corn**	212	206
Soybean – corn – **Corn**	199	191
Corn – **Soybean**	53.7	54.6
Corn – Corn – **Soybean**	56.9	57.1

In the three year averages, the yields of second year corn have been better than the yields of continuous corn. The whole trial has been chiseled, yearly. The nitrogen rate for corn following soybeans is 180 #/acre and for corn following corn is 220 #/acre. The differences this past year were smaller, but the continuous corn had lower yields than second year corn and both had lower yields than corn grown in some rotation with soybeans.

Improving Continuous Corn Yields:

Various methods have been suggested to improve the yields of continuous corn. One set of recommendations would be to increase tillage, increase fertilizer and to increase the plant population. This set of recommendations is from information and suggestions gathered from an individual that has recorded record corn yields while using continuous corn.

A study to look at these suggestions was started at two locations in 2003. The DeKalb and Orr fields were added in 2004, but that year, DeKalb had standing water in the study area and did not harvest any yield results. The study was moved in the fall of 2004. The study consisted of a standard treatment of chisel plow, 220 # of nitrogen, 92# of P_2O_5, 150# of K_2O, and a harvest 32,000 plants/acre harvest plant population.

The variations that were studied were:
More tillage, either with a tool with deeper tillage shanks or the mini-moldboard plow.
Increase fertilization by an additional 100# per acre of nitrogen, 80# per acre of P_2O_5 and 120# per acre of K_2O.
Increase the harvest population to 40,000 plants per acre.

Each of these variations was in all combinations with the base levels of the various practices.
The following table contains the results with all other factors combined other than the factor being evaluated.

		DeKalb	Mon.	Urbana	Perry
Variable	Level	2005-06	2003-06	2003-06	2004-06
		----------bu per acre----------			
Till	Normal	203	156	219	180
	High	209	173	218	177
	Diff	5	17	-1	-3
Fert	Normal	205	160	213	175
	High	207	169	225	182
	Diff	3	9	12	7
Pop	Normal	205	170	222	178
	High	207	160	216	179
	Diff	1	-10	-6	2

The yearly results of this study depended on the area of the state and the weather conditions in that area. Emerson Nafziger is coordinating this study and I am not sure of the statistically significance of any of the different treatments. However, following are the trends: More tillage at Monmouth resulted in higher yields. A mini-moldboard plow was used there for at least 2 years of the study. More fertiliter at all locations resulted in higher yields, but in no case is the yield increase enough higher to pay for the additional fertilizer. Increasing the population by 8000 plants per acre in the final stand reduced yield at two locations and a slight increase at the other two, but not enough to pay for 11 to 12% of an additional unit of seed needed to get that finish population.. Again, most of these differences probably do not reach significant differences. There is no easy change that will consistently and economically increase the yields of continuous corn.