NORTHERN ILLINOIS AGRONOMY RESEARCH CENTER

Department of Crop Sciences---University of Illinois

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2003 Weather Data

	May	June	July	August
Air Temperature (F^o)				
Monthly Average High	68.9	79.3	82.7	84.5
Monthly Average Low	48.2	56.5	61.1	61.0
Daily Average	56.6	68.2	72.4	73.0
Departure from Average (37 year)	-3.6	-1.8	-1.1	+2.0
Observed High (date)	73.3 (17)	88.4 (15)	93.2 (3)	95.3 (27)
Observed Low (date)	-0.4 (10)	21.6 (9)	52.1 (24)	46.9 (26)
	September	October	November	December
Air Temperature (F^o)				
Monthly Average High	75.2	65.0	49.6	38.3
Monthly Average Low	49.3	39.1	33.0	24.4
Daily Average	62.4	52.0	41.5	31.4
Departure from Average (37 year)	-1.2	+1.5	+3.1	+4.6
Observed High (date)	88.9 (7)	86.4 (20)	71.2 (4)	51.1 (27)
Observed Low (date)	33.7 (29)	25.0 (2)	17.7 (8)	7.8 (12)

2003 Precipitation (Inches)

Month	Total	Departure from Average	Year Accumulation	Total Departure 122 Yr
January	0.40	- 1.16	0.40	- 1.16
February	0.05	- 1.41	0.45	- 2.57
March	1.04	- 1.41	1.49	- 3.98
April	3.02	- 0.21	4.51	- 4.19
May	6.21	+2.30	10.72	- 1.89
June	1.46	- 2.72	12.18	- 4.61
July	4.17	+0.58	16.35	- 4.03
August	0.71	- 2.88	17.06	- 6.91
September	1.72	-1.92	18.78	-8.93
October	1.63	-1.17	20.41	-10.11
November	3.75	+1.38	24.16	-8.73
December	2.80	-0.93	26.96	-9.66

2003 Growing Degree Days (Base 50)

Month	GDD	27 Yr. Ave.	Departure	4/15 to EOM	Ave YTD	Departure
April (15-30)	136.9	108.9	+28.0	136.9	108.9	+28.0
May	316.7	381.8	- 65.1	453.6	490.7	- 37.1
June	534.0	565.4	- 31.4	987.6	1056.1	- 68.5
July	665.0	674.4	- 9.4	1652.6	1730.5	- 77.9
August	683.3	612.8	+ 70.5	2335.9	2343.3	- 7.4
September	429.9	423.1	+ 6.8	2765.8	2766.3	- 0.5
October (1-15)	113.4	112.3	+ 1.1	2879.2	2878.6	+ 0.6
To killing frost (10/2)	1.7	112.3	-110.6	2766.9	2878.6	-111.7

January 2004 Weather Data

Air Temperature (F^o)	
Monthly Average High	26.6
Monthly Average Low	12.4
Daily Average	19.7
Departure from Average (38 year)	-0.7
Observed High (date)	56.8 (2)
Observed Low (date)	-10.0 (30 &31)
Precipitation (Inches)	
Total	0.31
Departure from Average (123 Yr)	- 1.24

Weather:

Weather is a much discussed topic, although we can't do anything about it. Last year's weather is history. Drier than normal, almost 10" short of 122 year normal precipitation. Total growing degree days near normal, but shortened by the hard freeze on October 2. The outstanding wheat yields were helped by the almost European type spring weather. No high temperatures to stress the crop and enough May rainfall to give good grain fill. The humidity was not high enough to help lead to any disease problems. The soybean crop was affected by many problems: aphids, disease, low pod numbers, small seed size and dry weather. Regardless of the reasons, soybean yields were down considerably over much of the corn-belt. Corn yields were much higher than expected given the dry weather in the summer that occurred over much of Illinois and other areas of the corn-belt.

If you would like easy access to weather data, there are a couple of web sites that report on the weather that we have at the Research Center. The Illinois State Water Survey has a web site that gives monthly summaries, maps of soil temperatures and soil moisture, many other current weather items. The values are reported from 19 sites across the state. The site is www.sws.uiuc.edu.

Another weather web site relates to a new installation that was established last summer. If you have driven by the Research Center, you may have noticed an area that looks like a corral, stockade, fort or snow fence. This installation is part of the National Oceanic and Atmospheric Administration's Climate Reference Network. This site is one of about 42 across the United States. When and if the system is fully established, there will be 250 of these sites across the nation. The network is to establish to a baseline on climate and to evaluate climate change over the period of he next 50 years or so.

The data is transmitted by satellite and then put on the web in real time with hourly updates of temperature and rainfall rates available at the following web site: There are also historic data at that site from August 2003.

At this time, we are having a problem with one of the rainfall sensors and the rainfall readings are a little suspect until that is repaired. The repair crew has to come from Tennessee and they haven't passed by since the problem was detected. Use all remotely collected data as an indicator of what is happening and not as absolutely accurate with no possibility of error.

Coated Seed

One 2003 study at NIARC was Emerson Nafziger's Polymer-coated corn seed trial. The Intellicoat® seed coated and un-coated seed was supplied to the seed by Landec (Fielder's Choice). The study at Urbana and NIARC included coated and un-coated seed of the same variety and 2 dates of planting. The first date was: Urbana - March 24 and NIARC - April 1. The second date at NIARC was April 29. The stands at Urbana were adversely affected by ground squirrels and therefore no yield data was taken. The study at NIARC was planted at 32,094 by the planter book. Plant stands at seven weeks after the April 1st planting date for both treatments was right at 31,000.

With the good early season weather and the dry conditions in July and August, the early planted corn yielded more than the later planted corn. The yields from all of the treatments were excellent.

The coating is supposed to allow early planting and delay emergence until favorable weather conditions occur. The early planted un-coated corn at NIARC started to emerge in 24 days. The coating seemed to delay emergence for about 12 to 18 hours. The yields from the combinations were:

April 1 planting date:	Bushels/acre
Coated seed	223.2
Un-coated seed	234.6
April 29 planting date:	
Coated seed	216.4
Un-coated seed	215.7

There were significant yield differences due to the planting date. There were also significant differences due to the coating because of the unexplained higher yield of un-coated seed on the April 1 planting date. There was no differences due to the coating for the later planting date.

The February issue of *Farm Industry News* had two separate stories about seed coatings. Both indicated that the cost of the polymer seed coating on corn was going to add about $10-11 per acre to the cost of the seed. The second story also indicated that coated corn seed was available from six different seed companies for the spring of 2004.

The story also highlights the use of the coating on soybean seed as a method of being able to "relay" plant the soybean crop into a wheat crop that was planted in 15" rows at the normal soybean planting time. The soybean plants from the coated seed would not come up until near the time of wheat harvest.

Emerson Nafziger had a study using coated soybean seed at Monmouth, Urbana and NIARC in 2001 & 2002. The coated seed that was used in those two years at the U of I locations did not work well. The soybeans planted into the standing wheat emerged well, but the plant stands after wheat harvest was not good in our trials. The stands of coated seed planted into the bare parts of the field were good. Soybean yields reflected the stands present after wheat harvest with low stands equaling low yields.

Soybean Row Spacing Update

The following is taken from the NWIARDC newsletter that Eric Adee sent out in December. Eric has done an excellent job of summarizing the soybean row spacing work at several of the U of I Research Centers:

With the increased availability of planters capable of planting soybeans in narrower rows there has been a lot of interest in the profitability of planting soybeans in split-rows versus the drill or 30+ inch rows. There has been a fair amount of research conducted by the U of I research centers comparing these three methods of planting soybeans. The following is a summary of all the data to date. Much of the data are from studies that included a seeding rate component, however, the yield and income data are from the optimum seeding rate for each planter. These data are averages from 24 data sets from studies conducted 1997-2003: 5 from DeKalb, 7 from Monmouth, 6 from Urbana, 4 from Brownstown, and 2 from Dixon Springs. These data are from studies conducted in tilled and no-till soils.

Soybean Row Spacing and Yield

Across all these environments throughout Illinois, the drill yielded the highest at 51.7 bu/acre, followed by the 15 inch split-rows at 50.6, and the 30 inch rows at 48.3 (Fig.1). In some years and locations when there were dry conditions in August, the main grain filling period, there were no differences between the soybean yields at the different row spacings. However, in years/locations with adequate moisture during grain fill, the drill and split-row planter yielded as much as 8 bu/acre better than the 30" rows. When comparing the different planters, it is best to use the long-term averages to have an idea what can be expected year in and year out.

Soybean Row Spacing and Canopy Closure

Yield and canopy closure are inversely related; the longer it takes the canopy to close the lower the yield potential. Previous research has shown that yield potential is maximized when the "green machinery" is in place to intercept as much light as possible before the soybeans start to bloom. Soybeans generally start to bloom around July 1, which is the 183rd day of the year. The highest yield is with the drill, which has the crop canopy close the quickest (181st day). The 15" rows were canopied an average of 6 days later, with the 30 inch rows 22 days later. In 2002 at Monmouth, the 30 inch rows did not canopy due to dry conditions. This data point was not included in the average.

Crop canopy is also a factor in weed control for soybeans. With the increased dependence on reduced pre-emergence plus post-herbicide or total post-herbicide, weed control is enhanced by early crop

canopy. Delaying the crop canopy 2 to 3 weeks could result in higher herbicide costs with either increased rates or a 2nd post herbicide application.

Soybean Row Spacing and Profitability

The profitability was calculated by subtracting the seed cost ($24/150K seed unit) from the gross income. Calculating the profitability, using two soybean prices, $5.39 and $7.50, common prices for last year and this year, respectively. At the lower price, the profitability with the 15" row spacing was slightly greater than the drill, due to reduced seed cost. The drill earned $10/acre more than the 30" rows, and the 15" rows were $12 ahead of the 30" rows. The drill and split-row planted soybeans had identical incomes at $360/acre, with the 30" rows $18/acre less.

Determining which row spacing is best for planting soybeans on your farm can depend on many factors. Cost of seed, price for grain, and equipment costs all have a part in the final decision. However, these yield data can give you a good indication as to what to expect in soybean production at the different row spacings across a wide range of environments. The canopy data can also help in determining which row spacing and herbicide program work the best for your situation. These data are intended to be used as a tool to help you in your management decisions.

Oat Variety Trials :

Following are the yields from Dr. Fred Kolb oats breeding trials for 2002 & 2003. The averages are as follows:

University of Illinois Oat Drill Plots - Summary over 2002 and 2003

	Urbana- 2 year averages					DeKalb- 2 year aves			Two locations - 2 years			
Name	Yield	Yield Rank	Test Weight	Height	Heading Date	Yield	Yield Rank	Test Weight	Yield	Yield Rank	Test Weight	Height
	(bu/A)		(lbs/bu)	(in.)	(after 5/31)	(bu/A)		(lbs/bu)	(bu/A)		(lbs/bu)	(in.)
Blaze	142.7	1	35.7	43.0	12.2	125.8	9	32.3	134.2	8	34.0	40.3
Chaps	138.6	4	35.3	44.1	12.3	136.0	6	32.6	137.3	5	33.9	40.8
Classic	119.0	13	33.2	44.7	14.3	114.6	11	32.3	116.8	11	32.8	41.4
Dane	119.3	12	33.2	42.2	5.4	110.8	12	29.9	115.0	12	31.5	38.7
Don	123.4	10	33.9	40.9	8.9	125.6	10	33.8	124.5	9	33.9	37.5
Gem	120.4	11	32.4	46.6	14.1	127.1	8	33.9	123.7	10	33.2	43.4
Jay	126.7	9	34.6	40.4	13.6	143.0	4	34.5	134.8	7	34.5	38.7
Jim	140.3	2	33.7	45.6	11.1	131.0	7	33.5	135.7	6	33.6	42.0
Moraine	129.0	8	35.2	45.3	10.5	99.7	13	32.0	114.4	13	33.6	42.2
Ogle	133.3	7	32.3	44.1	12.7	145.5	3	31.0	139.4	3	31.7	41.2
Rodeo	137.8	5	32.5	44.5	15.0	146.7	2	31.4	142.2	2	32.0	41.5
Sesqui	136.9	6	34.5	44.3	17.6	139.7	5	32.8	138.3	4	33.6	42.1
Spurs	139.1	3	34.1	42.5	12.4	152.3	1	33.7	145.7	1	33.9	39.8
Mean	**136.2**		**34.9**	**42.8**	**11.2**	**131.6**		**33.1**	**133.9**		**34.0**	**40.0**
No. of tests	**2**		**2**	**2**	**2**	**2**		**2**	**4**		**4**	**3**

At NIARC, yields averaged about 8 bushels more per acre in 2003 than in 2002. As would be expected, varieties had relatively different yield results in one year compared to another, but one should use multiple year and multiple location yield results to help select the variety that is most likely to perform the best.