

## Use of this Report

The 2007 Annual Research Report is intended to provide the producer with long term variety yield, agronomic, and disease data from the Langdon Research Extension Center and its off-station locations. Some older varieties, variety trials and variety agronomic information are omitted because of space limitations, but can be found on our web site.

Choosing a variety is one of the most important decisions a producer makes in raising a successful crop. Factors to consider when selecting a variety include yield, disease resistance, protein, straw strength, height, stability across years, maturity, test weight, quality and economic profitability. A variety's performance may differ from year to year and from location to location within a year due to varying environmental conditions. When selecting a variety to grow it is best to consider a variety's performance over several years and locations. For small grain and flax variety descriptions get extension bulletins A-574, A-1049, A-1067 and A-1196 from your extension office.

The data in this report are averages of several plots at each location. The trials are designed so that "real" yield differences can be statistically separated from yield differences that occur by chance. The least significant difference (LSD) values given in this report are used for this purpose. For example, if the LSD 5% is 5 bushels, then if the difference between any two varieties is greater than 5 bushels they are said to be significantly different from one another 95 times out of 100 under those growing conditions. If the difference between 2 varieties is less than 5 bushels, they are not significantly different from one another. If there is a "NS" for an LSD 5% value it means there was no real difference between any varieties or the trial was too variable to detect a real difference.

### 2003-2007 Growing Season Summaries

#### 2003

Stored soil moisture was adequate for the start of the 2003 growing season. Spring planting began from mid-April to early May across the region. May and June precipitation was generally normal to above normal. July precipitation was spotty with areas ranging from below to above rainfall. Most regions were dryer than normal in August. The small grain

crop was the best in years across the area with very low disease levels and excellent weather for harvest which resulted in excellent quality. Corn and soybean harvest weather was also good but yields were down because of dryer conditions in August and September.

#### 2004

Cold! This best describes what will be remembered for the 2004 growing season. Temperatures were much below normal May-August. Corn GDD was only 70-80% of normal across NE ND. Fewer GDD delayed development of early season crops at least two weeks but the effect on later row crops was far more severe. An August 20 frost across the region resulted in damage to many crops, especially corn, drybeans and soybeans. August was the coldest on record at Langdon. Mid-May brought rain, snow and ice to the region which delayed spring planting two weeks or more. Precipitation levels across the region were 100-125% of normal from April to September. Harvest conditions from August to mid-September were poor resulting in reduced quality especially in small grains. Many corn, drybean and soybean fields across the region were not harvested.

#### 2005

Precipitation in September-October 2004 was generally above normal across the region while November 2004-April 2005 precipitation was below normal. Stored soil moisture levels were adequate for the start of the 2005 growing season. Precipitation levels in May were slightly above normal and were nearly double the normal in June. This resulted in many drowned out areas in fields or saturated soil conditions which had a detrimental effect on crop yields. Temperatures were below normal in May and August, near normal in June and July and above normal in September. The first killing frost occurred in early to late October which allowed soybeans and row crops to mature. Fusarium head blight was at the highest levels seen for several years resulting in reduced yields and quality. Sclerotinia in canola and sunflowers were at low levels.

#### 2006

Precipitation levels in September-October 2005 were generally below normal while the November 2005 – April 2006 precipitation was above normal. Stored soil moisture levels were good for the start of the growing season. Even though May precipitation levels were below normal, most crops got off to a

good start with adequate stands. Precipitation amounts for June and July were much below normal in many areas. Rainfall events were spotty. Despite the lack of rainfall yield levels were better than expected because of the good stored soil moisture levels. Quality of the crop was excellent. Disease levels of fusarium head blight and sclerotinia in canola and sunflowers were almost non-existent.

### 2007

Precipitation levels in September-October 2006 were generally below normal while the November 2006 – April 2007 precipitation was near normal. May rainfall was 200-300% above normal while June rainfall was 100-200% above normal. July rainfall was also above normal will August rainfall dropped to 50-100% of normal. The early heavy rain caused some stand problems in canola. Foliar diseases on small grain were the main disease problem during the growing season.

### 2007 Variety Trials

The NDSU Langdon Research Extension Center, in addition to its on-station research program, conducted variety research trials at five off-station locations in 2007. Trial locations were 6 miles south of Pekin on Hwy 1, 2 miles north of the Perth, Walsh small grains at the Walsh County Farm at Park River, Walsh soybeans 3 miles east of Park River, Pembina County trials 2.5 miles north of the junction of Hwy 5 and 18 east of Cavalier and the Ramsey County trials 2 miles west of Devils Lake on Hwy 2. These locations are in cooperation with the farmer, the Extension Service and the County Agricultural Improvement Association.

### Frost Dates

Length of growing season in Northeast North Dakota varies quite dramatically from the northwest to southeast. The performance of a variety or hybrid in a given year can also vary dramatically depending on the number of frost free days. Knowing the average frost free period in your area is particularly important when choosing a variety or hybrid of corn, sunflower, soybeans and drybeans.

The following table gives the frost dates 32<sup>o</sup> and 28<sup>o</sup> F, and the number of days above 32<sup>o</sup> and 28<sup>o</sup> F for Langdon, Cavalier, Park River, and Pekin. Normal (50 percent probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date) frost dates and frost free days

are from 1961-1990.

	32 degrees F			28 degrees F		
	Last Spr.	First Fall	Frost Free Days	Last Spr.	First Fall	Frost Free Days
<b>Langdon</b>						
Normal	5/28	9/13	108	5/17	9/21	128
2007	5/27	9/9	105	4/14	10/22	191
2006	5/21	9/8	110	5/12	9/28	139
2005	5/16	10/5	142	5/15	10/6	144
2004	5/27	8/20	85	5/14	10/1	140
2003	5/20	9/25	128	4/29	9/25	149
<b>Cavalier</b>						
Normal	5/18	9/23	127	5/5	10/2	149
2007	5/27	9/11	107	4/25	9/12	140
2006	5/21	9/9	111	5/5	9/9	127
2005	5/15	10/5	143	5/15	10/19	157
2004	5/16	8/20	96	5/16	10/2	139
2003	5/20	9/25	128	4/29	9/25	149
<b>Park River</b>						
Normal	5/16	9/25	132	5/5	10/3	151
2007	5/12	9/9	132	4/13	10/24	194
2006	5/21	10/9	157	4/8	10/11	186
2005	5/15	10/5	143	5/03	10/26	176
2004	5/14	8/20	98	5/14	10/3	142
2003	5/1	9/25	147	4/17	9/30	166
<b>Pekin</b>						
Normal	5/17	9/21	127	5/6	10/1	148
2007	4/14	10/22	191	4/13	10/22	192
2005	5/15	10/5	143	5/11	10/22	164

<b>2007 Off-Station Crop Management</b>						
<b>Location(County/ Field Trial</b>	<b>Previous Crop</b>	<b>Seeding Rate Unit/Acre</b>	<b>Yield Goal</b>	<b>Planting Date</b>	<b>Harvest Date</b>	<b>Row Spacing</b>
<b>Cavalier (Pembina)</b>						
HRSW	soybeans	1.50 million pls	55 bu	4/26	8/15	6
Barley	soybeans	1.25 million pls	80 bu	4/26	7/2	6
Soybeans	sugarbeets	200,000 pls	60 bu	5/30	10/2	6
Drybeans	sugarbeets	70,000-90,000 pls	2000 lb	5/30	9/27	30
<b>Park River (Walsh) Hoople - Soybeans</b>						
HRSW	fallow	1.50 million pls	60 bu	4/26	8/15	6
Soybean	wheat	200,000 pls	60 bu	5/17	10/1	6
<b>Pekin (Nelson)</b>						
HRSW	wheat	1.50 million pls	60 bu	4/30	8/16	6
Soybean	wheat	200,000 pls	60 bu	5/18	10/3	6
<b>Devils Lake (Ramsey)</b>						
HRSW	soybean	1.50 million pls	50 bu	4/30	8/16	6
Durum	soybean	1.50 million pls	50 bu	4/30	8/16	6
Barley	soybean	1.25 million pls	80 bu	4/30	8/3	6
<b>Perth (Towner)</b>						
HRSW	fallow	1.50 million pls	70 bu	5/1	8/29	6
Durum	fallow	1.50 million pls	70 bu	5/1	8/29	6
Barley	fallow	1.25 million pls	100 bu	5/1	8/3	6
<b>Location</b>	<b>Soil Type</b>					
Cavalier	Neché silty clay loam					
Park River	Wheat-Glyndon silt loam, Soybean-Fairdale silt loam					
Pekin	Svea-Cresbard loam					
Devils Lake	Overly silty clay loam					
Perth	Hamerly-Barnes					

pls=pure live seeds

<b>2007 Crop Management - Langdon</b>						
<b>Field Trial</b>	<b>Previous Crop</b>	<b>Seeding Rate Unit/Acre</b>	<b>Yield Goal</b>	<b>Planting Date</b>	<b>Harvest Date</b>	<b>Row Spacing</b>
Barley	fallow	1.25 million pls	85 bu	4/24	8/7	6
Buckwheat	wheat	700,000 pls	1700 lb	6/1	9/17	6
Canola - Conv, LL, CL	potato	610,000 pls	2500 lb	5/8	8/24	6
Canola - RR	potato	610,000 pls	2500 lb	5/8	8/23	6
Corn	potato	28,000 thinned	110 bu	5/11	10/24	30
Durum	fallow	1.50 million pls	50 bu	4/24	8/21	6
Drybean	fallow	70-90,000 pls	2500 lb	6/1	9/28	30
Field Pea	fallow	300,000 pls	60 bu	4/27	8/26	6
Flax	fallow	2.8 million pls	50 bu	4/27	8/31	6
Forage (Cool Season)	fallow	varied	varied	4/27	7/23	6
Forage (Warm Season)	wheat	varied	varied	6/1	8/20	6
HRSW	fallow	1.50 million pls	55 bu	4/24	8/17	6
HRWW	fallow	1.0 million pls	60 bu	9/13/06	8/9	6
Mustard	potato	610,000 pls	2000 lb	5/8	8/24	6
Oats	fallow	1.0 million pls	100 bu	4/24	8/22	6
Soybean - Conventional	potato	200,000 pls	60 bu	5/21	10/4	6
Soybean - RR	potato	200,000 pls	60 bu	5/21	10/4	6
Sunflower - Confection	fallow	17,000 thinned	2500 lb	5/16	10/15	30
Sunflower-Oil	fallow	20,000 thinned	2500 lb	5/16	10/16,22	30
<b>Soil Type - Svea-Barnes loam</b>						