

Growing Conditions

Hettinger Research Extension Center

2003

The severe drought of 2002 continued throughout the Fall and winter with warm temperatures and almost no snow. Winter wheat was seeded into dry soil and did not sprout until spring time. Over 3 inches of rainfall in March provided much needed soil moisture for small grain germination. Timely rainfall and cool temperatures through June provided ideal growing conditions for cool season crops. Growing conditions changed 180 degrees from July through the remainder of the growing season with very hot temperatures and very little precipitation. These conditions limited grain fill and yields of most crops although some early season crops (canola, barley and field pea) were able to largely avoid these adverse conditions and had very good yields. Most of the growing season was not conducive to corn production, causing very poor yields. Sunflower, on the other hand, did very well.

Insect infestations were minimal this year, although there were some localized areas with severe grasshopper damage. There were also a few reports of cutworm damage to sunflower and oat bird cherry aphids on wheat. Plant diseases were almost non-existent. Minor infestations of strip rust on wheat were observed at Hettinger and tended to be more severe as you went south.

All trials at the Hettinger Research Center were planted with a no-till drill. Broadleaf crop trials were planted into barley stubble and small grain trials were planted into soybean stubble. Residual soil fertility was determined and fertilizer was applied according to specific yield goals for each crop. Urea (46-0-0) was the primary nitrogen fertilizer source and was applied with a no-till drill prior to planting. Monoammonium phosphate (11-52-0) was applied directly with most seed at planting.

All HRSW, durum and barley trials were treated post-emergence for both grassy weeds (foxtails and wild oats) and for broadleaf weeds (kochia, Russian thistle and wild buckwheat). Most broadleaf crops were treated with a pre-emergence burn down, and with a post-emergence treatment for grassy weeds and broadleaf weeds when possible. Canola, mustard, corn, millet and sunflowers were treated post-emergence with an insecticide. Chickpea, field pea, lentil and safflower were treated with a post-emergence fungicide application.

Weather Data Summary - Hettinger

	Frost Free Days		
	28 F	32 F	Normal 32 F
Date of last frost	May 20	May 20	May 18
Date of first frost	Sept. 30	Sept. 25	Sept. 20
Frost free days	133	128	125

Weather Data Summary - Hettinger

Precipitation

Precipitation (inches)	2000 - 01	2001 - 02	2002 - 03	48 Year Average
Sept. - Dec.	4.12	1.69	1.49	3.22
Jan. - March	1.82	1.11	3.83	1.35
April	2.13	1.14	1.38	1.68
May	1.80	0.80	3.18	2.61
June	3.65	1.34	1.99	3.40
July	4.46	1.36	0.37	2.08
August	0.13	1.11	0.44	1.66
Total	18.11	8.55	12.60	15.99

Air Temperature

Average Temperature F	2000	2001	2002	2003	48 Year Average
April	42.6	43.0	40.2	46.7	42.5
May	55.0	55.2	49.6	52.9	54.1
June	60.5	62.7	65.4	60.2	63.5
July	71.2	71.6	76.2	72.4	69.9
August	71.8	73.0	67.5	73.7	68.9
September	58.6	59.1	61.1	57.6	57.4

Growing Degree Units - Corn

Growing Degree Units (50 - 86)	2000	2001	2002	2003	31 Year Average
May	284	285	245	212	266
June	377	401	476	349	424
July	638	652	707	612	583
August	633	631	549	655	540
September	412	357	387	294	309
Total	2344	2326	2364	2186	2122