

2011 Growing Conditions

Hettinger Research Extension Center

The fall of 2010 was ideal for winter wheat establishment with an abundance of rainfall in September followed by warm and dry conditions in October. There was an above normal amount of snowfall and accumulations greater than one foot throughout most of the winter months. The last spring snow storm dropped 8 inches of snow on April 20. Cold and wet conditions prevailed through the end of May resulting in only 50% of the wheat acres being planted and many of those acres being mudded in causing poor and uneven stands. Continued periods of wet weather through June caused soils to become almost fully saturated, resulting in many fields being left unplanted. These wet conditions caused small grain plants to develop small shallow root systems resulting in pale looking nitrogen deficient seedlings. This condition would later prove to be tremendously detrimental when those crops were at the critical seed forming growth stage and were hit with hot temperatures during the last 2 weeks of July. Weakened plants also became more susceptible to a plethora of diseases issues. An early infection of foliar diseases (tan spot and septoria) was widespread but was generally controlled by judicious use of fungicides. Wheat streak mosaic virus was common in winter wheat and to a lesser degree in some spring wheat. Symptoms ranged from mild to severe with some fields being destroyed to stop its spread to adjacent fields. Barley yellow dwarf, transmitted by aphids, was also very common in all small grain crops and varied in severity but was generally mild to moderate. Bacterial leaf streak was widespread in most wheat fields and was presented with symptoms of dead leaf tissue on the flag leaf which was uncontrolled with fungicides. Fusarium head blight (scab) was commonly observed in low water saturated portions of fields. Wheat stem sawfly infestations appear to be dwindling with the widespread use of tolerant varieties and an explosion of naturally occurring sawfly parasitoids. Grasshopper populations appear to be increasing in both numbers and infested acres. Overall, the wheat crop was very disappointing with commonly reported yields of 10 to 20 bushels per acre and test weights in the low 50's.

Late season crops tended to develop and produce quite well despite being planted later than normal. Early maturing corn varieties accumulated enough heat units to mature prior to a killing frost and sunflower yields were generally higher than average.

Most trials at the Hettinger Research Center were grown under a no-till cropping system. The predominant soil type is classified as a silty loam. Small grain trials were typically planted into field pea stubble and broadleaf crop trials were typically planted into spring wheat stubble. Residual soil fertility levels were 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 typically applied directly with the seed during planting. All legume crops were treated with granular *rhizobia* inoculant during seeding.

HRSW, durum and barley trials were treated post-emergence for both wild oats and broadleaf weeds (kochia, Russian thistle and wild buckwheat). Most broadleaf crops were treated with a pre-emergence burn down and with a post-emergence herbicide for grassy weeds and broadleaf weeds when possible. All small grain trials were treated with an insecticide to control aphids and with a fungicide at the 3 leaf stage to control foliar diseases and again at heading to control fusarium head blight.

Weather Data Summary - Hettinger

Frost Free Days

	28°F	32°F	Normal 32°F
Date of Last Frost	May 5	May 15	May 18
Date of First Frost	September 22	September 4	September 20
Frost Free Days	140	112	125

Precipitation

Precipitation (inches)	2006 – 07	2007 – 08	2008 - 09	2009 – 10	2010 – 11	56 Year Average
Sept. – Dec.	3.15	1.26	6.23	4.66	4.80	3.36
Jan. – March	2.18	0.87	5.16	1.16	2.84	1.50
April	1.09	0.98	1.10	1.76	2.31	1.61
May	5.97	4.01	1.38	3.73	4.61	2.64
June	3.04	4.08	3.53	2.93	3.39	3.32
July	1.62	1.23	2.20	3.68	1.85	2.04
August	3.65	1.75	3.47	2.41	2.30	1.71
Total	20.70	14.18	23.07	20.27	22.10	16.18

Air Temperature

Average Temp. F°	2007	2008	2009	2010	2011	56 Year Average
April	40.2	40.1	38.2	44.8	39.4	42.7
May	56.2	52.0	52.0	50.0	50.2	53.8
June	62.7	59.7	58.8	62.0	62.0	63.1
July	75.4	71.1	64.6	67.6	71.3	70.1
August	68.8	70.0	63.0	68.6	65.3	68.8
September	60.9	56.6	62.6	56.3	56.9	57.8

Growing Degree Units - Corn

Growing Degree Units (50-86)	2007	2008	2009	2010	2011	39 Year Average
May	272	207	265	210	161	260
June	452	346	344	393	358	417
July	672	606	458	536	631	584
August	533	579	461	547	555	537
September	353	340	421	278	347	316
Total	2282	2078	2006	2032	2052	2114