

## Why is the Growth of this Corn so Variable?

The following photos (A through E) were taken on July 2 when visiting a farmer's pivot at Swanton, Nebraska. The field of corn was planted on April 23 and 24 with DK632 corn. On April 2, the herbicides [Degree Extra](http://www.monsantoag.com/monsanto/ag_products/crop_protection/products/degree.asp) plus [2,4-D](http://www.dowagro.com/ca/prod/frontline-2.htm) and 200 pounds of N were applied. Seven gallons of 10-34-0 starter fertilizer had been applied at planting. Last year, the field was planted to soybeans in 15-inch rows. The concern is that the growth of the corn within the same field is very variable in height and color; in some areas, the foliage even appears somewhat chlorotic.



**Photo A** (to the left) shows the view South from the pivot road. Differences in height and color of the corn are shown; note that in the upper right hand corner, the corn is taller. The farmer noted that the differences were much more striking 1 to 2 weeks before the consultant paid this visit on July 2.



**Photo B.** The height of the corn (compared to the consultant's soil probe) in a "yellow" strip. Corn in these areas was shorter and much lighter green compared to the corn in Photo D below.



**Photo C.** The crop residue is heavier in this photo, taken in the strip of corn corresponding to Photo B on the left.



**Photo D.** The height of the corn (compared to the consultant’s soil probe) in a “green” strip. Corn in these areas was taller and much darker green compared to the corn in Photo B above.



**Photo E.** The crop residue is not as heavy in this photo, taken in the strip of corn corresponding to Photo D on the left.

**Weather Data.** Recorded in Beatrice, NE (40.3 deg latitude, 96.9 deg longitude, 376 m elevation), from April 2 to 9. It can be assumed that conditions in Swanton, NE, were reasonably similar.

Date	High Temp (°F)	Low Temp (°F)	RH (%)	Soil Temp (°F @ 4-in)	Wind Speed (mi/hr)	Solar (langleys)	Precip (inches)
4/21	67.01	37.75	57.4	45.6	10.8	442.4	0
4/3	51.33	39.98	88.6	46.5	13.1	63.6	0.32
4/4	55.72	44.21	82.2	45.8	7.7	120.4	0
4/5	56.68	48.69	99.2	48.7	5.4	67.1	0
4/6	71.06	48.33	91.8	50.9	13.7	98.9	0.03
4/7	74.44	46.27	50.1	54.3	20.6	548.8	0
4/8	84.78	43.10	55.2	54.7	13.0	537.4	2.02
4/9	70.83	44.33	71.4	56.9	9.2	535.4	0

**Soil Test Results.** From soil samples taken on July 2.

Sample ID	1:1 pH	Soluble Salts 1:1 mmhos/cm	Org. Matter LOI-%	NO <sub>3</sub> in	NO <sub>3</sub> ppm N	Bray P1 ppm	K NH <sub>4</sub> O Ac ppm	SO <sub>4</sub> ppm S	Zn DTPA ppm	Fe DTPA ppm	Mn DTPA ppm	Cu DTPA ppm	Ca NH <sub>4</sub> OAc ppm	Mg NH <sub>4</sub> OAc ppm	Na NH <sub>4</sub> OAc ppm
Photo B	6.2	0.49	2.6	0-8	1.6	3	345	14	0.5	44	11	1.1	2871	653	39
				8-24	2.8										
				24-36	4.9										
Photo D	6.1	0.23	2.7	0-8	3.0	5	322	15	0.5	52	15	1.0	2631	504	35
				8-24	6.2										
				24-36	9.7										

**Tissue Analyses.** From leaf samples taken on July 2. No B or Mo results were provided by the lab.

Sample ID	N (%)	P (%)	K (%)	Ca (%)	Mg (%)	S (%)	Fe (ppm)	Mn (ppm)	Cu (ppm)	Zn (ppm)
Photo B	1.86	0.19	2.38	0.39	0.17	0.14	134	35	2.1	11
Photo D	3.29	0.23	2.42	0.57	0.21	0.21	142	56	9.5	19

**Assignment:** As the Ag Consultant, address the following questions.

To what do you attribute the better growth of corn plants in the "green" strips (Photo D)?

What factors contributed to the poor growth and, ultimately, yield of corn in this field?

What do you recommend "at the moment" (on July 6)?

What do you recommend as cultural practices for future crops to ensure better crop yields, and why?