



# Field Challenges Around Kentucky 2012 **JUNE**

Around Kentucky

Last update: June 28, 2012

# CORN



**Short corn, lower leaves yellow**

Mimics K deficiency. The corn is shorter as well. June 5, 2012. Areas of the field had injured corn. The majority of the field looked fine. What was going on here?



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### Short corn, lower leaves yellow

Mimics K deficiency. The corn is shorter as well. June 5, 2012. Digging up some injured plants to examine roots is always a good idea.



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Mimics K deficiency. The corn is shorter as well. June 5, 2012. The damaged plants had a shallow seed placement.



### Short corn, lower leaves yellow

Mimics K deficiency. The corn is shorter as well. June 5, 2012. The seed coat is about ½-inch from the soil surface. The shallow placement hurt root growth in this field. The shallow placement was a result of poor row closure, not seeding depth.



## Paraquat Injury

Casey County, May 31, 2012. The farmer sprayed paraquat in another field. Then, he mixed a tank of glyphosate. This was the area of the field that was first sprayed with the tank of glyphosate... and paraquat.





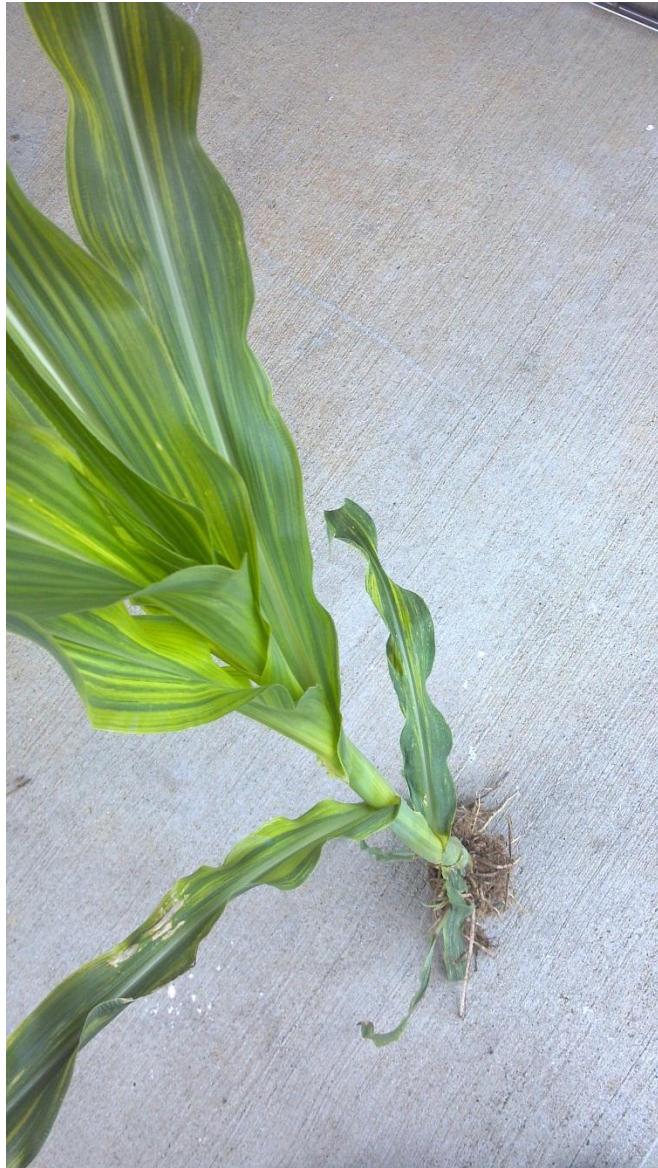
## Paraquat Injury

Casey County, June 5, 2012. The farmer sprayed paraquat in another field. Then, he mixed a tank of glyphosate. The corn on the left was sprayed with that tank. He mixed a second tank of glyphosate. The corn on the right was sprayed with the second tank. There should be no yield loss from the injury on this corn.



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Adair County: The yellow striping was seen on one plant in the field. It may be due to a genetic anomaly, or it may be a complex of nutrient deficiencies. June 7, 2012 photo: Nick Roy

## Striping



## K Deficiency and Compaction

Fleming County, June 8, 2012. Corn showing symptoms of K deficiency. Sidewall compaction in most areas and sub-soil compaction at about 3 to 4 inches are restricting root growth.



## K Deficiency and Compaction

Fleming County, June 8, 2012. Compaction at about 2 inches deep is very visible in this root ball. The layering of the soil at the 2-inch line indicates the compaction.



## K Deficiency and Compaction

Fleming County, June 8, 2012. Imprints from an aerator indicate that the field was worked too wet. Compaction was a problem at about 2 inches deep.



## Corn Defoliation

Corn defoliated 100% on June 4, 2012. Each of the fully emerged leaves were clipped back to the sheath. This image was taken on June 6, 2012.



## Defoliation Trial

This corn was at V7 and defoliated 100% about one week ago. The leaf growth seen here is from the leaves that were packed into the whorl. Photo: June 11, 2012.





### Short corn tasseling

Ballard County, June 14, 2012. Corn is tasseling at a very short height. The nodes are there, but the height is not. Given the lack of rain in that area, corn reaching this stage is remarkable.  
Photo: Tom Miller.



## Variable Corn

Ballard County, June 12, 2012. Corn in the lower areas of the field is taller and about four leaves ahead of corn on the eroded slopes. Photo: Tom Miller



## K Deficiency

June 12, 2012. Ballard County. Corn is displaying corn K deficiency. Lack of water is the reason for the symptoms. There is plenty of  $K_2O$  in the soil. Water is needed to get it to the roots. Photo: Tom Miller.



## Paraquat Drift

Ballard County, June 12, 2012. Corn leaves are speckled from drift of paraquat. The damage is superficial and no yield losses are expected. Photo: Tom Miller.



## N Deficient Corn

The corn is displaying some nitrogen deficiency. There appears to be two problems: 1) slight compaction at about 2 inches deep, and 2) late control of wheat re-growth. All wheat is dead, now, and one more rain should improve this corn greatly. June 14, 2012. Pulaski County. Photo: Chad Lee



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## Herbicide Damage

June 13, 2012. Chaparral damage on corn from spray tank contamination. Photo: Adam Probst.



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## Drought Corn & Irrigated Corn

Daviess County: Non-irrigated corn (left) and irrigated corn (right) from the same field. Both photos were taken from the same point, one looking left and the other looking right. June 25, 2012. Photo; Chad Lee



## Drought Corn

Henderson County. This soil does not hold water very well and most of the field is irrigated. Farmers in this area have already watered as much as they normally do all season. We have about 30 days of seed fill to complete. Corn here is at blister (R2). June 25, 2012. Photo: Chad Lee





## Drought Corn & Irrigated Corn

Henderson County. Both ears are from the same hybrid, same field. The bottom ear was not irrigated and the top ear was irrigated. Corn is at the milk stage (R3). June 25, 2012. Photo: Chad Lee.



## Drought Corn

Larue County: This corn is at R1 and on a Nolin soil with no restrictions for several feet. Two passes of vertical tillage this spring removed soil moisture from the upper two inches of soil. June 26, 2012. Photo: Chad Lee



## Drought Corn and Populations

Hardin County. This corn is part of a population study. The higher populations are showing the greatest drought stress. June 26, 2012. Photo: Chad Lee



## Dew in the Morning

Fayette County. About the only water this corn has seen the last few weeks has come in the form of dew. June 27, 2012. Photo: Chad Lee

# Sugar Demand of the Crop

Crop	Glucose Needed to produce one Bushel
	lbs of Glucose
Corn	77.9
Soybean	119.3

- **50** bushels of soybeans requires about 5,965 lbs of glucose
- **200** bushels of corn requires about 15,580 lbs of glucose

Some people are promoting the application of sugar to a field to help overcome drought conditions. Here are some calculations to help make that decision.

Connor, Loomis and Cassman. 2011. Crop Ecology: Productivity and Management in Agricultural Systems. Cambridge University Press. New York. (p. 297-299)

# The sugar will help the soil microbes

- Bacteria: there may be 2,000 lbs of bacteria in each acre of soil. †
- Fungi: mychorrhizal fungi help bring nutrients (P, N, and some micronutrients) to the plant. †
- One foliar product recommends 16 to 24 ounces of sugar. Is that enough sugar to feed all the bacteria and fungi?

†Ingham, E.R. *Soil Biology. The Soil Biology Primer.*  
[http://soils.usda.gov/sqi/concepts/soil\\_biology/bacteria.html](http://soils.usda.gov/sqi/concepts/soil_biology/bacteria.html)

# The cost of sugar

- \$6.00/acre
  - Foliar product (34% sugar) is marketing 16 fl oz of product (5.44 oz of sugar) for \$6/acre.
- \$11.26/acre
  - Karo corn syrup (10% sugar) at 54.4 fl oz (5.44 oz of sugar) is about \$11.26/acre. (based on \$26.50/gallon)
- \$0.12/acre
  - Corn sugar, HFCS is 76% sugar. 6 fl oz/A of corn sugar (or 12 fl oz of 38% sugar) = \$0.12/A

# Calculations for bulk Corn Sugar

- Bulk Price:
  - Corn Sugar (HFCS) in bulk (24% water + 55% fructose + 42% glucose) costs up to \$700 / Metric Ton
  - 1 metric ton = 1,000 kg  $\approx$  1,000 L  $\approx$  33,814 fl oz
  - So, \$700 Metric Ton  $\approx$  \$0.02 / fl oz of corn sugar
- Per Acre Rate:
  - Corn sugar is 76% sugar. If cut in half with water, the solution is 38% sugar
  - 6 fl oz/A of corn sugar (or 12 fl oz of 38% sugar) = \$0.12/A



# SOYBEAN



## N Burn on Soybean Roots?

Manure was injected into these fields and would have included a lot of nitrogen. The dry conditions contributed to the burn. Also, the slits created by the injector would have dried out the soil in those parts of the field. June 7, 2012. Photo: Cam Kenimer



## N Burn on Soybean Roots?

Fulton County. Manure was injected into these fields and would have included a lot of nitrogen. The dry conditions contributed to the burn. Also, the slits created by the injector would have dried out that soil in those parts of the field. June 7, 2012. Photo: Cam Kenimer



## N Burn on Soybean?

Fulton County. Root growth appears limited, but based on this image alone, it would be difficult to determine the culprit. The other images from this field point to the manure injection. June 7, 2012. Photo: Cam Kenimer



June 14, 2012. Lincoln County. Speckled leaves on the lower trifoliolate leaves. The speckling resembles herbicides such as Cobra or Flexstar, or ozone damage, or even salt damage. No herbicide similar to Cobra or Flexstar was applied. No foliar products were applied. The growing points are good and the soybeans should escape this injury.

## Speckled Leaves



## Speckled and Yellow Leaves

Pulaski County. Speckled leaves. Not a disease. No signs of webs and spider mites. No foliar herbicides, fertilizers, etc. We are seeing a lot of speckling on soybean leaves, even in fields where nothing has been sprayed over the top. Most all of these fields have “grown out” of the injury. So, we wait and see what develops here. June 27, 2012.  
Photo: Jeff Hawk

# WHEAT