

2008 Grain Systems Trial

Conditions at Aurora were good for corn and soybeans in 2008. We had good stands and weed control in all systems except G4.

Crop	Corn	Soybeans
System 1	164	47
System 2	165	44
System 3	171	43
System 4	-	24
System 5	155	42

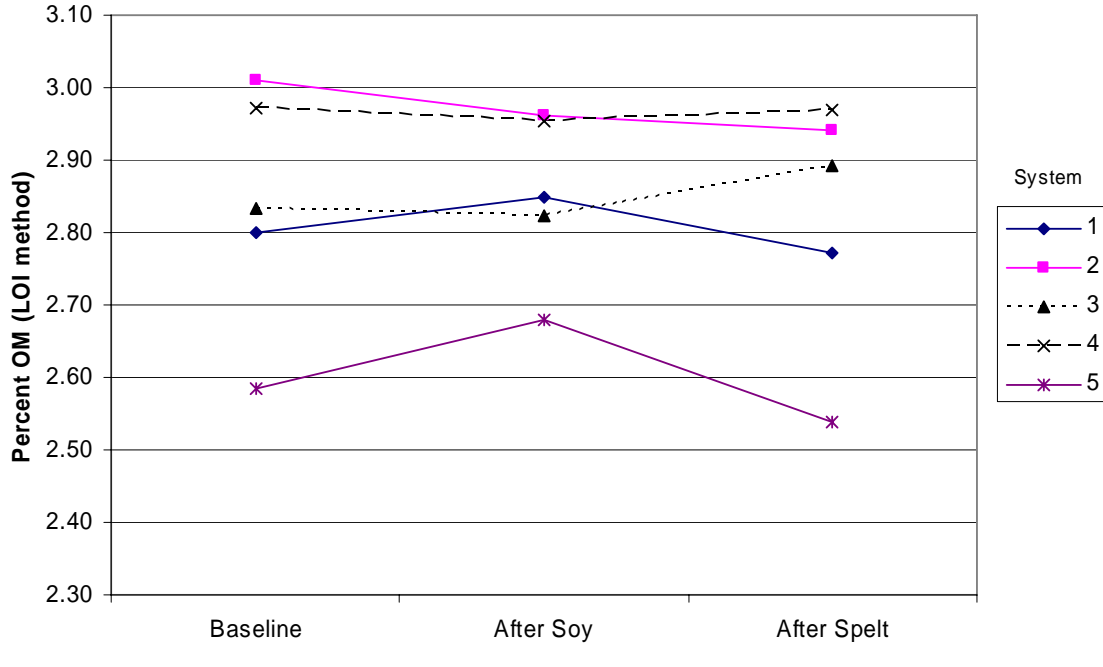
Yields (bu/acre)

Soil organic matter has shown some suggestive trends over the 4 seasons, though more time will be needed to see if they are definitive. SOM levels are generally the same or decreasing somewhat over time in all systems in the 0-8" slice, except for G3. In the 0-12" slice there is evidence that SOM is rising in G1 and G3. The chemical system, G5, shows a decline even though one might expect SOM to be stable in this system, since methods have changed little from those used before the trial was established.

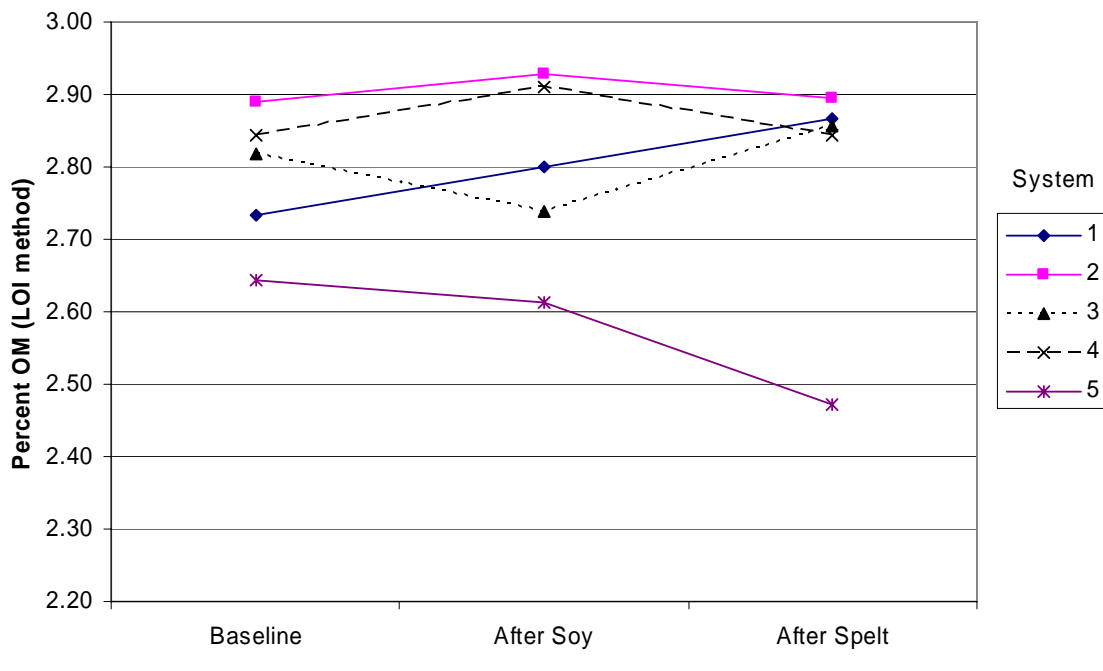
Soil K levels appear to be declining over time in all systems, even those that received extra K fertilizer. Similar trends are appearing for most other nutrients, except for P, which is holding steady or increasing slightly. pH has risen on the order of 0.3 points in all systems. These trends are hard to explain and need more analysis.

Thus far, the low input system has performed the best economically (preliminary results, data not ready yet). However, it seems clear that extra fertility on the spelt is worthwhile. It remains to be seen whether more effort on weed control will pay off in future years, as perennial weeds in particular are spreading through the plots. Similarly, if nutrient levels are really decreasing, there will come a point where extra K and other nutrients will need to be added to maintain good yields.

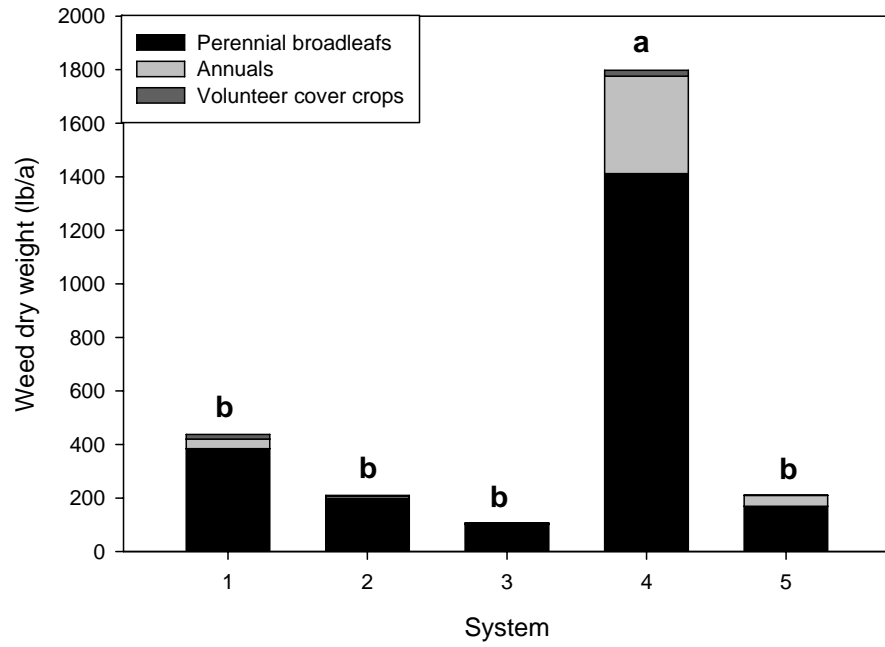
Soil Organic Matter Values (Both Entry Points), 0-8"



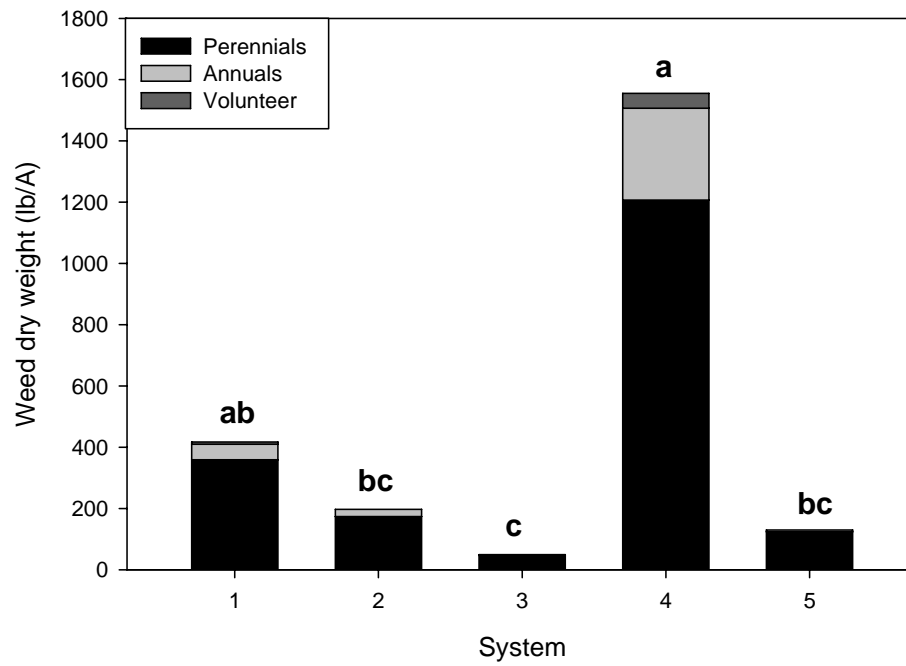
Soil Organic Matter Levels (Both Entry Points), 0-12"



Weed biomass in soybean, 2008



Weed biomass in corn, 2008



Changes from 2005 to 2008 in overall density and percentage of plots in which the species was found in one or more of the four 0.5 m² sample quadrats.

Species	Density (m ⁻²)		% of Plots		Notes
	2005	2008	2005	2008	
Common ragweed	1.9	3.5	78	100	?*
Foxtail (mostly giant)	0.4	0.5	25	50	?
Canada thistle	0.0	4.7	0	40	Problem
Perennial sowthistle	0.1	6.6	8	70	Problem
Hedge bindweed	0.5	2.0	15	58	Problem
Smooth groundcherry	0.6	1.8	40	80	?
Horsenettle	0.4	1.1	30	60	?
Tall goldenrod	0.1	0.2	15	15	OK
Yellow nutsedge	5.4	1.7	80	80	Good#

Only ragweed and yellow nutsedge were sufficiently widespread in 2005 to allow statistical comparison of density in 2005 and 2008.

* Ragweed shows a entryXyear interaction: more in A than B in 2005 but the reverse in 2008. YearXsystem was also significant

Yellow nutsedge shows an entryXyear interaction: more in B than A in 2005 but the reverse in 2008 (opposite pattern to ragweed). sysXyear