



Hail / Frost Study – 2008

Planted: May 5, 2008
Harvested: October 20, 2008
Population: 34,000 seeds/A.
Rows: Four 30" rows
Previous Crop: Corn

Tillage: Chisel / Field Cultivator
Herbicide: SureStart
 Roundup Original Max
Insecticide: None
Product Tested: BECK 5444VT3

RAINFALL	
April	1.88 in.
May	6.41 in.
June	4.44 in.
July	7.05 in.
August	<u>0.91 in.</u>
Total	20.69 in.

Purpose: To simulate and evaluate both frost and hail environments in BECK 5444VT3. Frost simulations were made at V2 with a propane burner to monitor crop response of plant health, death loss, and recovery. Hail simulations were made beginning at V6 and ended at the blister growth stage. Hail damage was manually created by hand stripping leaves from the corn plant along with the use of a weed whacker to simulate bruising on the stalk and ears.

Timing / Degree of Damage	Test* Weight	Percent Moisture	Bushels* Per Acre	Bu./A. Difference	% of Control (Bu./A.)
Control	58.0	19.7	221.0		
V2 Frost / 25% Damage	59.0	21.5	217.8	-3.2	98.6
V2 Frost / 50% Damage	58.0	20.6	218.0	-3.0	98.6
V2 Frost / 75% Damage	58.0	20.8	216.9	-4.1	98.1
V2 Frost / 100% Damage	58.0	20.4	216.8	-4.2	98.1
Control	59.0	19.7	226.3		
V6 Hail / Low Damage	58.0	20.0	226.7	0.4	100.2
V6 Hail / Medium Damage	58.0	20.1	221.7	-4.6	98.0
V6 Hail / High Damage	58.0	19.6	198.9	-27.4	87.9
Control	59.0	19.7	198.7		
V12 Hail / Low Damage	58.0	19.3	183.7	-15.0	92.5
V12 Hail / Medium Damage	57.0	18.1	167.9	-30.8	84.5
V12 Hail / High Damage	57.0	17.2	114.6	-84.1	57.7
Control	59.0	19.0	198.7		
V14 Hail / Low Damage	58.0	18.5	188.5	-10.2	94.9
V14 Hail / Medium Damage	58.0	17.8	182.3	-16.4	91.7
V14 Hail / High Damage	57.0	18.1	126.5	-72.2	63.7
Control	59.0	20.9	211.9		
VT Hail / Low Damage	59.0	21.7	192.0	-19.9	90.6
VT Hail / Medium Damage	59.0	22.7	189.0	-22.9	89.2
VT Hail / High Damage	57.0	20.1	106.5	-105.4	50.3
Control	58.0	20.6	252.9		
Blister Hail / Low Damage	58.0	19.2	246.1	-6.8	97.3
Blister Hail / Medium Damage	57.0	19.2	220.6	-32.3	87.2
Blister Hail / High Damage	<u>57.0</u>	<u>19.2</u>	<u>134.3</u>	-118.6	53.1
AVERAGE	58.0	19.7	195.1		

*Bushels per acre and test weight corrected to 15% moisture.



Simulation: Heavy Hail Damage at Tassel Stage



Simulation: Heavy Hail Damage at Blister Stage



Hail / Frost Study – Continued

Summary: Frost damage at V2 gave only a 3 - 4 Bu./A. average loss, proving that in some situations, corn can withstand frost damage and recover nicely before the V3 growth stage. We had planned for a V3 and V4 frost simulation, but with the wet spring conditions, planting of other plots took precedence over the later frost simulations.

Hail defoliations showed the worst yield losses at the Blister growth stage revealing almost a 120 Bu./A. yield loss. This yield represented only 53% of the control yield. The early V6 hail simulation gave a 0.4 Bu./A. - 27 Bu./A. loss, showing that the corn recovered nicely at the low and medium defoliations, but the high defoliation did result in a 27 Bu./A. yield loss. Hail damage at the VT growth stage showed over 20 Bu./A. of yield loss at low – medium defoliation and over 100 Bu./A. loss at the high VT damage timing.

Overall the hail simulations showed that corn can recover from hail damage at various growth stages and damage levels. For corn at V12 stage and later, high rates of defoliation can significantly reduce yield by removing green tissue and photosynthetic capability.



Corn Tillage Study – 2008

Planted: May 5, 2008
Harvested: October 23, 2008
Rows: Twenty Four 30" rows
Seeding Rate: 34,000 seeds/A.

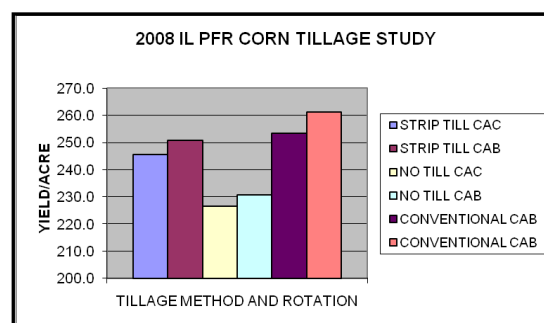
Previous Crop: Corn
Tillage: Various
Herbicide: Roundup Original Max
 SureStart
Product Tested: BECK 5684VT3

RAINFALL	
April	1.88 in.
May	6.41 in.
June	4.44 in.
July	7.05 in.
August	0.91 in.
Total	20.69 in.

Purpose: To evaluate different forms of tillage in both 1st year and continuous corn rotations. Tillage methods included No-Till, Strip-Till, and Conventional-Till. Conventional-Till consisted of deep chisel plowing in the fall followed by two field cultivator passes in the spring. Strip-Till was completed with a Case IH 5310 Strip-Till toolbar in the fall, and the No-Till consisted of a JD 7200 planter equipped with No-Till cutters and residue cleaners.

Tillage	Test* Weight	Percent Broken Stalks	Percent Moisture	Bushels* Per Acre
Strip-Till CAC	57.0	1.0	20.8	245.6
Strip-Till CAB	57.0	1.0	21.3	250.6
No-Till CAC	57.0	1.0	20.4	226.7
No-Till CAB	57.0	1.0	21.0	230.7
Conventional-Till CAC	57.0	1.0	22.4	253.3
Conventional-Till CAB	57.0	1.0	22.2	261.1

*Bushels per acre and test weight corrected to 15% moisture.



Summary: In such a wet spring like we had, we thought for sure that Strip-Till and No-Till would have a clear advantage due to field cultivators working wet soils and creating soil density layers. Fortunately for Conventional-Till, it kept raining throughout the growing season. Strip-Till had a few areas where erosion was a concern from water washing out the strips. Both the No-Till and Strip-Till planted excellent and quite honestly we expected them to yield better than what they did. A corn fungicide was not applied to any of these treatments, which may explain some of the yield advantage for Conventional-Till.

Continuous corn yielded on average 5.6 Bu./A. less than 1st year corn.