

**Mechanical Shredding Comparison of Corn for No-Till Wheat**  
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**Objective:**

This study compares different methods and timing of mechanical shredding of corn stalks of different corn maturities against no shredding and no corn residue and their effect on no-till wheat planting for the 97-98 growing season.

**Methods:**

The study was located at Princeton, Ky. on a moderately well drained Zanesville silt loam. The previous crop was corn and the early variety (Pioneer 3394) yielded 181 bu./ac. and the late variety (Pioneer 3167) yielded 154 bu./ac. All crops were planted no-till (wheat and corn). Pioneer 2545 wheat was planted at 35 seeds/sq. ft. in 10 ft. X 50 ft. plots. The soil test was pH - 6.3, P - 35, and K - 150 and 0-90-60 lb/ac. of N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O was added prior to wheat planting. Gramoxone was applied after planting and a total of 120 lbs/ac. of N was applied with ½ on Feb. 9 and ½ on March 20. Harmony Extra was applied on March 30 and Tilt on May 1.

***Research Treatments***

1. Remove all corn residue and plant into clean residue conditions (full season corn).
2. Plant at an angle into standing harvested corn stalks (full season corn).
3. Plant directly into standing corn residue, not angled (full season corn).
4. Plant directly into standing corn residue, not angled (early season corn).
5. Rotary mow corn residue after harvest and plant into mowed residue (full season corn).
6. Flail mow corn residue after harvest and plant into mowed residue (full season corn).

7. Plant directly into standing harvested corn and flail mow after planting (full season corn).

8. Flail mow corn residue after harvest and plant into mowed residue (early season corn).

### **Results:**

All treatments resulted in 85-95% of residue cover after planting except for the treatment where all residue was removed.

Wheat stands are seen in the following table. Stands were highest where all residue was removed. Flail shredding after corn harvest resulted in the next best treatment regardless of corn maturity. A step below this was rotary mowing of stalks, planting diagonally in standing corn residue and planting with the rows of the early variety of standing corn stalks. By far, the worst stands were planting with the rows of the late variety of corn and flail shredding after planting.

The two best looking treatments during the growing season was 1) all residue removed and 2) flail shredding of early maturing corn.

The yields of the treatments ranged from 54 to 62 bu/ac with almost no statistical difference among the treatments. The yields were low due to the freeze and high May temperatures and were not high enough to allow separation of the better treatments. In fact, some of the better treatments in terms of stands and early growth were not among the highest yielding.

### **Effect of Residue Management on Wheat Stand in November**

<b>Treatment</b>	<b>Corn Maturity</b>	<b>Wheat Stand (Plants/sq ft)</b>
1. Removed all corn residue	Full	26.8 a
2. Residue behind combine (as is) diagonally planted	Full	21.4 cd
3. Residue behind combine (as is)	Full	16.7 e
4. Residue behind combine (as is)	Early	20.0 d
5. Rotary mowed after harvest	Full	21.2 cd
6. Flaied after harvest	Full	24.3 b
7. Flaied after wheat planting	Full	17.9 e
8. Flaied after harvest	Early	22.4 c

### ***Double-Cropped Soybean Stands***

Double-cropped soybeans were planted after wheat harvest and the best stands were achieved where wheat had been planted diagonally behind standing corn residue.

### **Conclusions:**

This is only the first year of this experiment, so results may change with time. Stands were best when all residue was removed, but flail shredding of corn after harvest gave similar results and appeared to be an excellent alternative. Flail shredding was better than rotary mowing or planting into standing corn residue. The worst treatment in all respects was flail shredding after wheat planting.