

# Morley Wheat Establishment Trials 1999-2002



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## BACKGROUND

- At the time of this trial, non-inversion tillage was growing in popularity, as UK farmers sought ways to reduce the cost of crop establishment.
- In the summer of 1999, Farm Manager at Stanaway Farm, Otley, owned by The Fenix Thorney Agricultural Trust decided to start a trial to run over a number of years to assess the merits of differing crop establishment methods on the heavy clay soil found on the farm in Suffolk, England.
- James, being closely affiliated to Morley Research Centre asked them to oversee the trial on his behalf.
- In autumn 2000, a light land sight at Bawburgh in Norfolk was brought into the trial to allow a comparison between differing soil types.

## METHOD

- The trial was performed on a field scale, non-replicated plots.
- All previous crop residues were chopped and incorporated.
- Soil type Otley: Clay, Hanslope series
- Soil type Bawburgh: Light sandy loam
- All drill manufacturers were responsible for providing drill, tractor and operator, on the designated drilling date.
- All manufacturers drilled on the same date.
- At the Otley site, yields were recorded in 2000, 01 and 02.
- At the Bawburgh site, yields were recorded in 2001 and 2002 only.

## RESULTS

Otley Harvest 2000	1st Wheat			2nd Wheat			Mean
	1st direct	1st min-till	1st Conventional	2nd direct	2nd min-till	2nd Conventional	
Simba Freeflow	8.32	9.81	9.62	0.00	6.54	7.80	7.02
Horsch CO	9.00	10.29	9.95	0.00	6.94	7.95	7.36
Vaderstad Rapid	9.55	10.52	10.13	7.85	7.99	8.06	9.02
JD750A	9.17	10.39	9.65	5.35	7.42	7.70	8.28
<b>Mean</b>	<b>9.01</b>	<b>10.25</b>	<b>9.84</b>	<b>3.30</b>	<b>7.22</b>	<b>7.88</b>	<b>7.92</b>

Otley Harvest 2001	1st Wheat			2nd Wheat			Mean
	1st direct	1st min-till	1st Conventional	2nd direct	2nd min-till	2nd Conventional	
Simba Freeflow	10.07	10.19	10.57	N/A	N/A	N/A	10.28
Horsch CO	9.54	10.04	10.72	N/A	N/A	N/A	10.10
Vaderstad Rapid	8.88	10.22	11.30	N/A	N/A	N/A	10.13
JD750A	10.62	10.89	10.56	N/A	N/A	N/A	10.69
<b>Mean</b>	<b>9.78</b>	<b>10.34</b>	<b>10.79</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10.30</b>

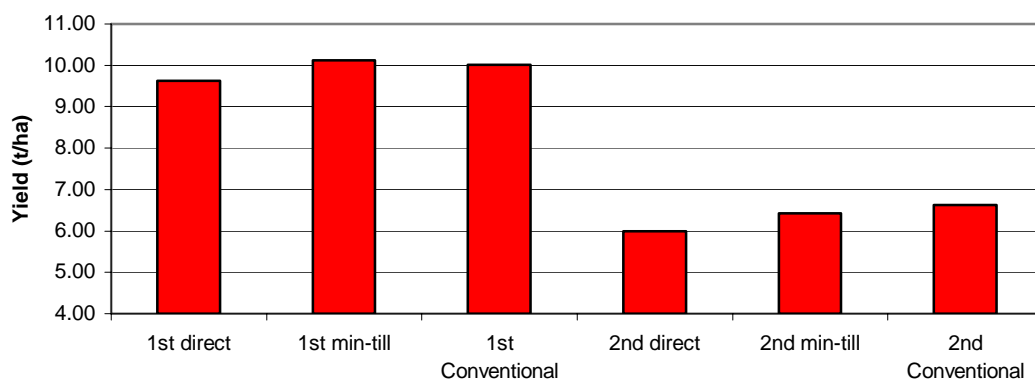
Otley Harvest 2002	1st Wheat			2nd Wheat			Mean
	1st direct	1st min-till	1st Conventional	2nd direct	2nd min-till	2nd Conventional	
Simba Freeflow	9.37	9.55	9.08 N/A	6.49	7.09		6.93
Horsch CO	9.36	9.16	9.24 N/A	6.84	6.13		6.79
Vaderstad Rapid	10.08	9.76	10.37 N/A	6.06	5.40		6.95
JD750A	9.06	8.97	8.12 N/A	6.39	6.23		6.46
<b>Mean</b>	<b>9.47</b>	<b>9.36</b>	<b>9.20</b>	<b>0.00</b>	<b>6.45</b>	<b>6.21</b>	<b>6.78</b>

Bawburgh Harvest 2001	1st Wheat			2nd Wheat			Mean
	1st direct	1st min-till	1st Conventional	2nd direct	2nd min-till	2nd Conventional	
Simba Freeflow	9.29	8.78	10.15	0.00	8.90	9.99	7.85
Horsch CO	10.06	9.79	9.89	9.92	9.92	9.58	9.86
Vaderstad Rapid	9.40	10.00	9.71	8.06	8.06	8.24	8.91
JD750A	8.21	10.87	10.12	8.56	8.56	9.74	9.34
<b>Mean</b>	<b>9.24</b>	<b>9.86</b>	<b>9.97</b>	<b>6.64</b>	<b>8.86</b>	<b>9.39</b>	<b>8.99</b>

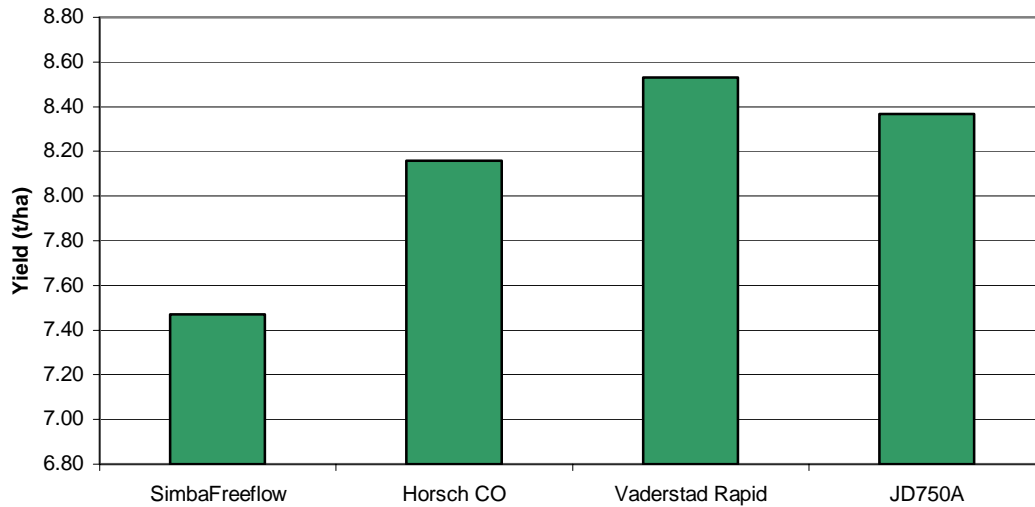
Bawburgh Harvest 2002	1st Wheat			2nd Wheat			Mean
	1st direct	1st min-till	1st Conventional	2nd direct	2nd min-till	2nd Conventional	
Simba Freeflow	10.28	11.07	10.02	6.97	9.94	9.91	9.70
Horsch CO	10.92	10.35	9.87	8.15	9.33	9.42	9.67
Vaderstad Rapid	10.91	10.93	9.97	8.21	9.78	9.08	9.81
JD750A	10.42	10.65	11.13	8.82	9.49	8.55	9.84
<b>Mean</b>	<b>10.63</b>	<b>10.75</b>	<b>10.25</b>	<b>8.04</b>	<b>9.64</b>	<b>9.24</b>	<b>9.76</b>

MEAN	1st Wheat			2nd Wheat			Mean
	1st direct	1st min-till	1st Conventional	2nd direct	2nd min-till	2nd Conventional	
Simba Freeflow	9.47	9.88	9.89	2.32	6.35	6.93	7.47
Horsch CO	9.78	9.93	9.93	6.02	6.55	6.74	8.16
Vaderstad Rapid	9.76	10.29	10.30	8.04	6.46	6.35	8.53
JD750A	9.50	10.35	9.92	7.58	6.37	6.50	8.37
<b>Mean</b>	<b>9.63</b>	<b>10.11</b>	<b>10.01</b>	<b>5.99</b>	<b>6.43</b>	<b>6.63</b>	<b>8.13</b>

Average Yield Achieved on Both Sites in All Years



**Average Yield Achieved Over Both Sites in All Seasons**



## **CONCLUSIONS**

1. There are many factors that affect crop establishment
  - a. Season
  - b. Soil type
  - c. Tillage method
  - d. Drill type
  - e. Previous crop typeto name a few of them.
2. In a 1<sup>st</sup> wheat situation, a minimum tillage regime will often out perform a plough-based one.
3. In 2<sup>nd</sup> wheat the plough-based system is likely to produce a larger yield than the minimum tillage policy.
4. Establishment method does not have such a large affect on wheat yield as might be initially expected.