Flax Variety Evaluation Under an Organic Production System Fertile – Polk County

Cooperators: Jim and Pat Todahl
Nearest Towns: Fertile
Soil Type: Flaming sandy loam
Tillage: Fall chiseled, spring cultivated
Previous Crop: Soybean
Planting Date: 5-12-05 first planting and 5-23-05 second planting
Row Width: 6 inches
Fertilizer: 3 ton/a turkey manure, fall 2004
Swathing Date: 8-10-05 - 8-19-05
Harvest Date: 8-24-05 - 9-2-05
Experimental Design: Split plot with planting dates as main plots and flax treatments as sub-plots arranged in a randomized complete block with 4 replications.

Purpose of study:
To evaluate flax varieties underseeded with legumes and control plots for differences in maturity, height, biomass, production of flax, legume and weeds and yield.

Results:
The first planting date (5-12-05) yielded significantly more than the later (5-23-05) planted flax. There were significantly more weeds at the second planting date. The legume biomass was low due to poor emergence and competition from the flax and weeds. The hand weeded Norlin yielded 21.3 bushel compared with the weedy Norlin which yielded 12.1 bushel. Carter yielded significantly more than York, Bethune and Hanley.

<table>
<thead>
<tr>
<th>Planting Date</th>
<th>8-10-05 Brown Bolls</th>
<th>Harvest Population per ft² (plants)</th>
<th>Height at Harvest (inch)</th>
<th>Flax Biomass per ft² (gram)</th>
<th>Legume Biomass per ft² (gram)</th>
<th>Weeds Biomass per ft² (gram)</th>
<th>Total Biomass per ft² (gram)</th>
<th>Weeds In total Biomass (%)</th>
<th>Yield¹ (bu/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date 1</td>
<td>75</td>
<td>33.8</td>
<td>23.8</td>
<td>45.4</td>
<td>1.0</td>
<td>27.7</td>
<td>74.1</td>
<td>38</td>
<td>18.0</td>
</tr>
<tr>
<td>Date 2</td>
<td>38</td>
<td>29.1</td>
<td>23.2</td>
<td>29.4</td>
<td>1.4</td>
<td>33.8</td>
<td>64.5</td>
<td>53</td>
<td>8.8</td>
</tr>
<tr>
<td>LSD 0.05</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>10.2</td>
<td>NS</td>
<td>NS</td>
<td>9.0</td>
<td>13</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Treatment
- Norlin hand weeded³: 66
- Norlin (+Red clover): 56
- Norlin (+White clover): 55
- Norlin weedy: 55
- Carter² (+Red clover): 54
- York (+Red clover): 38
- Bethune (+Red clover): 63
- Hanley (+Red clover): 68

LSD 0.05: 12.5

¹Corrected to 9% moisture and 56 lb testweight.
²Carter has a yellow seed coat.
³Weeds were controlled until crops started to bloom.

Funding: Northwest Regional Partnership
For additional information: Hans Kandel and Paul Porter