

**NDSU Carrington Research Extension Center**

**2006**

**Influence of Starter Fertilizer on Soybean Performance - Field Q-9C**

\*\* The objective of this trial was to determine the influence of varied rates of starter fertilizer placed in the seed furrow on stand establishment.

\*\* The trials row spacing was 7 inches, trial was planted on May 24, and soil moisture conditions after planting were fair to good.

**Table 1. Soybean performance as influenced by starter fertilizer.**

**\*\*\* Plant Establishment \*\*\***

| <b>Starter Fertilizer</b> | <b>Equivalent</b> | <b>Yield</b> | <b>Test</b>   | <b>Seed</b>    | <b>Seed</b> | <b>Seeds /</b> | <b>Days to</b> | <b>Pod Ht</b> | <b>Initial</b>                | <b>Final</b>                  | <b>Stand %</b>  | <b>Visual</b> |
|---------------------------|-------------------|--------------|---------------|----------------|-------------|----------------|----------------|---------------|-------------------------------|-------------------------------|-----------------|---------------|
| <b>Salts</b>              | <b>11-52-0</b>    | <b>bu/ac</b> | <b>Weight</b> | <b>Protein</b> | <b>Oil</b>  | <b>Pound</b>   | <b>PM</b>      | <b>cm</b>     | <b>plants ft<sup>-2</sup></b> | <b>plants ft<sup>-2</sup></b> | <b>of Check</b> | <b>Asses.</b> |
| lbs/acre                  | lbs/acre          | bu/ac        | lb/bu         | %              | %           |                |                |               |                               |                               |                 | %             |
| 0                         | 0                 | 37.7         | 56.1          | 36.9           | 19.0        | 2926           | 110.9          | 6.7           | 3.6                           | 3.4                           | 100             | 91            |
| 5                         | 45                | 38.6         | 55.8          | 36.7           | 18.9        | 2793           | 110.6          | 7.3           | 2.8                           | 2.4                           | 71              | 83            |
| 10                        | 91                | 31.4         | 56.1          | 37.4           | 19.0        | 2949           | 110.9          | 6.1           | 2.2                           | 2.6                           | 76              | 75            |
| 15                        | 136               | 37.0         | 55.9          | 36.9           | 19.0        | 2837           | 111.6          | 7.5           | 2.0                           | 2.4                           | 71              | 72            |
| LSD.05                    |                   | 4.6          | NS            | NS             | NS          | NS             | NS             | NS            | 0.3                           | 0.6                           |                 | 8.2           |
| LSD.01                    |                   | NS           | NS            | NS             | NS          | NS             | NS             | NS            | 0.4                           | 0.9                           |                 | 11.1          |

**Table 2. Soybean performance as influenced by variety.**

**\*\*\* Plant Establishment \*\*\***

| <b>Variety</b>      | <b>Seed Size</b> | <b>Yield</b> | <b>Test</b>   | <b>Seed</b>    | <b>Seed</b> | <b>Seeds /</b> | <b>Days to</b> | <b>Pod Ht</b> | <b>Initial</b>                | <b>Final</b>                  | <b>Visual</b> |
|---------------------|------------------|--------------|---------------|----------------|-------------|----------------|----------------|---------------|-------------------------------|-------------------------------|---------------|
|                     |                  | <b>bu/ac</b> | <b>Weight</b> | <b>Protein</b> | <b>Oil</b>  | <b>Pound</b>   | <b>PM</b>      | <b>cm</b>     | <b>plants ft<sup>-2</sup></b> | <b>plants ft<sup>-2</sup></b> | <b>Asses.</b> |
|                     |                  | bu/ac        | lb/bu         | %              | %           |                |                |               |                               |                               | %             |
| NuTech Seed NT-078  | Large            | 42.6         | 56.0          | 36.4           | 19.1        | 2812           | 112.2          | 7.5           | 3.0                           | 2.6                           | 88            |
| Kruger K-072 RR     | Medium           | 34.6         | 55.9          | 36.8           | 18.9        | 2921           | 114.4          | 6.9           | 2.3                           | 3.0                           | 73            |
| Gold Country 923 RR | Small            | 30.8         | 56.0          | 37.8           | 18.9        | 2901           | 105.9          | 6.2           | 2.7                           | 2.6                           | 80            |
| LSD.05              |                  | 3.8          | NS            | 0.8            | NS          | NS             | 1.1            | NS            | 0.2                           | NS                            | 6.7           |
| LSD.01              |                  | 5.1          | NS            | 1.1            | NS          | NS             | 1.5            | NS            | 0.3                           | NS                            | 9.1           |

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Table 3. Soybean performance as influenced by interaction of variety and starter fertilizer.

\*\*\* Plant Establishment \*\*\*

| Variety                                     | Starter  | Yield | Test   | Seed    | Seed Oil | Seeds / | Days to | Pod Ht | Initial                 | Final                   | Stand %<br>of Check | Visual<br>Asses. |
|---|----------|-------|--------|---------|----------|---------|---------|--------|-------------------------|-------------------------|---------------------|------------------|
|   | Salts    |       | Weight | Protein |          | Pound   | PM      |        | plants ft <sup>-2</sup> | plants ft <sup>-2</sup> |                     |                  |
|   | lbs/acre | bu/ac | lb/bu  | %       | %        |         |         | cm     |                         |                         |                     |                  |
| NuTech Seed NT-078<br><i>2413 seeds/lb</i>  | 0        | 38.0  | 55.8   | 36.0    | 19.6     | 2889    | 112.0   | 6.7    | 3.8                     | 3.2                     | 100                 | 95               |
|   | 5        | 45.9  | 56.0   | 36.6    | 18.7     | 2834    | 110.7   | 8.0    | 3.2                     | 2.5                     | 78                  | 90               |
|   | 10       | 42.0  | 56.2   | 37.3    | 18.7     | 2766    | 113.3   | 8.0    | 2.6                     | 2.6                     | 81                  | 85               |
|   | 15       | 44.5  | 56.1   | 35.7    | 19.5     | 2758    | 112.7   | 7.3    | 2.4                     | 2.0                     | 63                  | 82               |
| Kruger K-072 RR<br><i>3255 seeds/lb</i>     | 0        | 40.4  | 56.0   | 37.0    | 18.6     | 2954    | 114.3   | 7.0    | 3.0                     | 3.8                     | 100                 | 80               |
|   | 5        | 37.4  | 55.7   | 36.0    | 19.3     | 2776    | 115.7   | 7.7    | 2.6                     | 2.6                     | 68                  | 80               |
|   | 10       | 26.7  | 56.1   | 37.1    | 19.0     | 3047    | 113.3   | 5.7    | 1.8                     | 2.7                     | 71                  | 67               |
|   | 15       | 34.1  | 55.7   | 37.1    | 18.6     | 2908    | 114.3   | 7.3    | 1.7                     | 2.7                     | 71                  | 65               |
| Gold Country 923 RR<br><i>3988 seeds/lb</i> | 0        | 34.6  | 56.3   | 37.7    | 19.0     | 2934    | 106.3   | 6.3    | 3.9                     | 3.3                     | 100                 | 97               |
|   | 5        | 32.6  | 55.7   | 37.7    | 18.7     | 2770    | 105.3   | 6.3    | 2.5                     | 2.2                     | 67                  | 78               |
|   | 10       | 25.5  | 56.0   | 37.8    | 19.1     | 3033    | 106.0   | 4.7    | 2.2                     | 2.4                     | 73                  | 73               |
|   | 15       | 30.3  | 55.8   | 37.7    | 18.9     | 2848    | 106.0   | 8.0    | 1.8                     | 2.5                     | 76                  | 68               |
|   |          | NS    | NS     | NS      | NS       | NS      | NS      | NS     | NS                      | NS                      |                     | NS               |
| LSD.05                                      |          | NS    | NS     | NS      | NS       | NS      | NS      | NS     | NS                      | NS                      |                     | NS               |

Table 4. Analysis of variance for sources of variation and traits reported.

\*\*\* Plant Establishment \*\*\*

| Source of Variation          | Yield | Test<br>Weight | Seed<br>Protein | Seed Oil | Seeds /<br>Pound | Days to<br>PM | Pod Ht | Initial | Final | Visual<br>Asses. |
|------------------------------|-------|----------------|-----------------|----------|------------------|---------------|--------|---------|-------|------------------|
| Variety                      | **    | NS             | **              | NS       | NS               | **            | NS     | **      | NS    | **               |
| Starter Fertilizer           | *     | NS             | NS              | NS       | NS               | NS            | NS     | **      | **    | **               |
| Variety * Starter Fertilizer | NS    | NS             | NS              | NS       | NS               | NS            | NS     | NS      | NS    | NS               |
| Mean                         | 36.2  | 56             | 37.0            | 19.0     | 2877             | 111.0         | 6.9    | 2.6     | 2.7   | 80.3             |
| C.V. %                       | 12.3  | 1.1            | 2.7             | 3.0      | 9.6              | 1.1           | 41.2   | 10.8    | 22.7  | 9.8              |