The Sugarbeet Advancement Committee is pleased to provide the fifth On-Farm Sugar Beet Research and Demonstration Report. This report will be a valuable tool in helping you make production decisions that will improve profitability of your sugar beet enterprise. In spite of the driest mid-season drought on record, average yields of over 19 tons per acre were achieved. The resiliency of sugar beets under adverse growing conditions demonstrates the importance of beets in the rotation. Improved management practices such as variety selection, leaf spot control, and stand establishment are key stabilizers of sugar beet yields. Sugarbeet Advancement research and demonstration efforts have certainly played a significant role in improving yields. With continued grower and company investment in research, we expect our sugar industry profits will continue to improve.

As you study the 2001 research demonstration results, pay particular attention to the comments that follow the results. We are now starting to see the positive impacts of the newer genetics. We also can see how Sugar Beet Root Aphid has affected yields of those varieties with no resistance. Rhizoctonia Crown Rot has been a number one concern in all of the growing regions. The new fungicide, Quadris, has been very effective in minimizing this yield robbing disease. Three years of results have changed our minds on the need for cultivation. This year’s results demonstrate the need for more cover crops, such as clover, to improve “soil health” and yields. We are definitely starting to find the answers to many of the producer’s production problems and concerns.

The cooperation of the industry that has been developed through Sugarbeet Advancement is unique. Few areas enjoy the team effort that has developed here in Michigan. On-farm research would not occur without farmer cooperation. The willingness of the seed industry to pitch in with seed donations and labor is greatly appreciated. These include Seed Systems – Randy Hemb; Beta Seed – Dick Shaw; Hilleshog – Doug Ruppal; Crystal Seeds – Andy Bernia; and Seedex – Harold Rouget.

Most of the agriculturists from both Michigan and Monitor Sugar Companies have been great help in lining up and monitoring the trials. Mark Laethem from Laethem Equipment in Fairgrove has supplied us with accurate scales on beet carts to measure our results. Hilleshog has provided the last two years sugar analysis at no charge. We are certainly appreciative of our MSU researchers; Michigan Sugar Research Agronomists, Teresa Crook and Jim Stewart; and Monitor Sugar Research Agronomist, Lee Hubbell, for the cooperative research that was conducted.

The Sugarbeet Advancement Committee will continue to identify and prioritize industry needs and develop the research agendas. Feel free to contact any Sugarbeet Advancement Committee member, if you have any questions.

Sincerely,

Mark Helmreich  
Sugarbeet Advancement Chair

Steve Poindexter  
Sugar Beet Extension Agent
Partnership of:
Sugar Beet Growers
Michigan Sugar Company
Monitor Sugar Company
Michigan State University
Agribusiness

TABLE OF CONTENTS

Acknowledgements .................................................................................................................. 1
Table of Contents ................................................................................................................... 2 - 3
Sugarbeet Advancement Committee ...................................................................................... 4 - 5
Preface ..................................................................................................................................... 6
Sugarbeet Advancement Programs - 2001 & 2002 ................................................................. 7 - 8
Variety Trial – Huron County – Scott Roggenbuck Farm......................................................... 9
Variety Trial – Tuscola County – Lakke Ewald Farms ................................................................. 10
Variety Trial – Bay County – Schindler Farms ........................................................................ 11
Variety Trial – Huron County – Sturm Farms ......................................................................... 12
Variety Trial – Sanilac County – Gerstenberger Farms .......................................................... 13
Variety Trial – Lake County, Ontario – Brian and Alana Fox .................................................. 14
Average of Five Variety Trials .............................................................................................. 15
Average of Five Variety Trials / Rankings ............................................................................ 16
Variety Trial Rainfall Data Nearest Location ................................................................ ....... 17
Variety Trial Graphs ............................................................................................................ 18 - 21
Effect of Variety and Soil Conditions on Emergence ............................................................ 22
Michigan Sugar Company’s Three Year Average Variety Trial Results .................................. 23
Monitor Sugar Company’s Three Year Average Variety Trial Results ................................. 24
Michigan Sugar Company’s Plant to Stand Trials – 2001 ...................................................... 25
Monitor Sugar Company’s Space Plant Average of Two Years ............................................. 26
Leaf Spot Trial – Gratiot County – Baxter Farms ................................................................... 27
Rhizoctonia Trial – Saginaw County – Reif Farms ................................................................. 28
Rhizoctonia Trial – Bay County – Meylan Farms ................................................................. 29
Quadris Trial – Bay County – Dave Helmreich (CORN) ....................................................... 30
Quadris Trial – Bay County – Dave Helmreich (SOYBEANS) .............................................. 31
Quadris Trial – Bay County – Eugene and Gary Meylan ....................................................... 32
Pelleted Seed Trial – Huron County – Herford Farms .......................................................... 33
Astec Pellet Emergence Comparison – Bean and Beet Research Farm, Saginaw County and
Norm Corrian, Bay County ................................................................................................. 34
Tachigaren Trial – Sanilac County – Stoutenburg Farms ....................................................... 35
Tachigaren Trial – Sanilac County – Marty Lewis Farm ...................................................... 36
Cultivation Trial – Tuscola County – Larry Starkey ............................................................... 37
Cultivation Trial – Huron County - Darrin Lutz .................................................................. 38
Cultivation Trial – Gratiot County – Gary and Wayne Fisher ............................................... 39
Average of Three Cultivation Trials Year 2001 .................................................................. 40
Average of Three Cultivation Trials Year 2000............................................................................. 41
Average of Six Cultivation Trials 2000 and 2001............................................................................. 42
Average of Three Cultivation Trials – 1999................................................................................... 43
Average of Nine Cultivation Trials – 1999, 2000, 2001................................................................. 44
Nitrogen Trial – Huron County – Yoder Farms.............................................................................. 45
Nitrogen Trial – Huron County – Warren Reithal......................................................................... 46
Foliar Feed Trial – Huron County – Two B Farm, Inc. (Bushey)....................................................... 47
Foliar Feed Trial – Tuscola County – Lakke Ewald Farms............................................................... 48
Cover Crop Trial – Saginaw County – Bean and Beet Research Farm........................................ 49
Sugar Beet Cyst / Temik Trial – Bay County – Dave Helmreich (CORN)....................................... 50
Sugar Beet Cyst / Temik Trial – Bay County – Dave Helmreich (SOYBEANS)............................... 51
MSU Ag Engineering – Seedbed Tillage, Seed Coating and Planter Effects on Sugarbeet Emergence.....52 - 53
Field Crop Advisory Team Alert Newsletter Subscription Form..................................................... 54
Notes Pages................................................................................................................................. 55 - 56

SPECIAL THANKS TO SUGARBEET ADVANCEMENT PARTNERS:

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Michigan Sugar Agriculturists and Company
Monitor Sugar Agriculturists and Company
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MSU Ag Experiment Station
Bean and Beet Research Farm – Paul Horny and Dennis Fleishman
Beta Seed – Dick Shaw
ACH Seeds Inc. – Andy Bernia
Hilleshog Seeds – Doug Ruppel
Seed Systems – Randy Hemb
Seedex – Harold Rouget
Laethem’s John Deere Equipment, Fairgrove – Mark Laethem
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The Data in the 2001 Sugarbeet Advancement Research and Demonstration Book can be a valuable tool for making production decisions on your farm. Producers must understand the terminology to draw correct conclusions. Most of the research demonstration trials are replicated three or four times, either in a randomized format or complete randomized block. These trials have a statistical analysis run on them. Trials, which were not randomized and/or replicated, are considered as demonstrations with no statistical analysis run. The following comments should be helpful in your understanding of the results.

Quality analysis was provided by Hilleshog and may be somewhat lower than analysis from Michigan or Monitor Sugar Companies analysis because of different laboratory procedures. Relative differences between treatments should be the same.

**TREATMENT NAME** -- Identify different named treatments in the trial.

**RWSA** -- Recoverable White Sugar Per Acre. This number is calculated by multiplying recoverable white sugar per ton by actual yield per acre. All reported numbers are rounded to the nearest pound.

**ACTUAL YIELD T/A** -- Tonnage calculated on per acre basis. Reported number is rounded to one-hundredth decimal point. Gross tons (no tare off).

**RWST** -- Recoverable White Sugar Per Ton incorporating sugar and clear juice purity. Reported number is rounded to the nearest pound. This is based on a 120-day slice (not fresh basis).

**% SUGAR** -- Percentage Sugar Content of Beet; rounded to the one-tenth decimal point.

**% CJP** -- Percentage Clear Juice Purity; rounded to the one-tenth decimal point.

**POPULATION** -- In monitoring trials, approximately 10-20- and 30-day plant counts were taken to monitor emergence of each treatment. Results are reported on beets per 100 foot of row.

**HARVEST POPULATION** -- Beet population was taken after beet defoliation. All crowns were counted, including small beets, which may not be picked up by harvesters.

**AVERAGES** -- Use averages to compare treatments which are better or worse than average of trial.

**LSD 5%** -- Least Significant Difference at the 95% confidence level in which one treatment compared to another is actually different. This calculation is used to take into account soil variation and other factors. NS indicates differences between treatments are Not Significant.

**C.V. %** -- Coefficient of variation is an indicator of how much variation is in the trial. If C.V.'s are 5% or less, it is considered an excellent trial; 10% or less is a good trial; 15% is fair, and etc. The less variation the more reliable the results are.

* 1X - 2X - 3X -- Indicates how many times a practice was done.
### SUGARBEET ADVANCEMENT PROGRAMS – 2001 & 2002

- **Partnership of:**
  - Sugar Beet Growers
  - Michigan Sugar Company
  - Monitor Sugar Company
  - Michigan State University Agribusiness

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME / MEAL</th>
<th>LOCATION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/05/01</td>
<td>9:00 a.m. to 3:00 p.m.</td>
<td>Sugarbeet Research Update for Extension Agents and Fieldmen</td>
<td>Bavarian Inn Restaurant, Frankenmuth</td>
</tr>
<tr>
<td>01/23/01</td>
<td>9:00 a.m. to 3:00 p.m.</td>
<td>Soil Health Meeting</td>
<td>Williams Township Hall, Auburn</td>
</tr>
<tr>
<td>01/24/01</td>
<td>9:00 a.m. to 3:00 p.m.</td>
<td>Soil Health Meeting</td>
<td>Huron Expo Center, Bad Axe</td>
</tr>
<tr>
<td>01/29/01</td>
<td>9:30 a.m. to 11:30 a.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>Huron Expo Center, Bad Axe</td>
</tr>
<tr>
<td>01/29/01</td>
<td>1:30 to 3:30 p.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>West Park, Sandusky</td>
</tr>
<tr>
<td>01/30/01</td>
<td>9:00 to 11:30 a.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>Brentwood Restaurant, Caro</td>
</tr>
<tr>
<td>01/30/01</td>
<td>1:30 to 3:30 p.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>Knights of Columbus Hall, Standish</td>
</tr>
<tr>
<td>01/31/01</td>
<td>9:00 to 11:30 a.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>Bavarian Inn Restaurant, Frankenmuth</td>
</tr>
<tr>
<td>01/31/01</td>
<td>1:30 to 3:30 p.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>B &amp; W Co-Op, Breckenridge</td>
</tr>
<tr>
<td>02/20/01</td>
<td>8:30 a.m. to 4:00 p.m.</td>
<td>Beet and Bean Symposium/Trade Show</td>
<td>Horizons Conf. Center, State Street, Saginaw</td>
</tr>
<tr>
<td>12/07/01</td>
<td>Registration 9:30 to 10:00 a.m.</td>
<td>Seed Week Meeting</td>
<td>Country View Golf Course, Ontario</td>
</tr>
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<td></td>
<td>Program 9:30 a.m. to 3:00 p.m. Lunch</td>
<td></td>
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</tr>
<tr>
<td>12/10/01</td>
<td>Registration 8:00 to 8:30 a.m.</td>
<td>Seed Week Meeting</td>
<td>Bavarian Inn Restaurant, Frankenmuth</td>
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<tr>
<td></td>
<td>Program 8:30 to 11:30 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/11/01</td>
<td>Registration 8:00 to 8:30 a.m.</td>
<td>Seed Week Meeting</td>
<td>Valley Plaza, Midland</td>
</tr>
<tr>
<td></td>
<td>Program 8:30 to 11:30 a.m.</td>
<td></td>
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</tr>
<tr>
<td>12/12/01</td>
<td>Registration 8:00 to 8:30 a.m.</td>
<td>Seed Week Meeting</td>
<td>Sportsmen’s VFW Hall, Sebewaing</td>
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<tr>
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<td>Program 8:30 to 11:30 a.m.</td>
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</tr>
<tr>
<td>12/13/01</td>
<td>Registration 8:00 to 8:30 a.m.</td>
<td>Seed Week Meeting</td>
<td>Ubly Heights Country Club, Bad Axe</td>
</tr>
<tr>
<td></td>
<td>Program 8:30 to 11:30 a.m.</td>
<td></td>
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</tr>
<tr>
<td>12/14/01</td>
<td>Registration 8:00 to 8:30 a.m.</td>
<td>Seed Week Meeting</td>
<td>Shifter’s Inn, Alma</td>
</tr>
<tr>
<td></td>
<td>Program 8:30 to 11:30 a.m.</td>
<td></td>
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</tr>
<tr>
<td>07/17/01</td>
<td>8:00 a.m.</td>
<td>Leaf Spot Lowdown Session</td>
<td>Schindler Farms, Bay County</td>
</tr>
<tr>
<td>07/17/01</td>
<td>11:00 a.m.</td>
<td>Leaf Spot Lowdown Session</td>
<td>Sherwood Farm, Gratiot County</td>
</tr>
<tr>
<td>07/18/01</td>
<td>8:00 a.m.</td>
<td>Leaf Spot Lowdown Session</td>
<td>Lakke Ewald Farm, Tuscola County</td>
</tr>
<tr>
<td>07/18/01</td>
<td>11:00 a.m.</td>
<td>Leaf Spot Lowdown Session</td>
<td>Randall Sturm Farm, Huron County</td>
</tr>
<tr>
<td>07/19/01</td>
<td>8:00 a.m.</td>
<td>Leaf Spot Lowdown Session</td>
<td>Rick &amp; Rob Gerstenberger Farm, Sanilac County</td>
</tr>
<tr>
<td>DATE</td>
<td>TIME / MEAL</td>
<td>LOCATION</td>
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</tr>
<tr>
<td>7/19/01</td>
<td>11:00 a.m.</td>
<td>Leaf Spot Lowdown Session</td>
<td>Scott Roggenbuck Farm, Huron County</td>
</tr>
<tr>
<td>8/21/01</td>
<td>10:30 a.m.</td>
<td>Variety Trial Tour</td>
<td>Schindler Farm, Bay County</td>
</tr>
<tr>
<td>8/21/01</td>
<td>1:30 p.m.</td>
<td>Variety Trial Tour</td>
<td>Dave Helmreich Farm, Bay County</td>
</tr>
<tr>
<td>8/22/01</td>
<td>10:30 a.m.</td>
<td>Variety Trial Tour</td>
<td>Lakke Ewald Farm, Tuscola County</td>
</tr>
<tr>
<td>8/22/01</td>
<td>1:30 p.m.</td>
<td>Variety Trial Tour</td>
<td>Randall Sturm Farm, Huron County</td>
</tr>
<tr>
<td>8/23/01</td>
<td>10:30 a.m.</td>
<td>Variety Trial Tour</td>
<td>Rick &amp; Rob Gerstenberger Farm, Huron County</td>
</tr>
<tr>
<td>8/23/01</td>
<td>1:30 p.m.</td>
<td>Variety Trial Tour</td>
<td>Scott Roggenbuck Farm, Huron County</td>
</tr>
<tr>
<td>8/28/01</td>
<td>8:30 a.m. to 3:30 p.m.</td>
<td>Beet and Bean Research Farm Tour</td>
<td>Saginaw County</td>
</tr>
<tr>
<td>01/11/02</td>
<td>9:00 a.m. to 3:00 p.m.</td>
<td>Sugarbeet Research Update for Extension</td>
<td>Bavarian Inn Restaurant, Frankenmuth</td>
</tr>
<tr>
<td>01/29/02</td>
<td>9:00 to 11:30 a.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>Williams Township Hall, Auburn</td>
</tr>
<tr>
<td>01/29/02</td>
<td>1:30 to 3:30 p.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>MAC/CPS - Basement, Breckenridge</td>
</tr>
<tr>
<td>01/30/02</td>
<td>9:00 to 11:30 a.m.</td>
<td>Coffee and Rolls Sugar Beet Weed Control</td>
<td>Brentwood Restaurant, Caro</td>
</tr>
<tr>
<td>01/30/02</td>
<td>1:30 to 3:30 p.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>Bavarian Inn Restaurant, Frankenmuth</td>
</tr>
<tr>
<td>01/31/02</td>
<td>9:30 a.m. to 11:30 a.m.</td>
<td>Coffee and Rolls Sugar Beet Weed Control</td>
<td>Huron Expo Center, Bad Axe</td>
</tr>
<tr>
<td>01/31/02</td>
<td>1:30 to 3:30 p.m.</td>
<td>Sugar Beet Weed Control Meeting</td>
<td>MSU Extension Office, Sandusky</td>
</tr>
<tr>
<td>02/26/02</td>
<td>8:30 a.m. to 4:00 p.m.</td>
<td>Beet and Bean Symposium/Trade Show</td>
<td>Horizons Conference Center, State Street, Saginaw</td>
</tr>
</tbody>
</table>
Cooperator: Scott Roggenbuck Farm
Location: Huron County/Ruth
Plating Date: 4/14/01
Row Spacing: 30- Inches
Previous Crop: Soybeans
Replicated: 3 X – Row Length 925 ft.
Seed Spacing: 4-Inches
Soil Type: Clay Loam
Soil pH: 6.1

Tillage: Fall Plowed; 1 X Field Cultivated
Harvest Date: 10/29/01
Type of Harvester: John Deere
# of Rows Harvested: 4
# Defoliated: 4
Harvest Speed: < 4 mph
Herbicides: Micro-Rated 4 X
Fertilizer: 175 lbs. of 16-29-6-1 MN; 60 lbs. N sidedressed (AA)
Fungicide: 7/17/01 Quadris
Organic Matter: 2.3%

### TREATMENT NAME | RWSA | ACTUAL YIELD T/A | RWST | % SUGAR | CJP % | POPULATION 100 FT. ROW
| | | | | | 16 Day | 20 Day | 30 Day | Harvest
---|---|---|---|---|---|---|---|---|---|
B-5451 | 6113 | 26.49 | 230 | 16.3 | 93.7 | 112 | 145 | 187 | 155
Prompt | 5481 | 26.62 | 205 | 15.2 | 92.5 | 76 | 141 | 186 | 175
E-38 | 5419 | 25.27 | 215 | 15.3 | 93.3 | 107 | 152 | 194 | 171
C-1353 | 5417 | 25.33 | 214 | 15.6 | 92.8 | 86 | 151 | 184 | 165
B-5736 | 5349 | 24.92 | 214 | 15.6 | 92.2 | 90 | 132 | 167 | 154
Spartan | 5144 | 23.37 | 220 | 15.6 | 93.3 | 78 | 134 | 161 | 140
RH-5 | 4517 | 22.58 | 200 | 14.7 | 92.9 | 97 | 129 | 157 | 150
E-33 | 4375 | 22.48 | 195 | 14.5 | 92.2 | 100 | 149 | 182 | 165
C-648 | 4195 | 20.14 | 208 | 15.0 | 92.8 | 121 | 154 | 186 | 160
B-5400 | 4112 | 21.16 | 194 | 14.4 | 91.8 | 117 | 148 | 170 | 149
C-555 | 3830 | 20.46 | 187 | 14.8 | 91.4 | 120 | 150 | 168 | 158
Average | 4905 | 23.53 | 208 | 15.2 | 92.7 | 101 | 144 | 176 | 159
LSD (5%) | 757 | 1.45 | 24.9 | .9 | 1.3 | n.s. 51 | n.s. 48 | n.s. 40 | n.s. 39
CV (%) | 9.1 | 3.6 | 7.0 | 3.6 | .9 | 29.9 | 19.4 | 13.3 | 14.3

Comments: Trial planted early under very cool conditions. Plants slow to emerge with 0 emergence at the 10 day count. Crusting was not a problem. Emergence was very good. Average harvest population of 25,000 to 30,000 plants per acre. Leaf Spot control was good. Low amount of Rhizoctonia Root Rot. Quadris has been shown to reduce Rhizoctonia Root Rot. Sugar samples taken 10/19/01 under very wet conditions. For emergence comparison only, PAT Prompt had the following populations/100 ft. row: 16 days = 96; 20 days = 142; 30 days = 176. **Trial reliability was EXCELLENT.**

Cooperating Agriculturist, Bob Corrigan, Michigan Sugar Company.
Partnership of:
Sugar Beet Growers
Michigan Sugar Company
Monitor Sugar Company
Michigan State University
Agribusiness

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: LAKKE Ewald Farms  
Location: Tuscola County  
Planting Date: 4/17/01  
Row Spacing: 22-Inches  
Previous Crop: Navy Beans  
Replicated: 3 X – Row Length 1,140 ft.  
Seed Spacing: 4.5-Inches  
Soil Type: Tappan-Londo Loams  
Soil pH: 7.6

TREATMENT NAME | RWSA | ACTUAL YIELD T/A | RWST | % SUGAR | CJP % | POPULATION 100 FT. ROW 10 Day 20 Day 30 Day Harvest |
--- | --- | --- | --- | --- | --- | --- |
Prompt | 5496 | 23.99 | 229 | 15.9 | 92.6 | 20 138 140 127 |
B-5736 | 5350 | 23.53 | 227 | 16.0 | 92.0 | 24 112 116 107 |
B-5451 | 5317 | 23.05 | 230 | 16.0 | 92.9 | 43 139 140 116 |
E-38 | 5292 | 22.39 | 237 | 16.2 | 93.1 | 60 143 141 128 |
RH-5 | 5129 | 22.97 | 222 | 14.9 | 93.3 | 45 138 139 131 |
E-33 | 4751 | 20.48 | 233 | 16.3 | 93.2 | 48 152 151 139 |
B-5400 | 4510 | 21.11 | 214 | 14.9 | 92.2 | 38 105 101 93 |
C-1353 | 4321 | 21.45 | 201 | 14.7 | 91.4 | 26 131 130 110 |
Spartan | 4176 | 19.04 | 220 | 15.8 | 92.8 | 25 113 114 100 |
C-555 | 4075 | 17.85 | 228 | 15.5 | 92.8 | 41 133 132 123 |
C-648 | 3487 | 18.39 | 190 | 13.9 | 91.1 | 31 116 115 103 |

Average | 4719 | 21.30 | 221 | 15.5 | 92.5 | 37 129 129 116 |
LSD (5%) | 773 | 2.51 | 32 | 1.6 | 1.0 | 17 26 27 22 |
CV (%) | 9.6 | 6.9 | 8.5 | 5.9 | .7 | 27.7 12.0 12.5 11.1 |

Comments: Trial planted under cool conditions. Light crusting occurred. Emergence was fair to good. Average harvest population of 25,000 to 30,000 plants per acre. Root Aphid was easily found in field. Moderate amount of plant loss from Rhizoctonia and sugar beet Root Aphid. Leaf Spot control was considered good. Sugar samples were taken on 10/02/01. **Trial reliability rated VERY GOOD.**

Cooperating Agriculturist, Craig Rieman, Michigan Sugar Company.
ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Schindler Farms  
Location: Bay County  
Planting Date: 4/18/01  
Row Spacing: 22-Inches  
Previous Crop: Corn  
Replicated: 3 X – Row Length – 1,050 ft.  
Seed Spacing: 4.5-Inches  
Soil Type: Tappan Loam  
Soil pH: 7.0  
Organic Matter: 2.7%  

**TREATMENT NAME** | **RWSA** | **ACTUAL YIELD T/A** | **RWST** | **% SUGAR** | **CJP %** | **POPULATION 100 FT. ROW** | **10 Day** | **20 Day** | **30 Day** | **Harvest** |
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
B-5451 | 6422 | 23.38 | 274 | 18.8 | 94.5 | 14 | 171 | 172 | 139 |
E-38 | 6020 | 22.42 | 268 | 18.5 | 94.2 | 18 | 191 | 195 | 149 |
E-33 | 5872 | 20.96 | 280 | 18.9 | 94.8 | 14 | 187 | 193 | 164 |
RH-5 | 5864 | 22.10 | 266 | 18.5 | 93.9 | 6 | 164 | 171 | 151 |
B-5736 | 5809 | 21.97 | 264 | 18.3 | 93.7 | 3 | 110 | 128 | 111 |
Prompt | 5790 | 21.82 | 265 | 18.3 | 94.4 | 5 | 173 | 184 | 162 |
C-648 | 5774 | 19.94 | 290 | 19.0 | 94.8 | 9 | 138 | 142 | 116 |
B-5400 | 5671 | 21.52 | 263 | 18.2 | 94.6 | 15 | 163 | 162 | 136 |
C-555 | 5661 | 20.63 | 273 | 19.0 | 94.5 | 21 | 175 | 181 | 152 |
Spartan | 5528 | 20.32 | 272 | 18.4 | 94.3 | 5 | 161 | 174 | 138 |
C-1353 | 5134 | 19.57 | 262 | 18.2 | 94.1 | 10 | 180 | 186 | 153 |

Average | 5777 | 21.33 | 271 | 18.6 | 94.4 | 11 | 165 | 172 | 143 |
LSD (5%) | 438 | 1.28 | 15 | .5 | .9 | 7 | 21 | 19 | 16 |
CV (%) | 4.5 | 3.5 | 3.2 | 1.4 | .6 | 40.0 | 7.6 | 6.5 | 6.6 |

Comments: Trial planted and emerged under good soil moisture conditions. High residue from chisel plowed corn stalks. Crusting was not a problem. Emergence was very good. Average harvest population 30,000 to 35,000 plants per acre. Low amount of Rhizoctonia Root Rot. Some Root Aphid in field. Fair Leaf Spot control. Sugar samples taken on 10/31/01. One PAT pellet emergence observation strip. For emergence comparison only, PAT Pellet Mix (E-17 + C-555 + C-1353) had the following populations/100 ft. row: 10 days = 38; 20 days = 158; 30 days = 162. **Trial reliability rated EXCELLENT.**

Cooperating Agriculturist, Bill Hartley, Monitor Sugar Company.


ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Sturm Farms
Location: Huron County
Planting Date: 4/23/01
Row Spacing: 28-Inches
Previous Crop: Dry Beans
Replicated: 3 X – Row Length: 1,600 ft.
Seed Spacing: 4-Inches
Soil Type: Clay Loam
Organic Matter: 2.2%

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Average

LSD (5%) 739 n.s. 30 .9 1.2 9 43 28 20
CV (%) 9.0 4.1 7.9 3.2 7.7 82 23.8 10.5 7.9

Comments: Trial had significant crusting problem. Field was crust busted between the 10 and 20 day stand count. Good emergence occurred by 30-day stand count. Some Rhizoctonia present. Average harvest population of 25,000 to 30,000 plants per acre. Leaf Spot control was good. Sugar samples were taken on 10/18/01. **Trial reliability rated EXCELLENT.**

Cooperating Agriculturist, Roger Elston, Michigan Sugar Company.
Cooperator: Gerstenberger Farms  
Location: Sanilac County  
Planting Date: 4/25/01  
Row Spacing: 28-Inches  
Previous Crop: Soybeans  
Replicated: 3 X – Row Length – 1,125 ft.  
Seed Spacing: 4-Inches  
Soil Type: Parkhill Loam  
Soil pH: 6.9  
Organic Matter: 2.3%  
Tillage: Chisel Plow – 2 X Field Cultivated  
Type of Harvester: Arts-Way  
# of Rows Harvested: 6  
Harvest Speed: 4.2 mph  
Herbicides: Micro Rate 4 X  
Fertilizer: 200 lbs. 14-24-5-4 SU – 1% MN – 140# N Sidedressed  
Soil pH: 6.9  
Fungicide: 8/01/01 - 1 X Super Tin

### VARIETY TRIAL

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<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
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Comments: Trial was planted and emerged under very good conditions. Good Leaf Spot control and low amount of Rhizoctonia Root Rot. Average harvest population of 30,000 to 35,000 plants per acre. Sugar samples taken on 10/30/01. Single strip of pelleted PAT 5451 and PAT 5736 planted for observation strip only as comparison to regular seed emergence. For emergence comparison only, PAT Pellet 5451 had the following populations/100 ft. row: 10 days = 38; 20 days = 192; 30 days = 204; while PAT Pellet 5736 had the following populations/100 ft. row: 10 days = 70; 20 days = 198; 30 days = 214. **Trial reliability rated VERY GOOD.**

Cooperating Agriculturists, Mike Leen & Reggie VanSickle, Michigan Sugar Co., and Paul Wheeler, Monitor Sugar Co.
### ON-FARM RESEARCH AND DEMONSTRATION

**Ontario Variety Trial**

Cooperator: Brian and Alana Fox  
Location: Kent County, Ontario  
Planting Date: 4/28/01  
Row Spacing: 4-Inches  
Row Width: 30-Inches – Length: 2,051 ft.  
Previous Crop: Soybeans  
Replicated: 3 X  
Fertilizer: Fall 150# MAP, 300# 0-0-60 Spring 100# NH3 @ 60” Sidedressed  

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LSD (5%)  
CV (%)  

**Comments:** Trial conducted to determine variety performance in Ontario. Weights were determined with individual truck loads. Quality samples were taken from the piler. Leaf Spot pressure was low. Root Aphid pressure was moderate. Lab analysis performed at MARL (Michigan Agricultural Research Laboratory). Note tons/A are net or clean (tare 3.627% off). **Trial reliability was EXCELLENT.**

Cooperating agriculturist, Wayne Martin, Michigan Sugar Company; Janice LeBoeuf, Vegetable Crop Specialist; and Anne Verhallen, Soil Management Specialist; Ontario Ministry of Agriculture, Food and Rural Affairs, Ridgetown College.
Partnership of:
Sugar Beet Growers
Michigan Sugar Company
Monitor Sugar Company
Michigan State University
Agribusiness

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Five Locations Averaged  Tillage: ---
Location: Bay, Tuscola, Sanilac,  Harvest Date: ---
East Huron, West Huron  Type of Harvester: ---
Planting Date: 2001  # of Rows Harvested: ---  # Defoliated: ---
Row Spacing: ---  Harvest Speed: ---
Previous Crop: ---  Herbicides: ---
Seed Type: Medium Size 3  Fungicides: ---
Replicated: 5 Locations – 3 Replications Per Location

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<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
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| Average        | 5413 | 23.33            | 232  | 16.39   | 93.06 |                        | 38    | 152   | 171   | 149    |
| LSD (5%)       | 469  | 1.28             | 13   | .54     | .54   |                        | 11    | 16    | 17    | 12     |
| CV (%)         | 6.9  | 4.4              | 4.5  | 2.6     | .5    |                        | 23.8  | 8.3   | 8.0   | 6.6    |

Comments: Five locations – each variety replicated three times per location. Two sugar samples taken from each strip. A total of six sugar samples taken per variety at each location. All trials planted and tended by growers equipment and management. Leaf Spot susceptible varieties in some locations exhibited more Leaf Spot than more tolerant varieties. Some level of Root Aphid suspected of impacting yield in all trials. Top four strong emerging varieties are E-38, Prompt, E-33 and C-555. Varieties B-5736, B-5400 and C-648 are recognized as poor/slow emergerers. Varieties perform differently under different environmental conditions, such as disease, insects, moisture, and plant population. Always refer to individual trials and comments at each location. Trial reliability rating of all trials was VERY GOOD TO EXCELLENT.

Cooperating agriculturists, Michigan and Monitor Sugar Companies.
### Partnerships

Sugar Beet Growers  
Michigan Sugar Company  
Monitor Sugar Company  
Michigan State University  
Agribusiness

# On-Farm Research and Demonstration

**Cooperator:** Five Locations Ranked  
**Tillage:** ---  
**Location:** Bay, Tuscola, Sanilac, East Huron, West Huron  
**Harvest Date:** ---  
**Type of Harvester:** ---  
**Planting Date:** 2001  
**# of Harvester:** ---  
**# Defoliated:** ---  
**Row Spacing:** Varies  
**Harvest Speed:** ---  
**Previous Crop:** Varies  
**Herbicides:** ---  
**Seed Type:** Medium Size 3  
**Fungicides:** ---  
**Replicated:** 5 Locations – 3 Replications Per Location

### Average of Five Variety Trials Rankings

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<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
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<td>1</td>
<td>1</td>
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<td>2</td>
<td>--- --- 6* 7*</td>
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<td>11</td>
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<td>--- --- 8 10</td>
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<td>4</td>
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<td>--- --- 3 4</td>
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<td>C-648</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>9</td>
<td>8*</td>
<td>--- --- 7 8</td>
</tr>
</tbody>
</table>

* These varieties tied for this ranking

Comments: These rankings are by category and ranked 1 through 11. One is the highest ranking and 11 is lowest. All five-variety trials are averaged and the relative differences between some rankings may be very small, or not significant. Use this information as reference only of how a variety may perform given several different environmental conditions. Refer to individual trials and comment sections for more information. When selecting varieties for your farm, also consider Leaf Spot, Root Aphid and Rhizoctonia tolerances and other factors pertinent to your farm. Variety specific information can be obtained from seed companies and/or Michigan and Monitor Sugar Companies.

Cooperating agriculturists, Michigan and Monitor Sugar Companies.
<table>
<thead>
<tr>
<th></th>
<th>YEAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEPT</th>
<th>OCT</th>
<th>TOTAL RAINFAL</th>
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<td>2.17</td>
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<td>5.24</td>
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<td>2.00</td>
<td>2.70</td>
<td>1.41</td>
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<td><strong>Ruth Scott Roggenbuck</strong></td>
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<td>2.02</td>
<td>3.51</td>
<td>.35</td>
<td>1.98</td>
<td>5.10</td>
<td>5.47</td>
<td>20.23</td>
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<td>6.14</td>
<td>5.93</td>
<td>4.9</td>
<td>3.80</td>
<td>3.90</td>
<td>1.86</td>
<td>28.69</td>
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<td>5.87</td>
<td>1.74</td>
<td>.40</td>
<td>3.8</td>
<td>5.24</td>
<td>5.80</td>
<td>25.05</td>
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<td>5.60</td>
<td>4.80</td>
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<td>4.52</td>
<td>2.8</td>
<td>1.08</td>
<td>23.12</td>
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<td><strong>Pigeon</strong></td>
<td>2001</td>
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<td>2.58</td>
<td>2.53</td>
<td>.67</td>
<td>3.03</td>
<td>6.59</td>
<td>5.34</td>
<td>22.19</td>
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<tr>
<td><strong>Randy Sturm</strong></td>
<td>2000</td>
<td>3.08</td>
<td>9.62</td>
<td>2.78</td>
<td>5.53</td>
<td>3.62</td>
<td>3.03</td>
<td>1.88</td>
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<td><strong>Sandusky</strong></td>
<td>2001</td>
<td>2.10</td>
<td>4.13</td>
<td>5.05</td>
<td>.71</td>
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<td>5.34</td>
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<td><strong>Rick and Rob</strong></td>
<td>2000</td>
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<td>3.75</td>
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<td>3.69</td>
<td>1.79</td>
<td>2.34</td>
<td>1.90</td>
<td>19.12</td>
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<td>2001</td>
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<td>3.25</td>
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<td>4.35</td>
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<td>2000</td>
<td>1.18</td>
<td>5.66</td>
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<td>5.31</td>
<td>3.36</td>
<td>1.49</td>
<td>22.74</td>
</tr>
</tbody>
</table>

* Rainfall data is at the nearest monitoring point to field. This data was not taken at field, so some difference may occur at the actual location.
Variety Trial

10-, 20- and 30-Day Emergence

Scott Roggenbuck Farm – Huron County

Planted April 14, 2001 – Seed Spacing 4 Inches

Sugarbeet Advancement
Variety Trial
10-, 20- and 30-Day Emergence
Kurt Ewald Farm – Tuscola County

Planted April 17, 2001 – Seed Spacing 4.5 Inches
Sugarbeet Advancement
Variety Trial
10-, 20- and 30-Day Emergence
Schindler Farm – Bay County

Planted April 18, 2001 – Seed Spacing 4.5 Inches
Sugarbeet Advancement
Variety Trial
10-, 20- and 30-Day Emergence
Randy Sturm Farm - Huron County

Crust Busted Between 10 and 20 Days. – Sugarbeet Advancement
Variety Trial
10-, 20- and 30-Day Emergence
Gerstenberger Farm - Sanilac County

Planted April 25, 2001 – Seed Spacing 4 Inches.
No Crusting – Ideal Soil Moisture Conditions. – Sugarbeet Advancement
Variety Trial
10-, 20- and 30-Day Emergence
Sherwood Farm – Gratiot County

Planted April 18, 2001 – Seed Spacing 4 Inches – Heavy Crusting

TRIAL WAS NOT HARVESTED FOR YIELD  -  Sugarbeet Advancement
Variety Trial
10-, 20- and 30-Day Emergence Averages

Ewald, Gerstenberger, Roggenbuck, Schindler, Sherwood and Sturm Farms

Sugarbeet Advancement - 2001
EFFECT OF VARIETY AND SOIL CONDITIONS ON EMERGENCE

Variety / % Emergence – 2001

<table>
<thead>
<tr>
<th>Field Emergence Conditions</th>
<th>(Poor Emerger)</th>
<th>(Average Emerger)</th>
<th>(Excellent Emerger)</th>
<th>Average Emergence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal – Bean &amp; Beet Farm (Warm)</td>
<td>B-5736 73%</td>
<td>C-648 79%</td>
<td>E-38 86%</td>
<td>79%</td>
</tr>
<tr>
<td>Fair – Ewald Trial (Cool)</td>
<td>C-648 44%</td>
<td>43%</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>Poor – Sherwood Trial (Crusting)</td>
<td>C-648 17%</td>
<td>27%</td>
<td>23%</td>
<td>22%</td>
</tr>
<tr>
<td>Average Emergence</td>
<td>45%</td>
<td>50%</td>
<td>54%</td>
<td>49%</td>
</tr>
</tbody>
</table>

Company records indicate producers achieve approximately 50% emergence when averaged between all conditions and varieties. (Table 1.) Wide variations can occur between emergence conditions and variety. Three varieties are being compared. B-5736 is considered poor, C-648 is fair, and E-38 is an excellent emerging variety. Under ideal conditions, all approved varieties can achieve excellent stands. Under poor field conditions (i.e., crusting), poor emerging varieties will less often establish an adequate population when compared to excellent emerging varieties.

SEED SPACING CHART

Variety Emergence Rating

<table>
<thead>
<tr>
<th>Field Emergence Conditions</th>
<th>Poor Emerging Variety</th>
<th>Average Emerging Variety</th>
<th>Excellent Emerging Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal - Average 70 to 80% Emergence</td>
<td>4.5-Inches</td>
<td>4.75-Inches</td>
<td>5.0-Inches</td>
</tr>
<tr>
<td>Fair - Average 40 to 60% Emergence</td>
<td>3.5-Inches</td>
<td>4.0-Inches</td>
<td>4.2-Inches</td>
</tr>
<tr>
<td>Poor – Average 20 to 30% Emergence</td>
<td>3.0-Inches</td>
<td>3.0-Inches</td>
<td>3.0-Inches</td>
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</tbody>
</table>

Producers need to adjust seed spacing based on variety and seedbed conditions to achieve the recommended harvest stand of 150 - 175 beets per 100 feet of row for both 30- and 22-inch rows. Growers will need to adjust seed spacing as much as 25% above or below our normal 4-inch seed spacing to achieve the desired stand. Use Table 2 to help determine approximate seed spacing based on field condition and variety. Remember, on average you lose 10% of stand from 30-days after emergence to harvest. Your judgment is required to determine field emergence conditions.

The financial penalty for thin stands far outweigh any penalty for too thick of stand.

Research conducted by Steve Poindexter, Sugarbeet Advancement, 2001
# MICHIGAN SUGAR COMPANY

## MICHIGAN VARIETY TEST RESULTS

### THREE-YEAR AVERAGES (2001-00-99) FOR VARIETIES APPROVED FOR 2002 PLANTING

<table>
<thead>
<tr>
<th>Variety</th>
<th>RWSA</th>
<th>% SUGA</th>
<th>RWST</th>
<th>TON/A</th>
<th>% Emerg</th>
<th>$/TON(a)</th>
<th>$GROSS/A per ACRE(b)</th>
<th>Rating</th>
<th>Rating</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta 5451 RA, Aph</td>
<td>6424</td>
<td>17.58</td>
<td>247.4</td>
<td>26.0</td>
<td>46</td>
<td>34.11</td>
<td>885</td>
<td>730</td>
<td>Excellent</td>
<td>Good</td>
</tr>
<tr>
<td>Beta 5400</td>
<td>6198</td>
<td>17.90</td>
<td>253.0</td>
<td>24.4</td>
<td>47</td>
<td>34.82</td>
<td>850</td>
<td>704</td>
<td>Poor</td>
<td>Fair</td>
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<td>Seedex Prompt</td>
<td>6159</td>
<td>17.73</td>
<td>250.0</td>
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<td>59</td>
<td>34.45</td>
<td>849</td>
<td>701</td>
<td>Poor</td>
<td>Excellent</td>
</tr>
<tr>
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<td>6132</td>
<td>17.69</td>
<td>247.7</td>
<td>24.6</td>
<td>46</td>
<td>34.36</td>
<td>844</td>
<td>697</td>
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<td>Good</td>
</tr>
<tr>
<td>Hilleshog E17</td>
<td>6104</td>
<td>17.95</td>
<td>254.5</td>
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<td>60</td>
<td>34.93</td>
<td>836</td>
<td>692</td>
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<td>Good</td>
</tr>
<tr>
<td>Crystal 648</td>
<td>6088</td>
<td>18.05</td>
<td>254.6</td>
<td>23.9</td>
<td>49</td>
<td>35.15</td>
<td>838</td>
<td>695</td>
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<td>Poor</td>
</tr>
<tr>
<td>Hilleshog RH5 RH</td>
<td>6063</td>
<td>17.81</td>
<td>251.7</td>
<td>24.1</td>
<td>54</td>
<td>34.62</td>
<td>833</td>
<td>689</td>
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<td>Good</td>
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<td>34.52</td>
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<td>34.46</td>
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<td>Poor</td>
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<td>35.26</td>
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<td>674</td>
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<td>Poor</td>
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<td>33.22</td>
<td>755</td>
<td>619</td>
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**Average:** 5994 17.75 250.2 23.9 53

---

a) $/TON value based on $34.50/ton with a 17.75% sugar content (with a 0.06400 sliding scale).

b) $(GROSS-T/H)/A value based on $6/ton trucking and harvesting (T/H).
## 2001 MONITOR SUGAR COMPANY

### OFFICIAL VARIETY TRIAL

#### AVERAGE OF 3 YEARS

<table>
<thead>
<tr>
<th>VARIETY</th>
<th>RWSA</th>
<th>% SUGAR</th>
<th>TON/A</th>
<th>% (1) EMERG</th>
<th>LEAF (4)</th>
<th>RESISTANCE</th>
<th>LEAFSPOT</th>
<th>RHIZOCTONIA</th>
<th>APHIDS</th>
<th>APHANOMYCES</th>
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<td>26.22</td>
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<td>Poor</td>
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<tr>
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<td>Excellent</td>
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<tr>
<td>Crystal 1353(3)</td>
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<td>Excellent</td>
<td>Excellent</td>
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<tr>
<td>GM</td>
<td>6065</td>
<td>17.35</td>
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<td>45.9</td>
<td>2.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rows: 2  Row Length: 30'  Row Width: 30"

(1) Percentage of plants before thinning compared to seeds planted.

(2) This test is planted thick with a 1.3 inch seed spacing and thinned to give all varieties an equal stand.

This is necessary because when varieties are first tested the seed quality does not compare to a commercially prepared variety.

(3) Special Approval varieties, do not meet all standards for approval.

(4) A lower number shows more resistance.
# Michigan Sugar Company
## Plant To Stand Trials – 2001

<table>
<thead>
<tr>
<th>Entry No.</th>
<th>Variety</th>
<th>RWSA</th>
<th>TON/A</th>
<th>RWST</th>
<th>%Suc</th>
<th>%CJP</th>
<th>%Emerg</th>
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<tbody>
<tr>
<td>13</td>
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<tr>
<td>12</td>
<td>Hilleshog RH5</td>
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<tr>
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<td>93.51</td>
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<td>5937</td>
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<td>3</td>
<td>Crystal 1353</td>
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<td>1</td>
<td>Crystal 319</td>
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<td>7</td>
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<td>16.78</td>
<td>93.44</td>
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</table>

| LSD (P=.05) | 511 | 1.58 | 7.2  | 0.39 | 0.44 | 6     |
| CV          | 6.57| 5.01 | 2.29 | 1.77 | 0.36 | 7.6   |
| Grand Mean  | 6021| 24.46| 246.1| 17.11| 93.86| 61    |
| Treatment Prob(F) | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 0.0074 | 0.0001 |
## 2001 MONITOR SUGAR COMPANY

### SPACE PLANT\(^{(2)}\)

#### AVERAGE OF TWO YEARS

<table>
<thead>
<tr>
<th>VARIETY</th>
<th>RWSA</th>
<th>% SUGAR</th>
<th>RWST</th>
<th>TON/A</th>
<th>% PURITY</th>
<th>BEETS/100' AT HARVEST</th>
<th>% EMERG</th>
<th>LEAF-SPOT</th>
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<tbody>
<tr>
<td>HM E-17</td>
<td>5583</td>
<td>16.87</td>
<td>237.6</td>
<td>23.71</td>
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<tr>
<td>SX Prompt</td>
<td>5413</td>
<td>16.32</td>
<td>225.3</td>
<td>24.23</td>
<td>92.19</td>
<td>116</td>
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<tr>
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<td>5398</td>
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<td>238.1</td>
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<tr>
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<td>HM RH5</td>
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<td>224.5</td>
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<td>Beta 5400</td>
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<td>SX Spartan</td>
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<td>22.66</td>
<td>92.43</td>
<td>102</td>
<td>47.9</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Rows: 4   Row Length: 30'   Row Width: 30"   Replications: 6

(1) Percentage of plants compared to seeds planted.
(2) Seed spacing 4.75 inches.
LEAF SPOT TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Baxter Farms
Location: Gratiot County
Planting Date: 4/26/01
Row Spacing: 30-Inches
Previous Crop: Dry Beans
Fertilizer: 225 lbs. of 13-13-13 Starter
260 lbs. of Urea Broadcast
Replicated: 3 X – 4 Sugar Samples
Per Replication
Variety: B-5736

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW</th>
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</thead>
<tbody>
<tr>
<td>Eminent</td>
<td>---</td>
<td>---</td>
<td>219</td>
<td>16.5</td>
<td>91.9</td>
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<tr>
<td>Quadris</td>
<td>---</td>
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<td>210</td>
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<td>91.6</td>
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<tr>
<td>No Spray</td>
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<tr>
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<tr>
<td>LSD (5%)</td>
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<td>n.s. 29</td>
<td>.6</td>
<td>n.s. 2.1</td>
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<tr>
<td>CV (%)</td>
<td>---</td>
<td>---</td>
<td>6.0</td>
<td>1.7</td>
<td>1.0</td>
<td>---</td>
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</tbody>
</table>

Comments: Trial was conducted to look at the effectiveness of fungicides Eminent and Quadris compared to no spray. Only one application of Eminent and one of Quadris was applied. A total of 12 sugar samples were taken per treatment. Eminent seemed to significantly improve sugar content above the Quadris or Check treatments. Visual observation indicated very little difference in incidence of Leaf Spot. Tonnage yield was not taken.

Cooperating Agriculturist, Wayne Davis, Monitor Sugar Company.
Cooperator: Reif Farms  
Location: Saginaw County  
Planting Date: 4/18/01  
Row Spacing: 30-Inches  
Previous Crop: Corn  
Variety: See Below  
Replicated: 4 X  
Seed Spacing: 4.8-Inches  
Soil Type: Clay Loam  
Soil pH: 7.1  
Organic Matter: 2.4%  

Tillage: Fall Plowed; 1 X Field Cultivated  
Type of Harvester: Arts-Way  
# of Rows Harvested: 6  
Herbicides: 1 Pt. Nortron – 10” Band; Post Spray  
Fertilizer: 10 gal. 10-34-0; 1 Qt. Mn; 10 gal. 28-0-0; 120 lbs. N sidedressed  
Fungicide: No

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 Day</td>
</tr>
<tr>
<td>E-33</td>
<td>3852</td>
<td>16.49</td>
<td>234</td>
<td>16.2</td>
<td>93.7</td>
<td>68</td>
</tr>
<tr>
<td>C-555 + B-5736 50% Mix</td>
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<td>16.56</td>
<td>227</td>
<td>15.6</td>
<td>93.6</td>
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<td>214</td>
<td>15.5</td>
<td>92.7</td>
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<td>B-5736</td>
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<td>LSD (5%)</td>
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<td>n.s. 1.7</td>
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<tr>
<td>CV (%)</td>
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<td>5.4</td>
<td>5.1</td>
<td>1.7</td>
<td>1.1</td>
<td>30.6</td>
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</table>

Comments: Trial was conducted to look at the effects of different Rhizoctonia levels of resistance in varieties and the effect of mixing varieties. B-5736 rated high, E-33 moderate and C-555 little Rhizoctonia resistance. Field had moderate crusting problem that affected emergence. Leaf Spot control was good. Some Rhizoctonia present, but not at high levels. Sugar samples taken on October 4th. Fifty percent mix variety performed as well or slightly better than C-555 or B-5736 alone, but not significantly better. Suspect Root Aphid present at some level. Emergence had a greater impact than Rhizoctonia resistance on yield and quality.

Cooperating Agriculturist, Dave Ganton, Monitor Sugar Company.
Cooperator: Meylan Farms
Location: Bay County
Planting Date: 4/19/01
Row Spacing: 30-Inches
Previous Crop: Dry Beans
Variety: See Below
Replicated: 3 X
Seed Spacing: 4-Inches
Soil Type: Loam

Tillage: Fall Chisel Plowed – 1 X Field Cultivated
Type of Harvester: Arts-Way
# of Rows Harvested: 6
Harvest Speed: 3.7 mph
Herbicides: Nortron + Lorsban 10-inch band – 2 X Micro Rate
Fertilizer: 200 lbs. 0-0-10 Fall; 25 gals. of 28% Preplant; 20 gals. 10-25-1 – 2 quarts Mg + Sulphur
Fungicide: 8/13/01 - Eminent

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP</th>
<th>POPULATION 100 FT. ROW</th>
<th>10 Day</th>
<th>20 Day</th>
<th>30 Day</th>
<th>Harvest</th>
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<td>207</td>
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<td>91.5</td>
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<td>180</td>
<td>160</td>
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<td>193</td>
<td>14.3</td>
<td>90.1</td>
<td>6</td>
<td>93</td>
<td>141</td>
<td>120</td>
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<td>C-555</td>
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<td>91.0</td>
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<td>148</td>
<td>171</td>
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<td>C-555 + B-5736 50% Mix</td>
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<td>196</td>
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<td>90.9</td>
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<td>127</td>
<td>164</td>
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<td>Average</td>
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<td>201</td>
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<td>17</td>
<td>133</td>
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<td>LSD (5%)</td>
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<td>n.s. 9</td>
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<td>CV (%)</td>
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<td>.7</td>
<td>38.1</td>
<td>13.6</td>
<td>11.4</td>
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Comments: Trial was conducted to look at the effects of different Rhizoctonia levels of resistance in varieties and the effect of mixing varieties. B-5736 rated high, E-33 moderate and C-555 little Rhizoctonia resistance. Low amount of Rhizoctonia in field. Good Leaf Spot control. Sugar samples taken on October 10th. No significant impact of yield between any treatment. Only significant difference is between emergence.

Cooperating Agriculturist, Tom Schlatter, Monitor Sugar Company.
Cooperator: Dave Helmreich  
Location: Bay County  
Planting Date: 4/17/01  
Row Spacing: 30-Inches  
Previous Crop: CORN  
 Variety: C-555  
Replicated: 4 X  
Seed Spacing: 4.5-Inches  
Soil Type: Loam  
Soil pH: 7.3  
Organic Matter: 2.7%  
Leaf Spot Fungicide:  
1st Application Quadris;  
2nd Application Topsin + Penncozeb  
Tillage: Chisel Plowed; 1 X Field Cultivated  
Harvest Date: 11/3/01  
Type of Harvester: Parma  
# of Rows Harvested: 6  
# Defoliated: 6  
Harvest Speed: 4.5 mph  
Herbicides: Micro-rated 2 X; Post Spray Progress + Stinger + Upbeet 1X  
Fertilizer: 145 lbs. 9-41-0; 4% Mg; 110 lbs. N Broadcast and Sidedressed; 180 K2 O Broadcast  
Fungicide: Quadris: Early Application 6-8 leaf stage – 10.5 oz./acre – 10-inch band; Quadris: Late Application prior to row closure – 9.2 oz./acre broadcast  

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>DISEASED PLANTS PER 100 METERS</th>
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</thead>
<tbody>
<tr>
<td>Early + Late Application</td>
<td>5251 c</td>
<td>20.2 b</td>
<td>260 a</td>
<td>17.8 a</td>
<td>94.5 a</td>
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<td>5092 bc</td>
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<td>257 a</td>
<td>17.7 a</td>
<td>94.1 a</td>
<td>36 a</td>
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<td>255</td>
<td>17.7</td>
<td>94.1</td>
<td>22</td>
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</table>

Comments: Results followed by the same letter are not significantly different. Trial was conducted to look at the effects of Quadris applications for control of Rhizoctonia Crown Rot. Rhizoctonia pressure was moderate. Leaf Spot control was excellent. Significant differences occurred between RWSA, tonnage and diseased plants in treated versus untreated Check. Sugar samples taken on October 10th. Quadris looks promising for control of Rhizoctonia Crown Rot. Quadris costs approximately $20 per application. Early applications are more effective than late applications. Yield of Rhizoctonia resistant variety (C-1353) in adjacent trial (same field) was 23.5 tons per acre and 4,966 lbs. of RWSA.

Cooperating Agriculturist, John Leach, Lee Hubbell, Research Agronomist, Monitor Sugar Company; John Halloin, ARS USDA; and David Johnson, MSU Dept. of Plant Pathology.
Cooperator: Dave Helmreich  
Location: Bay County  
Planting Date: 4/17/01  
Row Spacing: 30-_inches  
Previous Crop: SOYBEANS  
Variety: C-555  
Replicated: 4 X  
Seed Spacing: 4.5-inches  
Soil Type: Loam  
Soil pH: 6.4  
Organic Matter: 2.3%  
Leaf Spot Fungicide: 
  1st Application Quadris  
  2nd Application Topsin + Penncozeb  

Tillage: Chisel Plowed; 1 X Field Cultivated  
Type of Harvester: Parma  
# of Rows Harvested: 6  
Harvest Speed: 4.5 mph  
Herbicides: Micro-rated 2 X; Post Spray Progress +  
Stinger + Upbeet 1X  
Fertilizer: 145 lbs. 9-41-0; 4% Mg; 110 lbs. N Broadcast and 
Sidedressed; 180 K2O Broadcast  
Fungicide: Quadris: Early Application 6-8 leaf stage – 
  10.5 oz./acre – 10-inch band;  
  Quadris: Late Application prior to row closure – 
  9.2 oz./acre broadcast  

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP</th>
<th>DISEASED PLANTS PER 100 METER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early + Late Application</td>
<td>5706 b</td>
<td>22.5 c</td>
<td>255 a</td>
<td>17.6 a</td>
<td>93.3 a</td>
<td>6 b</td>
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<tr>
<td>Early Application</td>
<td>5115 b</td>
<td>20.7 c</td>
<td>247 a</td>
<td>17.3 a</td>
<td>93.0 a</td>
<td>10 b</td>
</tr>
<tr>
<td>Late Application</td>
<td>3961 a</td>
<td>17.0 b</td>
<td>234 a</td>
<td>17.2 a</td>
<td>92.6 a</td>
<td>90 b</td>
</tr>
<tr>
<td>Check</td>
<td>3338 a</td>
<td>14.2 a</td>
<td>234 a</td>
<td>17.3 a</td>
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<td>121 a</td>
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<tr>
<td>Average</td>
<td>4530</td>
<td>18.6</td>
<td>243</td>
<td>17.4</td>
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<td>57</td>
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</tbody>
</table>

Comments: Results followed by the same letter are not significantly different. Trial was conducted to look at the effects of Quadris applications for control of Rhizoctonia Crown Rot. Rhizoctonia pressure was heavy. Leaf Spot control was excellent. Significant differences occurred between RWSA, tonnage and diseased plants in treated versus untreated Check. Sugar samples taken on October 10th. Quadris looks promising for control of Rhizoctonia Crown Rot. Quadris costs approximately $20 per application. Early applications are more effective than late applications. Yield of Rhizoctonia resistant variety (C-1353) in adjacent trial (same field) was 22.6 tons per acre and 5,010 lbs. of RWSA.

Cooperating Agriculturist, John Leach, Lee Hubbell, Research Agronomist, Monitor Sugar Company; John Halloin, ARS USDA; and David Johnson, MSU Dept. of Plant Pathology.
ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Gary and Gene Meylan
Location: Bay County
Planting Date: 4/19/01
Row Spacing: 30-Inches
Previous Crop: Dry Beans
Variety: Spartan
Replicated: 4 X
Seed Spacing: 4-Inches
Soil Type: Loam
Soil pH: 6.9
Organic Matter: 2.3%

Tillage: Fall Chisel Plowed – 1 X Field Cultivated
Type of Harvester: Arts-Way
# of Rows Harvested: 6
Harvest Speed: 3.7 mph
Herbicides: Nortron + Lorsban 10-Inch Band – 2 X Micro Rate
Fertilizer: 200 lbs. 0-0-60 Fall Applied; 25 gals. 28% N Preplant;
Planter 20 gals. 10-25-0; 2 quarts Mg; + Sulphur
Soil pH: 6.9
Fungicide: Quadris: Early Application 6-8 leaf stage –
10.5 oz./acre – 10-inch band
Quadris: Late Application prior to row closure –
9.2 oz./acre broadcast
No other Leaf Spot fungicide applied

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>DISEASED PLANTS PER 100 METERS</th>
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<tr>
<td>Early + Late Application</td>
<td>3708 b</td>
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<td>219 b</td>
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<tr>
<td>Late Application</td>
<td>3461 ab</td>
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<td>15.0 ab</td>
<td>91.7 ab</td>
<td>11</td>
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<tr>
<td>Early Application</td>
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<td>15.1 ab</td>
<td>92.1 ab</td>
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<tr>
<td>Check</td>
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<td>Average</td>
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<td>206</td>
<td>15.1</td>
<td>91.9</td>
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</table>

Comments: Trial was conducted to look at effects of Quadris applications for control of Rhizoctonia Crown Root Rot. Rhizoctonia pressure was low. Leaf Spot control was only fair. Significant differences occurred between early and late applications of Quadris and Check treatments for RWSA, RWST, % Sugar, and CJP. Results followed by the same letter not significantly different. Sugar samples taken on 10/1/01. Average harvest stand between all treatments – 147 beets/100 ft. of row. Significant reduction of diseased plants occurred with early and early plus late treatments when compared to Check. Quadris looks promising for control of Rhizoctonia Crown Rot. Quadris cost approximately $20 per application.

Cooperating Agriculturist, Tom Schlatter, Lee Hubbell, Research Agronomist, Monitor Sugar Company; John Halloin, ARS USDA; and David Johnson, MSU Dept. of Plant Pathology.
Cooperator: Herford Farms  
Location: Huron County  
Planting Date: 4/19/01  
Row Spacing: 22-Inches  
Previous Crop: Dry Beans  
Variety: 2M Pellet E-17, B-5736  
Replicated: 3 X – Row Length 1,250 ft.  
Seed Spacing: 4.8-Inches  
Soil Type: Loam  
Soil pH: 7.5  
Organic Matter: 2.3%

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW</th>
<th>10 Day</th>
<th>20 Day</th>
<th>30 Day</th>
<th>Harvest</th>
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<td>220</td>
<td>14.8</td>
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<td>2</td>
<td>123</td>
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<td>PAT Pellet E-17</td>
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<td>220</td>
<td>15.1</td>
<td>92.9</td>
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<tr>
<td>Film Coat B-5736</td>
<td>4802</td>
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<td>208</td>
<td>15.5</td>
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<td>0</td>
<td>90</td>
<td>103</td>
<td>97</td>
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<tr>
<td>Early Harvest In Pellet B-5736</td>
<td>4728</td>
<td>22.89</td>
<td>207</td>
<td>15.4</td>
<td>92.0</td>
<td>9</td>
<td>78</td>
<td>88</td>
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<td>207</td>
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<td>85</td>
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<tr>
<td>Early Harvest On Seed Pellet E-17</td>
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<td>114</td>
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<tr>
<td>Early Harvest In Pellet E-17</td>
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<td>21.90</td>
<td>206</td>
<td>15.2</td>
<td>92.5</td>
<td>7</td>
<td>117</td>
<td>122</td>
<td>117</td>
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<tr>
<td>PAT Pellet B-5736</td>
<td>4423</td>
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<td>199</td>
<td>15.2</td>
<td>90.6</td>
<td>12</td>
<td>68</td>
<td>73</td>
<td>71</td>
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<tr>
<td>Average</td>
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<td>22.37</td>
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<td>15.1</td>
<td>92.1</td>
<td>6</td>
<td>98</td>
<td>106</td>
<td>99</td>
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<tr>
<td>LSD (5%)</td>
<td>n.s. 688</td>
<td>n.s. 1.7</td>
<td>n.s. 28</td>
<td>n.s. 1.1</td>
<td>1.5</td>
<td>6</td>
<td>29</td>
<td>30</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>CV (%)</td>
<td>8.4</td>
<td>4.24</td>
<td>7.7</td>
<td>4.2</td>
<td>.9</td>
<td>52</td>
<td>17</td>
<td>16</td>
<td>15.9</td>
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</tbody>
</table>

Comments: Early Harvest Tale Seed Treatment contains plant hormonal components in a nutrient base to stimulate plant growth. This product is marketed by Griffin, LLC. Research was conducted to measure the impact of this product on early season plant growth and final yield. The product was utilized two ways: 1) on the seed, then a pellet coating applied over the top; 2) mixed with the pellet material while making pellets. All pelleted treatments are PAT treated. Film coated seed is not PAT treated. Did not see any significant early season growth or yield difference between early harvest and Check treatment. Field was crust busted 11 days after planting. Crust busting may have been more injurious to further advanced PAT treatment compared to standard film coat treatment. Sugar samples were taken on 10/03/01. Harvest population averaged 20,000 to 25,000 plants per acre. E-17 is a better emerging variety than B-5736. **Trial reliability rated EXCELLENT.** Pelleting process was from Seed Systems.
ON-FARM RESEARCH AND DEMONSTRATION

Cooperator:  Bean & Beet Research Farm  Previous Crop:  Soybeans
Location:  Saginaw County    Variety:  E-38 4M Pellet
Planting Date:  4/30/01     Replicated:  4 X
Row Spacing:  28-Inches

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>POPULATION - 50 FT. ROW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 Day</td>
</tr>
<tr>
<td>Mega Pellet</td>
<td>53</td>
</tr>
<tr>
<td>Ultra Pellet</td>
<td>57</td>
</tr>
<tr>
<td>LSD (5%)</td>
<td>9.3</td>
</tr>
<tr>
<td>CV (%)</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Comments:  Trial was conducted to look at the effects of E-38 Mega Pellet versus Ultra Pellet on emergence. Seed was from the same seed lot. Ideal emergence conditions. There was no significant difference between treatments. Pelleting process was from Astec Pelleting Company.
Cooperators, Paul Horny, Bean & Beet Farm Manager, and Dennis Fleishman, Assistant Farm Manager.

Cooperator:  Norm Corrian   Variety:  E-38 4M Pellet
Location:  Bay County    Replicated:  4 X
Planting Date:  4/13/01    Tillage:  Fall Chisel Plowed – Spring Harrow
Row Spacing:  30-Inches   Herbicides:  Betamix, Stinger, Upbeet
Previous Crop:  Soybeans   Seed Spacing:  4.5-Inches

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>POPULATION - 100 FT. ROW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 Day</td>
</tr>
<tr>
<td>Mega Pellet</td>
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</tr>
<tr>
<td>Ultra Pellet</td>
<td>0</td>
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</tbody>
</table>

Comments:  Trial was conducted to look at the effects of E-38 Mega Pellet versus Ultra Pellet on emergence. Seed was from the same seed lot. Trial indicates speed of emergence and final emergence between the two treatments was not different. The 30-day emergence indicates stand loss occurred from environmental factors. This stand loss was not caused by the pellet treatment. Pelleting process was from Astec Pelleting Company.
Cooperating agriculturist, John Leach, Monitor Sugar Company.
Cooperator: Stoutenburg Farms  
Location: Sanilac County  
Planting Date: 4/29/01  
Row Spacing: 28-Inches  
Previous Crop: Navy Beans  
Replicated: 3 X – Row Length – 1,100 ft.  
Seed Spacing: 3.3-Inches  
Soil Type: Parkhill Clay Loam  
Soil pH: 6.1  
Organic Matter: 4.2%  
Tillage: Fall V-Ripped; 2 X Field Cultivated  
Harvest Date: 11/09/01  
Type of Harvester: Arts-Way  
# of Rows Harvested: 6  
# Defoliated: 6  
Harvest Speed: 4.5 mph  
Herbicides: Micro-Rated 4 X  
Fertilizer: 12 gal. 10-34-0; 1.5 qt. Mg; 1 qt. Boron; 90 lbs. N Pre-Plant Anhydrous Ammonia  
Fungicide: 9/01/01 - 1 X Eminent

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW</th>
<th>10 FT. 20 Day 30 Day Harvest</th>
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<tbody>
<tr>
<td>B-5736 TACH-20</td>
<td>7535</td>
<td>30.80</td>
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<td>C-555 TACH-20</td>
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<td>92.3</td>
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<td>247</td>
<td>17.4</td>
<td>92.9</td>
<td>35</td>
<td>133 236 153</td>
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<tr>
<td>C-555 Encrusted</td>
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<td>29.54</td>
<td>246</td>
<td>17.4</td>
<td>93.0</td>
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<td>232 277 202</td>
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<td>249</td>
<td>17.4</td>
<td>92.8</td>
<td>26</td>
<td>143 200 130</td>
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<td>C-555 TACH-45</td>
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<td>239</td>
<td>17.3</td>
<td>92.3</td>
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<tr>
<td>C-555 PAT</td>
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<td>29.12</td>
<td>240</td>
<td>17.4</td>
<td>92.4</td>
<td>40</td>
<td>214 289 188</td>
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<td>B-5736 PAT</td>
<td>6876</td>
<td>28.63</td>
<td>240</td>
<td>17.2</td>
<td>92.5</td>
<td>30</td>
<td>136 222 134</td>
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<tr>
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<td>29.55</td>
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<td>17.3</td>
<td>92.6</td>
<td>46</td>
<td>181 257 172</td>
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<tr>
<td>LSD (5%)</td>
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<td>n.s. 23</td>
<td>n.s. 9</td>
<td>n.s. 1.2</td>
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<td>73</td>
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<tr>
<td>CV (%)</td>
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<td>3.8</td>
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<td>.8</td>
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Comments: Trial was conducted to look at the effect of Tachigaren at two different rates (45 gram and 20 gram) on two varieties. Variety C-555 is Aphanomyces tolerant and B-5736 is not. This field was selected for the trial because of previous history of seedling disease and emergence problems. Trial was planted under very dry conditions. No rainfall occurred for three weeks after planting. Best 30 day emergence occurred with Tachigaren 20 gram rate for both varieties, but only significantly different for B-5736. Highest sugar per acre occurred with the 20-gram rate for both varieties, but not significantly better between any treatment. PAT treated seed emerged as well or better than standard encrusted treatment under very, very dry conditions. All pelleted seed treatments were PAT pelleted. Further research of 20-gram rate for Michigan conditions may need to be explored. Pelleting process was from Seed Systems.

Cooperating Agriculturists, Mike Leen and Reggie Van Sickle, Michigan Sugar Company.
Partnership of:
Sugar Beet Growers
Michigan Sugar Company
Monitor Sugar Company
Michigan State University
Agribusiness

Comments: Trial was conducted to look at the effects of 45-gram rate of Tachigaren versus a low rate (20 gram) and NO TACH on control of Aphanomyces Seedling Disease. Field was selected by indication of Aphanomyces test for high probability of disease pressure. Seedling disease did not develop. A difference in emergence of varieties was seen, but no difference in Tachigaren treatments.

Cooperating agriculturist, Mike Leen, Michigan Sugar Company.
ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Larry Starkey
Location: Tuscola County
Planting Date: 4/19/01
Row Spacing: 30-Inches
Previous Crop: Corn
Variety: E-17 Roundup Ready PAT Pellet
Replicated: 3 X
Seed Spacing: 3.9-Inches
Soil Type: Tappen Loam

Tillage: Fall Plowed, 1 X Field Cultivated
Harvest Date: 10/2/01
Type of Harvester: ---
# of Rows Harvested: 6
# Defoliated: 6
Harvest Speed: ---
Herbicides: 1 quart of Roundup Ultra on May 30th and June 28th
Fertilizer: Total 180 lbs. N, 90 lbs. Spring Broadcast, 90 lbs. Sidedressed
Fungicide: 7/27/01 – Super Tin 8/21/01 - Eminent

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Cultivation</td>
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<td>206</td>
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<tr>
<td>No Cultivation</td>
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<td>15.1</td>
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<td>Grower Special</td>
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<td>22.12</td>
<td>193</td>
<td>14.8</td>
<td>91.1</td>
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</tbody>
</table>

Average 4531 22.47 202 15.0 91.6
LSD (5%) 395 1.62 10 n.s. .5 .7
CV (%) 4.6 3.8 2.7 1.8 .4

Comments: A total of three trials this year were conducted to evaluate the effects of cultivation on sugar beet yield. The variety was E-17 Roundup Ready. No weeds present. The over cultivation treatment soil was purposely thrown into the crowns of the beets. Cultivation dates:
1) Grower Special – 3 cultivations, same timings, grower.
2) Early Cultivation – 4 to 6 leaf stage.
3) Late Cultivation – Prior to row closure.
4) Over Cultivation – 3 cultivations with last cultivation (Soil Thrown In Crown).
5) No cultivation (NONE).
Average harvest population – 183 beets/100 ft. row. **Trial reliability VERY GOOD.**

Cooperator: This was one of three Roundup Ready cultivation trials conducted in cooperation with Syngenta Seed/Hilleshog, Doug Ruppal. Pelleting from Seed Systems.
Cooperator: Darrin Lutz  
Location: Huron County  
Planting Date: 4/27/01  
Row Spacing: 30-Inches  
Previous Crop: Dry Beans  
Variety: E-17 Roundup Ready PAT Pellet  
Replicated: 3 X  
Seed Spacing: 3.9-Inches  
Soil Type: Kilmanah Loam

Tillage: Fall Plow – Spring Secondary  
Type of Harvester: ---  
# of Rows Harvested: 4  
Harvest Date: 11/6/01  
Harvest Speed: 4 mph  
Herbicides: 1 quart Roundup Ultra May 31st and June 22nd  
Fertilizer: 300 lbs. 8-10-10 Startup; 50 gals. 28-0-0 on 4/20/01  
Fungicide: ---

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP</th>
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<tbody>
<tr>
<td>Grower Special</td>
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<td>16.1</td>
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<tr>
<td>1 X Late Cultivation</td>
<td>5204</td>
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<td>23.63</td>
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<td>1 X Early Cultivation</td>
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<td>23.57</td>
<td>215</td>
<td>16.0</td>
<td>90.8</td>
</tr>
<tr>
<td>Average</td>
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<td>24.20</td>
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<td>16.2</td>
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<td>LSD (5%)</td>
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<td>n.s. 1.39</td>
<td>n.s. 13</td>
<td>n.s. .52</td>
<td>n.s. .5</td>
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<tr>
<td>CV (%)</td>
<td>3.5</td>
<td>3.1</td>
<td>3.3</td>
<td>1.7</td>
<td>.3</td>
</tr>
</tbody>
</table>

Comments: A total of three trials this year were conducted to evaluate the effects of cultivation on sugar beet yield. The variety was E-17 Roundup Ready. No significant difference occurred between treatments. No weeds present. The over cultivation treatment soil was purposely thrown into the crowns of the beets. Cultivation dates:  
1) Grower Special – 3 cultivations, similar time as grower.  
2) Early Cultivation – 4 to 6 leaf stage.  
3) Late Cultivation – Prior to row closure.  
4) Over Cultivation – 3 cultivations with last cultivation (Soil Thrown In Crown).  
5) No cultivation (NONE).  

Trial reliability VERY GOOD.

Cooperator: This was one of three Roundup Ready cultivation trials conducted in cooperation with Syngenta Seed/Hilleshog, Doug Ruppal. Pelleting from Seed Systems.
Cooperator: Gary and Wayne Fisher
Location: Gratiot County
Planting Date: 4/30/01
Row Spacing: 30-Inches
Previous Crop: Corn
Fertilizer: 25 N Starter – 102 N Sidedressed
Variety: E-17 Roundup Ready PAT Pellet
Replicated: 3 X – Row Length - 300 ft.

TREATMENT NAME | RWSA | ACTUAL YIELD T/A | RWST | % SUGAR | CJP %
--- | --- | --- | --- | --- | ---
1 X Early Cultivation | 5381 | 20.93 | 256 | 17.9 | 93.8
Over Cultivation | 5324 | 20.83 | 255 | 17.9 | 93.8
1 X Late Cultivation | 5264 | 20.83 | 252 | 17.8 | 93.4
No Cultivation | 5215 | 21.67 | 240 | 17.5 | 93.0
Grower Special | 5132 | 21.03 | 243 | 17.6 | 92.8
Average | 5263 | 21.06 | 250 | 17.7 | 93.3
LSD (5%) | n.s. 731 | n.s. 2.32 | n.s. 17.5 | n.s. .5 | n.s. 1.2
CV (%) | 7.4 | 5.8 | 3.7 | 1.6 | .7

Comments: A total of three trials this year were conducted to evaluate the effects of cultivation on sugar beet yield. The variety was E-17 Roundup Ready. No significant difference occurred between treatments. No weeds present. The over cultivation treatment soil was purposely thrown into the crowns of the beets. Cultivation dates: 1) Grower Special – 3 cultivations, similar time as grower.
2) Early Cultivation – 4 to 6 leaf stage.
3) Late Cultivation – Prior to row closure.
4) Over Cultivation – 3 cultivations with last cultivation (Soil Thrown In Crown).
5) No cultivation (NONE).

Trial reliability VERY GOOD.

Cooperator: This was one of three Roundup Ready cultivation trials conducted in cooperation with Syngenta Seed/Hilleshog, Doug Ruppal. Pelleting from Seed Systems.
Partnership of:
Sugar Beet Growers
Michigan Sugar Company
Monitor Sugar Company
Michigan State University
Agribusiness

AVERAGE OF THREE CULTIVATION TRIALS - 2001

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Fisher – Starkey - Lutz
Location: Gratiot – Tuscola - Huron
Planting Date: 2001
Row Spacing: ---
Previous Crop: ---
Fertilizer: ---
Variety: E-17 Roundup Ready

Tillage: ---
Harvest Date: ---
Type of Harvester: ---
Harvest Speed: ---
Herbicides: Roundup Ultra
Fungicide: ---
Replicated: Three Locations – Total of Nine Replications

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Cultivation</td>
<td>5173</td>
<td>23.02</td>
<td>225</td>
<td>16.4</td>
<td>92.2</td>
</tr>
<tr>
<td>Grower Special</td>
<td>5006</td>
<td>22.88</td>
<td>219</td>
<td>16.2</td>
<td>91.8</td>
</tr>
<tr>
<td>No Cultivation</td>
<td>4995</td>
<td>22.49</td>
<td>222</td>
<td>16.3</td>
<td>91.7</td>
</tr>
<tr>
<td>1 X Early Cultivation</td>
<td>4923</td>
<td>22.06</td>
<td>223</td>
<td>16.3</td>
<td>92.1</td>
</tr>
<tr>
<td>1 X Late Cultivation</td>
<td>4911</td>
<td>22.43</td>
<td>219</td>
<td>16.3</td>
<td>91.8</td>
</tr>
<tr>
<td>Average</td>
<td>5002</td>
<td>22.58</td>
<td>222</td>
<td>16.3</td>
<td>91.9</td>
</tr>
<tr>
<td>LSD (5%)</td>
<td>n.s. 300</td>
<td>n.s. 1.01</td>
<td>n.s. 11</td>
<td>n.s. .28</td>
<td>n.s. .7</td>
</tr>
<tr>
<td>CV (%)</td>
<td>3.2</td>
<td>2.4</td>
<td>2.7</td>
<td>.9</td>
<td>.4</td>
</tr>
</tbody>
</table>

Comments: No significant difference between any treatment. Low amount of Rhizoctonia Root Rot in all trials.

Cooperator, Doug Ruppal, Syngenta Seed/Hilleshog
ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Lutz – Starkey - Grekowicz  
Location: Huron – Tuscola - Huron  
Planting Date: ---  
Row Spacing: ---  
Previous Crop: ---  
Fertilizer: ---  
Variety: E-17 - RR  
Replicated: Three locations – Total of 9 Replications

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 X – Early Cultivation</td>
<td>5655</td>
<td>23.41</td>
<td>239</td>
<td>17.0</td>
<td>93.7</td>
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<tr>
<td>No Cultivation</td>
<td>5457</td>
<td>22.72</td>
<td>236</td>
<td>16.9</td>
<td>92.7</td>
</tr>
<tr>
<td>1X – Late Cultivation</td>
<td>5387</td>
<td>22.66</td>
<td>233</td>
<td>16.7</td>
<td>92.5</td>
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<tr>
<td>Grower Special – 3 Cultivations</td>
<td>5354</td>
<td>22.44</td>
<td>239</td>
<td>17.0</td>
<td>93.0</td>
</tr>
<tr>
<td>Over Cultivation</td>
<td>5246</td>
<td>21.91</td>
<td>236</td>
<td>16.8</td>
<td>92.7</td>
</tr>
<tr>
<td>Average</td>
<td>5420</td>
<td>22.63</td>
<td>237</td>
<td>16.9</td>
<td>92.8</td>
</tr>
<tr>
<td>LSD (5%)</td>
<td>400</td>
<td>1.18</td>
<td>n.s. (9.9)</td>
<td>n.s. (0.4)</td>
<td>0.9</td>
</tr>
<tr>
<td>CV (%)</td>
<td>3.9</td>
<td>2.8</td>
<td>2.2</td>
<td>1.2</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Comments: Significant difference of RWSA between over cultivation and 1X early cultivation. Early cultivation and no cultivation treatments trended slightly higher in tonnage. Yields tended to trend lower as cultivation frequency increased, and if soil is thrown into the crown. Overall, trial indicates little, if any, response to cultivation on yield. Least amount of dead or dying Rhizoctonia plants occurred in the one time early and no cultivation trials. All trials received significant rains after planting settled and tightened the soil.

Trials conducted in cooperation with Syngenta Seed/Hilleshog, Doug Ruppal.
### AVERAGE OF SIX CULTIVATION TRIALS - 2000 and 2001 (2 Years)

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 X Early Cultivation</td>
<td>5289</td>
<td>22.74</td>
<td>231</td>
<td>16.7</td>
<td>92.9</td>
</tr>
<tr>
<td>No Cultivation</td>
<td>5226</td>
<td>22.60</td>
<td>229</td>
<td>16.6</td>
<td>92.2</td>
</tr>
<tr>
<td>Over Cultivation</td>
<td>5210</td>
<td>22.47</td>
<td>231</td>
<td>16.6</td>
<td>92.5</td>
</tr>
<tr>
<td>Grower Special</td>
<td>5180</td>
<td>22.66</td>
<td>229</td>
<td>16.6</td>
<td>92.4</td>
</tr>
<tr>
<td>1 X Late Cultivation</td>
<td>5149</td>
<td>22.55</td>
<td>226</td>
<td>16.5</td>
<td>92.2</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>5211</td>
<td>22.60</td>
<td>229</td>
<td>16.6</td>
<td>92.4</td>
</tr>
</tbody>
</table>

**LSD (5%)**
- n.s. 468
- n.s. 1.79
- n.s. 6.51
- n.s. .33
- n.s. .9

**CV (%)**
- 3.2
- 2.9
- 1.0
- .7
- .3

Comments: This information covers two years and six locations. Data suggests no significant difference between cultivation treatments. The need for cultivation may not be as great as previously thought.
### AVERAGE OF THREE CULTIVATION TRIALS - 1999

#### ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: Meylan - Fisher - Uebler  
Location: Bay - Gratiot - Saginaw  
Planting Date: 4/29/99 and 5/01/99  
Variety: RH3 - RR  
Previous Crop: ---  
Fertilizer: ---  
Replicated: Three Locations -  
Total of 9 Replications

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Cultivation 1 X</td>
<td>5645</td>
<td>26.4</td>
<td>213</td>
<td>16.1</td>
<td>90.9</td>
</tr>
<tr>
<td>No Cultivation</td>
<td>5614</td>
<td>26.0</td>
<td>216</td>
<td>16.0</td>
<td>91.3</td>
</tr>
<tr>
<td>Early Cultivation 1 X</td>
<td>5547</td>
<td>26.2</td>
<td>213</td>
<td>16.0</td>
<td>90.6</td>
</tr>
<tr>
<td>Grower Special - 3 Cultivations</td>
<td>5523</td>
<td>25.9</td>
<td>213</td>
<td>16.0</td>
<td>90.7</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>5582</td>
<td>26.1</td>
<td>214</td>
<td>16.0</td>
<td>90.9</td>
</tr>
<tr>
<td>LSD (5%)</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

Comments: No significant difference in any category. Overall, cultivation of beets did help improve yield or decrease yield. Main reason to cultivate is for weed control. In the absence of weeds, cultivations may not be necessary under normal growing conditions.

Trials conducted in cooperation with Syngenta Seed/Hilleshog, Doug Ruppal.
Partnership of:
Sugar Beet Growers
Michigan Sugar Company
Monitor Sugar Company
Michigan State University
Agribusiness

AVERAGE OF NINE
CULTIVATION TRIALS –
1999 – 2000 – 2001 (3 Years)

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: ---
Location: Nine Locations (3 Years)
Planting Date: ---
Row Spacing: ---
Previous Crop: ---
Fertilizer: ---
Variety: 1999 RH-3 Roundup Ready
2000 & 2001 E-17 Roundup Ready
Replicated: Nine Locations – Total of 27 Replications

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 X Early Cultivation</td>
<td>5375</td>
<td>23.89</td>
<td>225</td>
<td>16.4</td>
<td>92.1</td>
</tr>
<tr>
<td>No Cultivation</td>
<td>5355</td>
<td>23.74</td>
<td>224</td>
<td>16.4</td>
<td>91.9</td>
</tr>
<tr>
<td>1 X Late Cultivation</td>
<td>5314</td>
<td>23.83</td>
<td>222</td>
<td>16.4</td>
<td>91.7</td>
</tr>
<tr>
<td>Grower Special</td>
<td>5292</td>
<td>23.74</td>
<td>223</td>
<td>16.4</td>
<td>91.8</td>
</tr>
<tr>
<td>Average</td>
<td>5335</td>
<td>23.80</td>
<td>224</td>
<td>16.4</td>
<td>91.9</td>
</tr>
</tbody>
</table>

LSD (5%)
| n.s. 198 | n.s. .80 | n.s. 4.26 | n.s. .2 | n.s. .8 |

CV (%)
| 1.9 | 1.7 | 1.0 | .7 | .4 |

Comments: Combined over multiple years, locations and environments produced no significant differences in yield and quality of beets harvested. Possible slight advantage of one time early cultivation under crusting or compress soil conditions. One time late cultivation (prior to row closure) may slightly increase Rhizoctonia incidence under certain conditions and/or if significant Rhizoctonia pressure exists. Michigan sugar beet yields averaged between two and four cultivations per year. With the introduction of Roundup resistant beet varieties and micro-rate herbicide programs coupled with excellent weed control, research indicates little or no need to cultivate sugar beets.
Cooperator: Yoder Farms  
Location: Huron County  
Planting Date: 4/13/01  
Row Spacing: 20-Inches  
Previous Crop: Navy Beans  
Variety: E-17 PAT Pellet  
Replicated: 3 X – Row Length: 1,155 ft.  
Seed Spacing: 4.7-Inches  
Soil Type: Sandy Loam  
Tillage: Chisel Plowed; 1 X Field Cultivated  
Type of Harvester: Arts-Way  
# of Rows Harvested: 8  
Herbicides: 1 X 1.75 lbs. Pyramin – 8” Band; Post Spray  
1 pt. Betamix + .16 oz. Upbeet + .08 oz. Stinger  
+ 7” Band; 1 qt. Crop completer Gold  
Fertilizer: 360 lbs. 8-7-33 28% N Sidedressed According to Treatments  
Fungicide: Eminent 7/20/01

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW</th>
<th>10 Day</th>
<th>20 Day</th>
<th>30 Day</th>
<th>Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 lbs.</td>
<td>5991</td>
<td>25.71</td>
<td>233</td>
<td>16.2</td>
<td>93.7</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>150 lbs.</td>
<td>5754</td>
<td>26.95</td>
<td>214</td>
<td>15.5</td>
<td>92.6</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>120 lbs.</td>
<td>5499</td>
<td>25.41</td>
<td>217</td>
<td>15.7</td>
<td>93.1</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Average</td>
<td>5748</td>
<td>26.02</td>
<td>221</td>
<td>15.8</td>
<td>93.1</td>
<td>---</td>
<td>---</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>LSD (5%)</td>
<td>n.s.</td>
<td>n.s. 2.57</td>
<td>n.s. 24</td>
<td>.6</td>
<td>.5</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>CV (%)</td>
<td>6.5</td>
<td>4.4</td>
<td>4.8</td>
<td>1.6</td>
<td>.2</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

Comments: Treatments are total N/acre, including starter and sidedress. Manure applied Spring of 2000. Excellent stands and good Leaf Spot control. Field under extreme drought stress during summer. No visual differences between treatments. Significant difference in % sugar and % Clear Juice Purity between lowest nitrogen treatment compared to higher treatments. Slight trend for higher tonnage yield with 150 lbs./acre rate of nitrogen compared to 90 lb. rate. Trend for higher recoverable white sugar per acre with 90 lb. rate because of higher % sugar and Clear Juice Purity. *Three strips of 30 lb. rate of nitrogen harvested outside of trial yielded as follows: 26.72 tons/acre, 16.3% sugar, 93.5% CJP, 230 pounds of RWST and 6,138 pounds of RWSA.* Sugar samples taken on 10/18/01. Soil nitrate test taken early spring gave 20 lb. nitrogen credit. MSU recommendation from nitrate test for 22-ton crop was 90 lbs./acre actual N. Over applications of nitrogen lowers sugar content and purity, which greatly affects RWSA. **Trial reliability rated EXCELLENT.**

Cooperating Agriculturist, Roger Elston, Michigan Sugar Company.
### NITROGEN TRIAL

**Partnership of:**
- Sugar Beet Growers
- Michigan Sugar Company
- Monitor Sugar Company
- Michigan State University Agribusiness

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**ON-FARM RESEARCH AND DEMONSTRATION**

Cooperator: Warren Reithal
Location: Huron County
Planting Date: 4/14/01
Row Spacing: 28-Inches
Previous Crop: Navy Beans
Variety: C-1353
Replicated: 3 X – Row Length: 900 ft.
Seed Spacing: 4.5-Inches
Soil Type: Loam

Tillage: Fall Plowed; 1 X Field Cultivated
Type of Harvester: John Deere
# of Rows Harvested: 12
# Defoliated: 4
Harvest Date: 11/07/01
Harvest Speed: 3.5 mph
Herbicides: 1.8 lbs. Pyramin – 7” Band; Post Spray 1 pt. Betamix + ½ oz. Upbeet + 1 oz. Stinger 1X
Fertilizer: 4 gals. 6-24-6; 28-0-0 Sidedressed According to treatment; 1,200 lbs. 3-14-45 Fertilizer for 4 Years Fungicide: 7/17/01 Eminent; 8/21/01 Eminent

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW 10 Day</th>
<th>20 Day</th>
<th>30 Day</th>
<th>Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>6682</td>
<td>26.82</td>
<td>249</td>
<td>17.1</td>
<td>93.8</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>174</td>
</tr>
<tr>
<td>120</td>
<td>6657</td>
<td>26.90</td>
<td>248</td>
<td>17.3</td>
<td>93.5</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>174</td>
</tr>
<tr>
<td>180</td>
<td>6332</td>
<td>27.60</td>
<td>229</td>
<td>16.3</td>
<td>93.3</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>174</td>
</tr>
<tr>
<td>Average</td>
<td>6861</td>
<td>27.11</td>
<td>242</td>
<td>16.9</td>
<td>93.5</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>174</td>
</tr>
<tr>
<td>LSD (5%)</td>
<td>n.s. 638</td>
<td>n.s. 1.83</td>
<td>12</td>
<td>.6</td>
<td>n.s. .6</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>CV (%)</td>
<td>4.3</td>
<td>3.0</td>
<td>2.1</td>
<td>1.7</td>
<td>.3</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

Comments: Field had no manure applied. Trial was conducted to look at the effects of nitrogen on yield and quality of sugar beets. High rate of nitrogen significantly lower % sugar by 1% and RWST when compared to lowest nitrogen rate. High rate of nitrogen did slightly improved tonnage, but not significantly. High rates of nitrogen tended to suppress RWSA versus the low rates. Early spring nitrate test gave a 20 lb. nitrogen credit. MSU recommendation from nitrate test for 22-ton crop was 90 lbs. of applied nitrogen. **Trial reliability rated EXCELLENT.** Nitrogen applications above 120 lbs. N per acre showed no positive economical effect in this trial.

Cooperating Agriculturist, Jeff Elston, Michigan Sugar Company.
**ON-FARM RESEARCH AND DEMONSTRATION**

Cooperator: Two B Farm, Inc. (Bushey)
Location: Huron County
Planting Date: 4/04/01
Row Spacing: 22-Inches
Previous Crop: Corn
Variety: Hilleshog E-17
Seed Spacing: 5-Inches
Soil Type: Clay Loam
Soil pH: 7.8; Organic Matter 3.5%
Tillage: ---
Harvest Date: 11/02/01
Type of Harvester: Red River
# of Rows Harvested: 8
Harvest Speed: 3.8 mph
Herbicides: Micro Rate 4 X; ½ pt. Roundup Before Emergence; 0.5 pts. Betamix + 1 oz. Stinger + 1/8 oz. Upbeet + 1.2 pts/A MSO
Fertilizer: Fall 750 lbs. Gypsum; Spring 135 lbs./A Nitrogen Split; AG Spectrum on Seed; 12.8 oz./A Grozyme; 3.5 gals./A Clean Start, 4 lbs./Kickoff
Fungicide: 7/17/01 Eminent; 8/03/01 Benlate + Penncozeb

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP</th>
<th>POPULATION 100 FT. ROW HARVEST BEET</th>
<th>WEIGHT/BEET</th>
<th>APPLICATION DATE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binaary CQ</td>
<td>8295</td>
<td>28.6</td>
<td>291</td>
<td>19.9</td>
<td>94.2</td>
<td>144</td>
<td>1.6</td>
<td>6/09/01</td>
</tr>
<tr>
<td>Untreated</td>
<td>8078</td>
<td>28.5</td>
<td>284</td>
<td>19.3</td>
<td>94.6</td>
<td>140</td>
<td>1.8</td>
<td>---</td>
</tr>
<tr>
<td>SoluBor + 28% N</td>
<td>8077</td>
<td>28.2</td>
<td>287</td>
<td>19.5</td>
<td>94.4</td>
<td>133</td>
<td>1.8</td>
<td>6/09, 7/11, 8/09/01</td>
</tr>
<tr>
<td>CCG/CCII</td>
<td>7858</td>
<td>27.5</td>
<td>286</td>
<td>19.5</td>
<td>94.3</td>
<td>135</td>
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<tr>
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<td>284</td>
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<td>286</td>
<td>19.5</td>
<td>94.3</td>
<td>133</td>
<td>1.8</td>
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</table>

LSD (5%)<br>CV (%)

Comments: Treatment Code: CCG – Crop Completer Gold; CCII – Crop Completer II. Trial was conducted to determine impact of foliar feed applications. Weights were determined with a scaled cart. Quality samples dropped from harvester. Root Aphid pressure and Rhizoctonia pressure was low. **Trial reliability rated EXCELLENT.** Lab analysis performed at MARL (Michigan Agricultural Research Laboratory). Note tons/A are net or clean (tare 7.396% off). All treatments applied at labeled rates. Field was not cultivated. Harvest population and average beet weight determined from quality samples. Cooperating agriculturist, Roger Elston, Michigan Sugar Company. Thanks to the Cooperative Elevator Company for product.
FOLIAR FEED TRIAL

ON-FARM RESEARCH AND DEMONSTRATION

Cooperator: LAKKE Ewald Farms  Tillage: ---  Location: Tuscola County
Planting Date: 4/09/01  Harvest Date: 10/29/01  Type of Harvester: Artsway
Row Spacing: 22-Inches  # of Rows Harvested: 8  # Defoliated: 8
Previous Crop: Dry Edible Beans  Harvest Speed: 4.3 mph
Variety: Hilleshog E-17  Herbicides: Micro Rate 5 X; 0.5 pts. Betamix + 1 oz. Stinger
Replicated: 4 X – Row Length: 2,134 ft.  + 1/8 oz. Upbeet + 1.2 pts/A MSO
Seed Spacing: 4.6-Inches  Fertilizer: Spring 60 lbs. N as 28% N Preplant; 80 lbs. N
Soil Type: Clay Loam  (28% N) Sidedressed
Soil pH: 7.7, Organic Matter: 2.4%  Fungicide: 7/21/01 Eminent; 8/24/01 Super Tin

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW HARVEST BEET</th>
<th>WEIGHT/BEET</th>
<th>APPLICATION DATE(S)</th>
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<td>264</td>
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<td>93.8</td>
<td>116</td>
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<td>6/08, 7/10, 8/08/01</td>
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<td>265</td>
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<td>2.0</td>
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<tr>
<td>C-N-B</td>
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<td>265</td>
<td>18.3</td>
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<td>6/08, 7/10, 8/08/01</td>
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<tr>
<td>Bianary CQ</td>
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<tr>
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<tr>
<td>LSD (5%)</td>
<td>n.s. 494</td>
<td>n.s. 1.5</td>
<td>n.s. 8.2</td>
<td>n.s. 0.4</td>
<td>n.s. 0.7</td>
<td>n.s. 37</td>
<td>n.s. 0.7</td>
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<td>CV (%)</td>
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<td>2.1</td>
<td>1.5</td>
<td>0.5</td>
<td>21.5</td>
<td>20.4</td>
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</table>

Comments: Treatment Code: CCG – Crop Completer Gold; CCII – Crop Completer II. Trial was conducted to determine impact of foliar feed applications. Weights were determined with individual truck loads. Quality samples dropped from harvester. Root Aphid pressure and Rhizoctonia pressure was low. **Trial reliability rated EXCELLENT.** Lab analysis performed at MARL (Michigan Agricultural Research Laboratory). Note tons/A are net or clean (tare 3.81% off). All treatments applied at labeled rates. Field was cultivated twice. Harvest population and average beet weight determined from quality samples.

Cooperating agriculturist, Tim Muz, Michigan Sugar Company. Thanks to the Cooperative Elevator Company for product.
Cooperator: Bean and Beet Research Farm  
Location: Saginaw  
Planting Date: 4/16/01  
Row Spacing: 28-Inches  
Previous Crop: Wheat-Clover-Radish  
Fertilizer: 120 lbs. N From Urea  
Variety: E-17 PAT, 2M Pellet  
Seed Spacing: 5.3-Inches

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW</th>
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<tr>
<td>Clover</td>
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<tr>
<td>Wheat Stubble</td>
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<td>22.17</td>
<td>261</td>
<td>18.1</td>
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<tr>
<td>Oil Seed Radish</td>
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<td>255</td>
<td>17.8</td>
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<tr>
<td>Average</td>
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<td>18.0</td>
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<td>LSD (5%)</td>
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<td>1.95</td>
<td>n.s.14</td>
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<td>CV (%)</td>
<td>3.4</td>
<td>4.9</td>
<td>3.1</td>
<td>2.5</td>
<td>.3</td>
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Comments: Trial was conducted to look at the effect of previous cover crop on emergence, yield and quality of sugar beets. Wheat field was spring frost seeded to Michigan Mammoth Clover in strips. Wheat field harvested in July. Oil seed radish strips seeded in August directly into wheat stubble with 50 lbs. of N. Other wheat strips volunteer wheat was allowed to grow. Trial set up in a complete randomized block. All treatments fall plowed in early November. Clover stand was excellent and 12-to 14-inches tall. Radish stand was only fair. Clover treatments plowed easier than other treatments. Field worked in spring with Triple K. Rainfall occurred shortly after sugar beet planting caused light crusting. Significantly better emergence occurred in clover strips because of softer crust. Sugar beets in clover strips look thriftier than wheat stubble or radish strips. Significant increases in tonnage and RWSA in clover strips. Trial reliability rated EXCELLENT.
Cooperator: Dave Helmreich  
Location: Bay County  
Planting Date: 4/17/01  
Row Spacing: 30-Inches  
Previous Crop: CORN  
Variety: C-555 and C-1353  
Replicated: 4 X  
Seed Spacing: 4.5-Inches  
Soil Type: Loam  
Temik: 19 to 20 lbs./Acre

Tillage: Chisel Plowed; 1 X Field Cultivated  
Harvest Date: 11/03/01  
Type of Harvester: Parma  
# of Rows Harvested: 6  
# Defoliated: 6  
Harvest Speed: 4.5 mph  
Herbicides: Micro-rated 2 X; Post Spray Progress + Stinger + Upbeet 1 X  
Fertilizer: 145 lbs. 9-41-0; 4% Mg; 110 lbs. N Broadcast and Sidedressed; 300 lbs. 180 K2O  
Fungicide: 1st Application Quadris 2nd Application Topsin + Penncozeb

<table>
<thead>
<tr>
<th>TREATMENT NAME</th>
<th>RWSA</th>
<th>ACTUAL YIELD T/A</th>
<th>RWST</th>
<th>% SUGAR</th>
<th>CJP %</th>
<th>POPULATION 100 FT. ROW</th>
<th>100M/ROW MEAN OF DISEASED PLANTS</th>
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<tbody>
<tr>
<td>C-555 Check Corn Previous Crop</td>
<td>5302 a</td>
<td>21.19 ab</td>
<td>250 a</td>
<td>17.55 a</td>
<td>93.1 a</td>
<td>11 a</td>
<td>117 a</td>
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<tr>
<td>C-555 Temik Corn Previous Crop</td>
<td>5233 a</td>
<td>20.71 ab</td>
<td>254 a</td>
<td>17.46 a</td>
<td>93.3 a</td>
<td>20 b</td>
<td>139 a</td>
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<tr>
<td>C-1353 Temik Corn Previous Crop</td>
<td>4966 ab</td>
<td>23.53 b</td>
<td>212 b</td>
<td>15.96 b</td>
<td>91.7 ab</td>
<td>8 a</td>
<td>128 a</td>
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<tr>
<td>C-1353 Check Corn Previous Crop</td>
<td>4216 b</td>
<td>20.32 a</td>
<td>208 b</td>
<td>15.90 b</td>
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<td>Average</td>
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<td>231</td>
<td>16.72</td>
<td>92.4</td>
<td>12</td>
<td>123</td>
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</tbody>
</table>

Comments: Results followed by the same letter are not significantly different. Results followed by the same letter are not significantly different. This field has a known Sugar Beet Cyst Nematode infestation and Rhizoctonia Crown Root Rot problem. This trial was established to see the effects of Temik on control of cyst nematode. Significantly higher tonnage occurred with C-1353 using Temik. Temik seems to produce a higher incidence of Rhizoctonia Root Rot and stand loss in susceptible varieties (C-555) compared to Rhizoctonia resistant variety C-1353. Higher incidence of Rhizoctonia in C-555 may negate the beneficial effect of Temik nematode control. Cost of Temik application is approximately $60/acre. 

**Trial reliability rated GOOD.**

Cooperating Agriculturist, John Leach, Monitor Sugar Company; Dr. John Halloin, ARS USDA; and David Johnson, MSU Dept. of Plant Pathology.
Cooperator: Dave Helmreich  
Location: Bay County  
Planting Date: 4/17/01  
Row Spacing: 30-Inches  
Previous Crop: SOYBEANS  
Variety: C-555 and C-1353  
Replicated: 4 X  
Seed Spacing: 4.5-Inches  
Soil Type: Loam  
Temik: 19 to 20 lbs./Acre

Tillage: Chisel Plowed; 1 X Field Cultivated  
Harvest Date: 11/03/01  
Type of Harvester: Parma  
# of Rows Harvested: 6  
Harvest Speed: 4.5 mph  
Herbicides: Micro-rated 2 X; Post Spray Progress + Stinger + Upbeet 1 X  
Fertilizer: 145 lbs. 9-41-0; 4% Mg; 110 lbs. N Broadcast and Sidedressed; 300 lbs. 180 K<sub>2</sub>O  
Fungicide: 1<sup>st</sup> Application Quadris 2<sup>nd</sup> Application Topsin + Penncozeb

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<thead>
<tr>
<th>TREATMENT NAME</th>
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<th>POPULATION 100 FT. ROW</th>
<th>100M/ROW MEAN OF DISEASED PLANTS</th>
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<tr>
<td>C-1353 Temik Soys Previous Crop</td>
<td>5010 b</td>
<td>22.6 b</td>
<td>221 a</td>
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<td>128 a</td>
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<td>22.4 b</td>
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<td>92.0 a</td>
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<td>120 a</td>
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<tr>
<td>C-555 Check Soys Previous Crop</td>
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<td>220 a</td>
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<td>C-555 Temik Soys Previous Crop</td>
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<tr>
<td>Average</td>
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<td>219</td>
<td>15.8 a</td>
<td>91.7</td>
<td>26</td>
<td>131</td>
</tr>
</tbody>
</table>

Comments: This field has a known sugar beet cyst nematode infestation and Rhizoctonia Crown Root Rot problem. This trial was established to see the effects of Temik on control of cyst nematode. No significant difference from Temik on yield of either variety. There is a significant difference in yield between varieties. Very heavy levels of Rhizoctonia Crown Rot occurred. A trend for higher incidence Rhizoctonia and stand loss occurred with susceptible variety C-555 with the use of Temik. C-1353 is a Rhizoctonia resistant variety. Cost of Temik is approximately $60/acre.  

Trial reliability rated GOOD.  
Cooperating Agriculturist, John Leach, Monitor Sugar Company.
Sugar beet plots were established at the Saginaw Bean and Beet Research Farm to evaluate the effects of seedbed tillage, planter selection and seed treatment on plant emergence and stand uniformity of beet spacing and size, sugar content and yield. All plots were fall moldboard plowed. While fall seedbed tillage was planned, the soil was too dry, and then snow covered and wet. Seedbed tillage was first done in late February.

Four seedbed tillage treatments were compared: 1) a **stale seedbed**, 2) a **single, shallow** (1-2 inch) pass with a **Danish-tine field cultivator**, and 3) a single pass with a **spike-tooth/rolling harrow** finishing tool. A fourth tillage treatment included spring tillage with a **field cultivator (c-shank)** followed by a **Danish-tine field cultivator**. Sugar beets were planted with a **John Deere 7300** general purpose vacuum planter and an **Accord plate-type beet planter**. The beets were planted on April 30 using the variety E-17 with a #3 fasonated or 4M pelleted seed treatment. The target seed spacing was 5½ inches.

Stand establishment goals included **early season emergence and growth**, a high plant population and an even spacing between plants in the row. Spring seedbed tillage was within a few hours of planting to conserve soil moisture. Shallow tillage with the Danish tine was at a depth of 1-2 inches to break the surface crust and level the surface yet avoid excessive drying of the seedbed. Spring field cultivation was at a depth of 4 inches with two passes of the Danish-tine with a rolling harrow to level and firm the seedbed.

**Emergence**

Rapid emergence minimizes the risk of crusted soil and diminished stands. The seedbed was favorable when the beets were planted, but dry for several days following. The 10-day emergence rate indicates that the most favorable seed environment tended to follow the least spring seedbed tillage. The most rapid emergence occurred following a single pass of a spike-tooth/rolling harrow or in a stale seedbed. The slowest emergence followed a pass with the field cultivator followed by a Danish-tine/rolling harrow to firm and level the seedbed. The Deere planter provided more rapid emergence than the Accord. The Accord was designed for a more intensively tilled seedbed than we provided.

**Plant Spacing Uniformity**

The Accord planter provided the best plant spacing uniformity in all seedbeds. The best spacing uniformity for the Deere planter was in the stale seedbed and where the spike-tooth/roller harrow was used.

---

1 Timothy M. Harrigan, Agricultural Engineering Dept., Michigan State University, East Lansing MI, Paul Horny and Dennis Fleischman, Crop and Soil Sciences, Saginaw Bean and Beet Farm.