2020 Dry Bean Research
Genetic and Agronomic Advancement

Scott Bales
MSU Dry Bean Specialist
2020 Dry Bean Performance Trials
Michiganbean.com

• 148 entries across 10 market classes
• Average Yield:
  • Huron: 32.0
  • Tuscola: 31.7
  • Montcalm: 28.5
  • Bay: 26.0
  • Sanilac: 22.8
## Dry Bean Performance Trials

<table>
<thead>
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<td>Sanilac</td>
<td>Aldrich Farms</td>
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<td>Tuscola</td>
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<tr>
<td>Montcalm</td>
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</table>
Cumulative Rainfall

Total rainfall (inches)

Montcalm  Tuscola  Huron  Sanilac  Bay

6/1/2020  7/1/2020  8/1/2020  9/1/2020

Scott Bales - MSU Dry Bean Specialist
Cumulative Rainfall

- Montcalm
- Tuscola
- Huron
- Sanilac
- Bay

Scott Bales - MSU Dry Bean Specialist
Cumulative Rainfall

Montcalm
Tuscola
Huron
Sanilac
Bay

Total rainfall (inches)

<table>
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<th>Maturity</th>
<th>Flowering</th>
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**Highest yielding variety within column**
*Yield not statistically different than the highest yielding variety within column*
Questions?

Schindler Farms  
Pawlowski Farms  
Bednarski Farms  
Aldrich Farms  
Lutz Farms  
Jaquays Farms  
LAAKE & Ewald Farms

Michiganbean.com/research

Scott Bales  
Ph: (989) 262-8550  
Email: balessco@msu.edu
Navy Beans
Michiganbean.com

• 31 Entries
  • Commercial: 12
  • Experimental: 19

• Average Yield:
  • Huron: 31.1
  • Tuscola: 30.7
  • Bay: 29.5
  • Sanilac: 20.7
*Yield not statistically different than the highest yielding variety within column
Yields followed by the same letter are not significantly different $P \leq 0.05$. 
NAUTICA
RANK: 9

INDI
RANK: 8
HMS BOUNTY
RANK: 1

MATURITY: 100 DAYS
SOURCE: PROVITA
# Micronutrient Application Method

## Merlin Navy Beans

<table>
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<tr>
<th>Treatment</th>
<th>Method</th>
<th>Product</th>
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Micronutrient Application Method

Merlin Navy Beans

Yield (lb. per acre)

UTC 2x2 POST R1

Huron Bay Sanilac

*Means followed by the same letter are not significantly different P< 0.05.
Micronutrient Application Method

Merlin Navy Beans (non-significant)

<table>
<thead>
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<th>Method</th>
<th>Yield (lb. per acre)</th>
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<tr>
<td>R1</td>
<td>3200</td>
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</table>

Average

Scott Bales - MSU Dry Bean Specialist
## Micronutrient Application Method

**Merlin Navy Beans (non-significant)**

---

**Scott Bales**  
**MSU Dry Bean Specialist**  
**Ph: (989) 262-8550**  
**Email: balessco@msu.edu**

<table>
<thead>
<tr>
<th>Yield (lb. per acre)</th>
<th>Schindler Farms</th>
<th>Pawlowski Farms</th>
<th>Bednarski Farms</th>
<th>Aldrich Farms</th>
<th>Lutz Farms</th>
<th>Jaquays Farms</th>
<th>LAAKE &amp; Ewald Farms</th>
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For more information, visit [Michiganbean.com/research](http://Michiganbean.com/research)
Black Beans
Michiganbean.com

• 29 Entries
  • Commercial: 9
  • Experimental: 20

• Average Yield:
  • Huron: 40.8
  • Bay: 31.9
  • Tuscola: 30.1
  • Sanilac: 23.7
*Yield not statistically different than the highest yielding variety within column
Three Year Average

Yield as a percent of the check

- **Zorro**
- **Black Bear**
- **Zenith**
- **Black Tails**
- **Adams**
- **Spectre**
- **Black Beard**

*Means followed by the same letter are not significantly different $P \leq 0.05$. 

**4-6 CWT Advantage over Zorro**
BLACK BEARD
RANK: 1
*Means followed by the same letter are not significantly different $P \leq 0.05$. 

Scott Bales - MSU Dry Bean Specialist
BLACK BEARD

MATURETY: 98 DAYS
SOURCE: PROVITA
SPECTRE

MATURITY: 100 DAYS
SOURCE: PROVITA
Nitrogen Rate X Plant Population
Black Bear Black Beans

- 12 Treatments
  - 4 Locations
  - 4 Nitrogen rates

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<thead>
<tr>
<th></th>
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<th>Sanilac</th>
<th>Tuscola</th>
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</table>

- 3 Planting populations
  - 100,000
  - 130,000
  - 154,000
Nitrogen Rate X Plant Population
Black Bear Black Beans

• Plant population NOT significant at all locations except for Huron

*Means followed by the same letter are not significantly different $P \leq 0.05$. 
Nitrogen Rate X Plant Population
Black Bear Black Beans
*Means followed by the same letter are not significantly different $P \leq 0.05$. 
Nitrogen Rate X Plant Population
Black Bear Black Beans

• Yield responded to increased rates of Nitrogen, in absence of white mold*
• Most often populations above 70,000 plants did not significantly affect dry bean yield
  • What about lower populations?
Planting Populations (Part II)

Zorro Black Beans

Means followed by the same letter are not significantly different $P \leq 0.05$. 

*Harvested Plant Population*
Questions?

Schindler Farms
Pawlowski Farms
Bednarski Farms
Aldrich Farms

Lutz Farms
Jaquays Farms
LAAKE & Ewald Farms

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Michiganbean.com/research
Small Red Beans
Michiganbean.com

- 10 Entries
  - Commercial: 4
  - Experimental: 6
- Average Yield:
  - Tuscola: 33.5
  - Huron: 26.5
  - Sanilac: 24.6
  - Bay: 20.5
One Year Average

Yield (lb. per acre)

0 500 1000 1500 2000 2500 3000 3500

17835  S18904  Ruby  R17604  Cayenne  16686  Caldera  17839  17837  Viper

*Yield not statistically different than the highest yielding variety within column

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Viper and Cayenne have 1-4 cwt. advantage over the remaining commercial entries.

*Means followed by the same letter are not significantly different P< 0.05.
Propulse for Plant Health

Viper Small Red

- 6 fungicide treatments
  - Untreated
  - Propulse at: 6, 8 and 10.3 oz./A
  - Delaro alone (5.7 or 12 oz./A) and in combination with Propulse
- All treatments had two applications

Scott Bales- MSU Dry Bean Specialist
Propulse for Plant Health
Viper Small Red – Yield

*Means followed by the same letter are not significantly different P ≤ 0.05.
**Propulse for Plant Health**

**Viper Small Red- White Mold Suppression**

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<td>Propulse (8 oz.)</td>
<td>BC</td>
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<tr>
<td>Propulse (10.3 oz.)</td>
<td>C</td>
</tr>
<tr>
<td>Delaro fb. Propulse</td>
<td>AB</td>
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<tr>
<td>Delaro</td>
<td>C</td>
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</table>

*Means followed by the same letter are not significantly different P ≤ 0.05.*
Sanilac and Huron Co. Fungicide Trials

Viper Small Red

- 6 fungicide treatments
  - Untreated
  - Propulse (10.3 fl. oz.)
  - Endura (8 oz.)
  - Omega (8 fl. oz.)
  - Plus combinations and alternative timings
- Single and double applications tested

Scott Bales - MSU Dry Bean Specialist
Sanilac Co. Fungicide Trial

Viper Small Red - Double Applications

*Means followed by the same letter are not significantly different P < 0.05.

Scott Bales - MSU Dry Bean Specialist
Dry Land Fungicide Trial - Huron Co.
Viper Small Red - Single Applications

Yield (lb. per acre)

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<tr>
<td>Propulse (A) 10.3 oz</td>
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<tr>
<td>Propulse (10.3 oz) fb. Endura (8 oz)</td>
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<tr>
<td>Propulse (B) 10.3 oz</td>
<td>ab</td>
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</tbody>
</table>

*Means followed by the same letter are not significantly different P ≤ 0.05.

Scott Bales - MSU Dry Bean Specialist
Questions?

Schindler Farms
Pawlowski Farms
Bednarski Farms
Aldrich Farms
Lutz Farms
Jaquays Farms
LAAKE & Ewald Farms

Michiganbean.com/research

Scott Bales
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Pinto and Great Northern
Michiganbean.com

• 13 Entries
  • Commercial: 10
  • Experimental: 3

• Average Pinto Yield:
  • Huron: 31.6
  • Tuscola: 31.8
  • Bay: 27.1
  • Sanilac: 23.0

• Average Great Northern Yield:
  • Huron: 30.3
  • Tuscola: 32.3
  • Bay: 21.3
  • Sanilac: 21.6
Pinto and Great Northern One Year Average

Yield (lb. per acre)

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<td>G18512</td>
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</tr>
<tr>
<td>SV6139GR</td>
<td></td>
</tr>
<tr>
<td>LaPaz</td>
<td></td>
</tr>
<tr>
<td>ND Pegasus</td>
<td></td>
</tr>
<tr>
<td>P19103</td>
<td></td>
</tr>
<tr>
<td>Eiger</td>
<td></td>
</tr>
<tr>
<td>Charro</td>
<td></td>
</tr>
</tbody>
</table>

*Yield not statistically different than the highest yielding variety within column P < 0.05

= 90th percentile
CHARRO
PINTO RANK: 1

EIGER
GN RANK: 1
Questions?

Schindler Farms
Pawlowski Farms
Bednarski Farms
Aldrich Farms

Lutz Farms
Jaquays Farms
LAAKE & Ewald Farms

Michiganbean.com/research

Scott Bales
Ph: (989) 262-8550
Email: balessco@msu.edu
Cranberry, Kidney, and Yellow Beans
Michiganbean.com

- 62 Entries
  - Commercial: 30
  - Experimental: 32
- Average Cranberry:
  - Irrigated: 27.5
  - Dry Land: 22.9
- Average Light Red Kidney:
  - Irrigated: 26.4
  - Dry Land: 22.4
- Average Dark Red Kidney:
  - Irrigated: 26.3
  - Dry Land: 22.7
- Average White Kidney:
  - Irrigated: 27.0
  - Dry Land: 22.7
- Average Yellow:
  - Irrigated: 26.1
  - Dry Land: 24.2
Large Seeded Beans
Cranberry- One Year Irrigated

Yield (lb. per acre)

0 500 1000 1500 2000 2500 3000 3500 4000

Red Cran 172  Red Cran Up  Chianti  Bellagio  CR1704-2  16756  16761  16765  14L1203B  16775  Amaranto  151093  151085  16816  16758  16759  16764  Etna  16760

*Yield not statistically different than the highest yielding variety within column P ≤ 0.05

Scott Bales- MSU Dry Bean Specialist

= 90th percentile
3-Year Irrigated Rank

CHIANTI
RANK: 2

ETNA
RANK: 1
Large Seeded Beans
Dark Red Kidney - One Year Irrigated

*Yield not statistically different than the highest yielding variety within column P ≤ 0.05

Scott Bales - MSU Dry Bean Specialist
3-Year Irrigated Rank

RED ROVER
RANK: 2

DYNASTY
RANK: 1
Large Seeded Beans
Light Red Kidney- One Year Irrigated

Yield (lb. per acre)

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield (lb. per acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15926</td>
<td>1300</td>
</tr>
<tr>
<td>Rosie</td>
<td>1400</td>
</tr>
<tr>
<td>15907</td>
<td>1500</td>
</tr>
<tr>
<td>K19605</td>
<td>1600</td>
</tr>
<tr>
<td>K17704</td>
<td>1700</td>
</tr>
<tr>
<td>Ronnie's Red</td>
<td>1800</td>
</tr>
<tr>
<td>K17703</td>
<td>1900</td>
</tr>
<tr>
<td>Big Red</td>
<td>2000</td>
</tr>
<tr>
<td>Clouseau</td>
<td>2100</td>
</tr>
<tr>
<td>Coho</td>
<td>2200</td>
</tr>
<tr>
<td>Pink Panther</td>
<td>2300</td>
</tr>
<tr>
<td>California Early</td>
<td>2400</td>
</tr>
<tr>
<td>Red Dawn</td>
<td>2500</td>
</tr>
</tbody>
</table>

*Yield not statistically different than the highest yielding variety within column P ≤ 0.05

Scott Bales - MSU Dry Bean Specialist
3-Year Irrigated Rank

CLOUSEAOU
RANK: 2

RED DAWN
RANK: 1
Large Seeded Beans
White Kidney - One Year Irrigated

Yield (lb. per acre)

Yeti  Beluga  ND White Tail  K19830  K16924

*Yield not statistically different than the highest yielding variety within column P ≤ 0.05

= 90th percentile
**1-Year Irrigated Rank**

**BELUGA**
- Rank: 2
- Maturity: 106 days
- Source: MSU

**WHITE TAIL**
- Rank: 1
- Maturity: N/A
- Source: NDSU
# Nitrogen Rate and Timing

## Etna Cranberry Beans

- 4 Treatments
- 4 Replications

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Nitrogen applied at planting</th>
<th>Nitrogen applied at side-dress</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>45</td>
<td>60</td>
</tr>
</tbody>
</table>
**Nitrogen Rate and Timing**

**Etna Cranberry Beans**

*Means followed by the same letter not statistically different from each other $P \leq 0.05$*
Micronutrient Application Method  
*Etna Cranberry Beans*

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Method</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Untreated</td>
<td>No Micros</td>
</tr>
<tr>
<td>2</td>
<td>2x2</td>
<td>32 oz. Zn (6%) + 32 oz. Mn (5%)</td>
</tr>
<tr>
<td>3</td>
<td>POST</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>R1</td>
<td>-</td>
</tr>
</tbody>
</table>
Micronutrient Application Method

_Etna Cranberry Beans_

*Yield not statistically different than the highest yielding variety within column P ≤ 0.05*
Questions?

Schindler Farms
Pawlowski Farms
Bednarski Farms
Aldrich Farms

Lutz Farms
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Email: balessco@msu.edu

Michiganbean.com/research
2021 MDARD Specialty Crop Block Grant Research

- Optimization of Fertilizer Rate Recommendations for Michigan Dry Bean Growers: Strengthening Economic, and Environmental Sustainability
  - $99,998

- On-Farm research trials
  - Fertility related strip trials
  - Small plot bio-fortification (value added)

- Research center based trials
  - Breeding for improved N-fixation
  - Cover crop use for Nitrate management and weed control
Thank you!

Schindler Farms  Lutz Farms
Pawlowski Farms  Jaquays Farms
Bednarski Farms  LAAKE & Ewald
Aldrich Farms    Farms

Michiganbean.com/research

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