

**NEW YORK STATE 2016 DRY BEAN CULTIVAR TRIAL REPORT**  
**Dark Red Kidneys, Light Red Kidneys, Black Turtle and Cranberry**

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**PROCEDURE AND MATERIALS**

**Location:** NYS Agricultural Research Farm – Gates Road, Geneva - soil type - Lima silt loam

**Planting Dates:** 6/15/16

**Row Width:** 30 inches, Row length: 30 ft. **In-row Spacing:** (Kidneys and cranberries – 4-5 seeds/ft., blacks - 6-8 seeds/ft.)

**Conventional Tillage**

**Fertilizer:** 300#/A of 8-14-21

**Herbicide:** Dual post plant

**Planter** - Two Row Monosem Vacuum Planter

**Plot Size:** 1 row 35 ft long - 4 replications

The objective of this trial was to compare the performance of new varieties with the industry standard varieties in terms of yield, maturity, height of pods, disease resistance, adaptation to NYS growing conditions and quality. This was accomplished in cooperation with the NYS Dry Bean Industry in an attempt to find new, higher quality, and disease resistant varieties that are adapted to our climate and soil conditions.

For both replicated and observation entries, yield of ten feet per replication was obtained by pulling the plants and hand picking them. Multiple harvests were made to plot yield increase and also seed size increase. An FMC snipper and grader were used to snip and grade the harvested pods. Each replicated entry was processed (canned and frozen) for later evaluation by the processors and seedsmen. Comments from this cutting are not included in the report.

Soil moisture was limited for all plantings with natural precipitation at its lowest since 1965. The field was planted and emergence was spotty. Drip tape was placed next to each row 10 days after planting and water was applied. This evened the stands out. I understand that part of the trial objectives was to evaluate for water stress, but the trial stands would have been too poor to evaluate without this irrigation. An irrigation was applied every two weeks at the rate of about one inch (6/25, 7/10, 7/25). We had some rain in August to finish them off. See the weather insert at the end of the summary for a breakdown of temperatures and precipitation over the growing season.

A field day was well attended by interested growers and industry representatives in August. A cutting was held on 2/28/17 to evaluate canned product. Evaluations of the canned product are included in Table 4.

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*We wish to thank the NYS Dry Bean Association and cooperating seed companies ADM, Provita and Treasure Valley for their financial support of the project. John McCreedy was extremely helpful in helping plan the trial. We especially want to thank Jim Kohl and Kim Raczka from Furman Foods, Inc. for processing the seed for the industry cutting.*

*Special thanks to my crew - Wayne Hansen, Karen Luong, Alison Mahoney, Helen Terra, Misty Hotelling, Zach Hemminger and Callie Musto for their assistance in day to day operations.*

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## Table 1. Cultivar List

### Dark Red Kidney

Chaparral	Provita
Epic	Provita
09431	Provita
09434	Provita
Red Rover	TV
Red Hawk	TV
Dynasty	TV

### Light Red Kidney

Big Red	Provita
Red Zone	Provita
Red Flag	Provita
Red Dog	Provita
09360	Provita
06269	Provita
09363	Provita
09378	Provita
09357	Provita
Clouseau	TV
Pink Panther	TV
Wallace	TV
Cal Early	TV

### Blacks

12576 (Black Bear)	Provita
13489	Provita
13503	Provita
13505	Provita
14497	Provita
14506	Provita
Zenith (new)	TV
Zorro	TV
Black Velvet	TV
Eclipse	TV
T39	TV
Shania	ADM
B0040613	ADM
B1048276	ADM
Obsidian	TV

### Cranberry

Etna	TV
Krimson	TV
Hooter	TV
Vero	ADM
Bellagio	MSU

### White Kidney

Beluga	MSU
Snowden	MSU

**Table 2. Plant Characteristics (varieties listed in order of maturity)**

Cultivar	Plant Habit (rating)	Plt ht. (in)	Plt width (in)	Pod length (in.)	Seeds per pod (10 pod sample)	Maturity (days compared to std)
<b>Dark Red Kidney</b>						
Red Rover	3.5	18	16.5	4.5-5.25	4 to 5	minus 1
Dynasty	3.25	20	18	4.5-6.0	5 to 7	minus 1
<b>Red Hawk (std)</b>	3.25	18.5	17	4.5-5.5	4 to 6	0
09434	3	17	15.5	5 to 6	4 to 7	0
09431	3	16	19	5 to 6	5 to 8	plus 2
Chaparral	2.75	18	16	5.5-6.5	5 to 7	plus 3
Epic	3	18	16.5	4.5-6.25	4 to 7	plus 4

**Light Red Kidney**

09357	3.25	17	15.5	4-6.25	5 to 7	minus 1
<b>Cal Early (std)</b>	3.75	16	13.5	4-5.5	4 to 5	0
06269	3.5	17.5	17	4.5-6	3 to 6	0
09363	3.75	15.5	12	5.25-5.5	4 to 5	0
Wallace	3.5	16.5	17	5.5-7	4 to 5	0
Big Red	3	17	14.5	5.0-6.0	5 to 6	plus 2
Red Dog	3	20.5	21	4.5-6.0	4 to 5	plus 2
09378	3.25	15.5	13.5	5-5.5	3 to 5	plus 2
Red Flag	3.25	20.5	17.5	4.5-5.5	4 to 5	plus 3
Clouseau	3.25	17.5	18	4-5.5	3 to 5	plus 3
Pink Panther	3.25	18	20.5	4.5-5.5	3 to 5	plus 3
09360	3.75	22	20	5 to 6	4 to 6	plus 4 to 5
Red Zone	3.5	23.5	24.5	5.0-6.0	5 to 6	plus 5 to 6

**Table 2. Plant Characteristics continued:**

Cultivar	Plant Habit (rating)	Plt ht. (in)	Plt width (in)	Pod length (in.)	Seeds per pod (10 pod sample)	Maturity (days compared to std)
<b>Black</b>						
Eclipse	5	19.5	12.5	4-5.0	6 to 8	minus 3
13503	4	22	15.5	3-3.5	4 to 6	minus 2
14506	4.5	23.5	16.5	4-4.5	5 to 7	minus 2
T39	2	13	14	3-4.0	4 to 8	minus 2
13505	5	23	11.5	3-3.75	6	minus 1
14497	3.5	23	19.5	3-3.75	6	minus 1
Zenith (new)	5	22	12	3.5-4.5	5 to 7	minus 1
B1048276	4	18	17	3.5-4.5	5 to 8	minus 1
<b>Zorro (std)</b>	4.5	21.5	14	3-3.75	5 to 8	0
Shania	4	20	15.5	3.0-4	6 to 8	0
Obsidian	4.25	21	15	3.75-4.5	6 to 8	0
12576 (Black Bear)	4.25	20.5	15	3.5-4.5	6to 7	plus 1
13489	4.25	23.5	15.5	3.5-4	5 to 8	plus 2
Black Velvet	4.25	22	17	3.25-4.25	4 to 7	plus 2
B0040613	3.75	18	16	3.25-4.25	6to 7	plus 2
<b>Cranberry</b>						
<b>Etna (std)</b>	3.5	17.5	14	4.5-5.5	5 to 7	0
Krimson	3.25	15	17	4-6.0	4 to 6	0
Vero	3.5	17.5	15	4.5-5.5	4 to 6	plus 1
Hooter	3.75	21.5	20	3.5-4.5	4 to 5	plus 2
Bellagio	3	18	15	4.0-5.0	4 to 6	plus 2
<b>White Kidney</b>						
Snowden	3.5	17.5	12	5-6.0	4 to 6	minus 1
<b>Beluga (std)</b>	3	16	17	3.5-5.5	3 to 4	0

**Table 3. Yield** (varieties listed in order of maturity)

Cultivar	Moisture %	Count per lb.	Plants/ft	Lbs per acre	Maturity
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**Dark Red Kidney**

Red Rover	11.4	835	3.1	1997	minus 1
Dynasty	12.4	823	3.3	2763	minus 1
<b>Red Hawk (std)</b>	11.3	950	3.7	2270	0
09434	11.2	968	3.3	1850	0
09431	11.4	962	3.6	2208	plus 2
Chaparral	12.1	1071	2.7	1677	plus 3
Epic	11.4	852	3.5	2147	plus 4

**Light Red Kidney**

09357	11.3	885	3.6	2008	minus 1
<b>Cal Early (std)</b>	11.3	885	4.2	2746	0
06269	11.4	931	3.8	3376	0
09363	11.3	850	3.6	2606	0
Wallace	8.8	1058	4.1	2697	0
Big Red	11.3	852	3.9	2321	plus 2
Red Dog	11.1	853	3.5	2450	plus 2
09378	11.2	887	4.2	2707	plus 2
Red Flag	11.2	863	3.5	2119	plus 3
Clouseau	11.1	836	3.8	2400	plus 3
Pink Panther	11.4	825	3.9	2490	plus 3
09360	11.2	831	4.3	2574	plus 4 to 5
Red Zone	11.3	894	3.3	2176	plus 5 to 6

**Table 3. Yield Continued:**

<b>Cultivar</b>	<b>Moisture %</b>	<b>Count per lb.</b>	<b>Plants/ft</b>	<b>Lbs per acre</b>	<b>Maturity</b>
<b>Black</b>					
Eclipse	8.1	2152	4.8	2683	minus 3
13503	8.3	2105	4.8	2879	minus 2
14506	7.8	2061	5.5	2956	minus 2
T39	7.9	2057	4.5	2781	minus 2
13505	8.0	2191	4.8	2806	minus 1
14497	8.4	2047	5.8	3348	minus 1
Zenith (new)	8.2	1992	4.8	3279	minus 1
B1048276	8.4	2406	4.4	2942	minus 1
<b>Zorro (std)</b>	8.3	2120	5.4	3136	0
Shania	7.8	2187	4.7	3119	0
Obsidian	7.6	2026	5.3	2757	0
12576 (Black Bear)	8.0	2101	5.3	3189	plus 1
13489	7.8	2051	5.3	3443	plus 2
Black Velvet	8.1	1910	4.8	2840	plus 2
B0040613	7.7	2153	4.9	3156	plus 2
<b>Cranberry</b>					
<b>Etna (std)</b>	11.0	906	4.3	2502	0
Krimson	10.6	918	4.1	2833	0
Vero	11.1	906	4.0	2709	plus 1
Hooter	11.2	896	4.8	2471	plus 2
Bellagio	11.4	890	3.6	2459	plus 2
<b>White Kidney</b>					
Snowden	11.0	845	2.9	2042	minus 1
<b>Belugia (std)</b>	11.1	938	3.0	2454	0

Column descriptions on page 8

## Column Descriptions for tables 2 and 3

All measurements are an average of the data for the four replications. Raw data is available if requested.

### Table 2

Plant Habit Rating - on a 1-5 scale with 5 being the best

Plant height - measurement in inches from the top of the plant to the soil surface.

Plant Width - measurement of the canopy in inches .

Pod Length- ten sample pods were lined up and the measurement in inches is listed as a range.

Seeds per pod - ten pods were cut open and number of seeds counted per pod. Listed as a range.

Maturity - The standard (cultivar with std beside it) was listed as 0. Other cultivars were listed in comparison to that cultivar.  
Maturity might be impacted by germination uniformity. Drier soil might have delayed emergence.  
Irrigation was not applied until 10 days after planting.

### Table 3

Moisture Percentage - harvested seeds were air dried after harvest and shelling. Moisture level of seed was measured with a Burrows Digital Moisture Computer.

Count per pound - At time of moisture percentage measurement, 100 seeds were weighed and this was converted to seeds per pound.

Plants per foot - Ten feet of plants were harvested for each rep. The number of total plants was divided by 10 for a plants per foot.

Pounds per acre - Shelled seed weight per 10 ft was extrapolated to pounds per acre.

Maturity - See above.



**Table 4. Canned evaluation**

Rating scale - 2=premium, 1 = acceptable, 0 = unacceptable

DRK	process	Texture	Bean color	Brine color	Overall Appear.
Chaparral	Salt	3	3.3	2.7	2.3
Epic	Salt	3.3	3.0	3.0	2.7
09431	Salt	2.7	3.0	2.7	2.7
09434	Salt	3.0	3.3	3.0	3.3
Red Rover	Salt	3.0	4.0	3.7	3.5
<b>Red Hawk</b>	<b>Salt</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>
Dynasty	Salt	2.7	2.7	2.7	2.3
Chaparral	Sauce	2.7	3.0	3.0	2.7
Epic	Sauce	3.0	3.0	2.7	2.7
09431	Sauce	2.7	2.7	3.0	2.3
09434	Sauce	3.3	3.7	3.3	3.7
Red Rover	Sauce	4.0	4.0	4.0	3.7
<b>Red Hawk</b>	<b>Sauce</b>	<b>4.3</b>	<b>4.3</b>	<b>4.3</b>	<b>4.3</b>
Dynasty	Sauce	3.0	2.3	2.3	2.3
LRK					
Big Red	Salt	3.0	1.5	2.5	2.0
Red Zone	Salt	3.0	2.0	2.5	2.0
Red Flag	Salt	3.0	3.5	3.0	3.0
Red Dog	Salt	3.5	2.5	2.5	2.5
09360	Salt	3.0	2.5	2.5	2.5
06269	Salt	3.5	3.5	3.0	3.5
09363	Salt	1.5	3.0	2.5	2.5
09378	Salt	3.0	3.7	3.3	3.3
09357	Salt	3.3	2.0	3.0	2.3
Clouseau	Salt	3.7	3.3	3.3	3.3
Pink Panther	Salt	3.7	3.0	3.0	3.0
<b>Wallace</b>	<b>Salt</b>	<b>3.3</b>	<b>3.3</b>	<b>3.7</b>	<b>3.7</b>
Cal Early	Salt	3.0	2.3	3.0	3.0
Big Red	Sauce	3.0	2.5	3.0	2.5
Red Zone	Sauce	3.0	3.0	3.5	3.5
Red Flag	Sauce	3.0	3.0	3.0	3.0
Red Dog	Sauce	2.5	2.5	3.0	2.0
09360	Sauce	2.5	2.0	2.5	2.5
06269	Sauce	3.0	2.5	3.0	3.0
09363	Sauce	2.5	2.5	2.5	2.0
09378	Sauce	3.0	3.0	3.0	3.0
09357	Sauce	2.5	2.5	3.0	3.0
Clouseau	Sauce	2.5	2.0	2.0	2.0
Pink Panther	Sauce	3.0	2.5	3.0	3.0
Wallace	Sauce	3.0	3.0	3.0	3.0
Cal Early	Sauce	3.0	3.0	3.5	3.5

<b>Table 4. Canned evaluation continued:</b>					
Blacks	process	Texture	Bean color	Brine color	Overall Appear.
(Black Bear)	FG	3.0	3.0	3.0	2.5
13489	FG	3.0	3.0	3.0	3.0
13503	FG	3.0	3.0	3.0	3.0
13505	FG	3.5	3.0	3.5	3.0
14497	FG	3.5	3.5	3.5	3.0
<b>14506</b>	<b>FG</b>	<b>3.5</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>
Zenith (new)	FG	3.0	2.5	3.0	3.0
Zorro	FG	3.5	3.5	3.5	3.5
Black Velvet	FG	3.5	3.0	3.0	3.0
Eclipse	FG	3.5	2.5	3.0	2.5
T39	FG	3.0	2.5	3.0	2.5
Shania	FG	3.0	1.5	2.5	2.5
B0040613	FG	3.5	3.0	3.0	2.5
B1048276	FG	3.0	3.0	3.0	2.5
Obsidian	FG	3.5	4.0	4.0	4.0
(Black Bear)	Non ferrous	3.0	2.0	2.5	2.5
13489	Non ferrous	3.0	2.5	2.5	2.5
13503	Non ferrous	3.5	3.5	3.0	3.5
13505	Non ferrous	3.5	3.5	3.5	3.5
14497	Non ferrous	3.5	2.5	3.0	2.5
<b>14506</b>	<b>Non ferrous</b>	<b>3.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>
Zenith (new)	Non ferrous	3.0	3.0	3.5	3.0
Zorro	Non ferrous	3.5	3.0	3.0	3.0
Black Velvet	Non ferrous	3.5	3.0	3.0	3.0
Eclipse	Non ferrous	2.5	2.0	2.5	2.0
T39	Non ferrous	2.0	2.5	2.5	2.0
Shania	Non ferrous	2.5	2.0	2.5	2.5
B0040613	Non ferrous	3.0	3.0	3.0	2.5
B1048276	Non ferrous	2.5	2.5	2.5	2.5
Obsidian	Non ferrous	3.0	2.5	3.0	2.5
<b>Cranberry</b>					
Etna	salt	2.5	2.5	3.0	2.5
Krimson	salt	2.5	2.5	3.0	2.0
Hooter	salt	2.5	3.0	3.0	2.5
Vero	salt	2.5	3.0	3.0	2.5
Bellagio	salt	2.5	2.5	3.0	2.5
<b>White Kidney</b>					
Beluga	Ca8	3.0	2.5	2.5	2.0
Snowden	Ca8	3.5	3.0	3.0	2.5

**Additional Comments** (Paul Paget - ADM assisted me with these comments) Comments below also include notes from the canned demonstration. Seeds were dried beyond the optimum percentage for canning. This resulted in splits that should not be considered a variety fault this year. *Canned bean comments will be in italics. See ratings in table 4.*

**Dark Red Kidney**

**Red Rover** – Treasure Valley, broad plant, big seeds, decent yield. *Beans in sauce looked good. Great flavor.*

**Dynasty** – Treasure Valley, tall, broad plant, good set, big seeds, top yielder of this group. *Splits.*

**Red Hawk** – Treasure Valley, used as the standard cultivar for this group, narrow plant, good pod clearance, small to medium size seeds, good yield. *This was the best canned bean of the group. Looked very good! Great flavor.*

**09434** – Provita, broad plant, scattered pod set, small to medium size seeds, lower yield. *Looked good. Nice flavor.*

**09431** – Provita, broad plant, low pods, small to medium size seeds, good yield. *Splits and a bit soft.*

**Chaparral** – Provita, recumbent plant, habit low pods, scattered set, small seeds, lowest yield of this group but lower plant populations might have impacted this. *Splits. Soft.*

**Epic** – Provita, low pods, big seeds, lower yield. *Too many splits.*

**Light Red Kidney**

**09357** – Provita, early, narrow plant, pods high on the plant, good set, plant habit not quite as good as Cal Early but seed size similar, lowest yielder but possibly a day earlier than Cal Early. *The color washed out resulting in a tan color.*

**Cal Early** – Treasure Valley, NY standard, mature 8/22, short, narrow plants, good plant habit, concentrated set, good yield. *Looked the best in the sauce group. Poorer color in the brine group.*

**06269** – Provita, broad plant, good set, seeds a little smaller than std., excellent yield (best for this group). *Some variation in color.*

**09363** – Provita, short, narrow plant, good set, green stem, good plant habit, good yield. *Too firm and a bit gritty-salt brine. Poorer flavor in the sauce group.*

**Wallace** – Treasure Valley, wide plant, decent pod clearance, long pods, small seeds, good yield. *Looked the best in the brine group other than small seed.*

**Big Red** – Provita, short plant, decent yield. *Splits. Poor color, flavor different. Good flavor in the sauce group. A bit soft.*

**Red Dog** – Provita, tall, broad plant, good set, decent yield. *Color variation. Some cracks.*

**09378** – Provita, narrow, leaning plant, scattered set, good yield. *Too firm in the sauce group. Some cracks. One member of grading team liked this one best of this group.*

**Red Flag** – Provita, tall plant, low pods, scattered set, lower yield. *Splits. Different flavor.*

**Clouseau** – Treasure Valley, broad plant, bigger seeds, decent yield. *Looked good. Soft but flavorful.*

### **Additional comments continued:**

**Pink Panther** – Treasure Valley, broad plant, bigger seeds, decent yield. *Good texture and flavor but poor color.*

**09360** – Provita, late maturity, tall, broad plant, good set, good plant habit, bigger seeds, decent yield. *Too firm in both groups. Splits in the sauce group.*

**Red Zone** – Provita, very late maturity, long pods, tall, broad plant, good set and good pod clearance, lower yield. *Color variation salt brine. Some cracks.*

### **Black**

**Eclipse** – Treasure Valley, viney, narrow, upright plant, excellent plant habit, good pod clearance, good yield. *Had some splits and size variation in the FG group, dull colored. A bit light colored in the non ferrous group.*

**13503** – Provita, leaning, arching plant, good architecture, good yield.

**14506** – Provita, viney, tall, narrow plant, high pods, a bit ratty, good yield. *Very nice. Best of the FG and non ferrous groups.*

**T39** – Treasure Valley, older cultivar, recumbent, ratty plants, low pods, good yield. *Splits in the FG group.*

**13505** – Provita, tall, narrow, viney plant, excellent plant habit, very concentrated set, seeds per pod very uniform, good yield. *Looked good in the FG group although a few cracks.*

**14497** – Provita, broad, plant type a bit recumbent, ratty plant, seeds per pods very uniform, very good yield. *Splits in the FG group.*

**Zenith** – Treasure Valley, viney, narrow plant, excellent plant habit, good set, very good yield. *Some color variation.*

**B1048276** – ADM, viney, broader plant, very good set, smaller seeds, good yield. *Splits in the FG group.*

**Zorro** – Treasure Valley, good set, very good yield. *Looked good in the FG group.*

**Shania** – ADM, viney, broader plants, good set, scattered maturity, very good yield. *Splits in the FG group.*

**Obsidian** – Treasure Valley, viney, good plant type, good set, good yield. *Some color variation in the non ferrous group.*

**Black Bear (12576)** – Provita, good set, very good pod clearance, very good yield. *Splits in the FG group and the non ferrous group.*

**13489** – Provita, tall, viney plant, good set, red stem, very good yield (best of the group). *Splits in the non ferrous group.*

**Black Velvet** – Treasure Valley, broad plant, good set, bigger seeds, good yield. *Looked good other than some color variation in the non ferrous group.*

**B0040613** – ADM, low pods, uneven maturity, very good yield. *Splits in the FG group.*

**Additional comments continued:**

***Cranberry***

**Etna** – Treasure Valley, narrow, short plants, good set, good yield. *Soft.*

**Krimson** – Treasure Valley, very similar to Etna, best yield of the group. *Splits. Soft.*

**Vero** – ADM, broad plant, good set, yield just a bit less than Krimson. *Splits. Soft.*

**Hooter** – Treasure Valley, tall plant, best plant habit of the group, good yield. *Splits. Soft.*

**Bellagio** – MSU, scattered set, good yield. *Splits. Soft.*

***White Kidney***

**Snowden** – MSU, larger seeds, a little better plant habit than Belugia. *Splits.*

**Beluga** – MSU, smaller pods, smaller seeds but better yield than Snowden. *Splits.*