

North Dakota Home Garden Variety Trials

RESULTS
2016



NDSU EXTENSION SERVICE

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For more information on the North Dakota Home Garden Variety Trials Program, go to
www.ag.ndsu.edu/homegardenvarietytrials/

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Introduction

The First Step to Success

The first step in growing a successful garden is to select a superior variety.

Gardeners who sow **superior** varieties can grow plants that yield abundantly, resist diseases, and produce quality food.

Gardeners who sow **inferior** varieties are headed for frustrations. No matter how hard they work in the garden they may have disappointing results.

The benefits of selecting superior varieties for gardens are great. The National Gardening Association (NGA) estimates approximately one-third of households in North Dakota grow a vegetable garden.¹ This indicates there are approximately 93,000 households in North Dakota with vegetable gardens.

There are significant economic benefits to gardening. A recent survey of community gardeners in Bismarck showed each household saved an average of \$105 on produce expenses per year.² Extrapolated statewide, these findings suggest that gardeners in North Dakota save millions of dollars each year by growing some of their own vegetables.

There is an important public health dimension to gardening. Vegetables and fruits are nature's richest source of micronutrients, minerals and dietary fiber. A diet rich in vegetables and fruits is associated with a decreased risk of obesity and certain chronic diseases including cardiovascular disease, diabetes and some cancers. Nevertheless, only 25% of adults

and 8% of children in North Dakota eat enough vegetables for a healthy diet.³

We need to eat more vegetables—growing a productive garden can help with this. The survey from Bismarck showed 93% of families consumed more vegetables because of their rental garden.²

Compared to other crops, relatively little vegetable research is conducted at research stations in North Dakota. These plots provide some insight into the characteristics of varieties, but they do not test varieties under actual home gardening conditions. The environment at a field research station is dramatically different than at a home garden:

- The soils at field research stations are similar to soils at a farm: relatively fertile and undisturbed. Soils in a backyard garden are intensively managed and have been highly disturbed from home construction and land grading activities.
- Trials at stations utilize tractors, large-scale irrigation equipment and herbicides. Backyard gardeners use shovels, hoes (maybe a roto-tiller), garden hoses and watering cans.
- Trials conducted at stations are out in full sun. Many home gardens have shade for at least part of the day.

Gardeners in North Dakota enjoy healthier diets and save millions of dollars on food expenses.

The Bottom Line

To identify superior varieties for **gardeners**, it makes sense to determine which varieties perform best in **gardens** under the management of **gardeners**.

Goals

This program has three major goals:

1. Gardeners will be introduced to new varieties. This will lead to more productive gardens and healthier diets.

¹ National Gardening Association. 2008. Personal communication with Bruce Butterfield, Market Research Director.

² North Dakota State University Extension Service. 2016. Personal communication with Kelsey Sheldon, Burleigh County Program Assistant.

³ Centers for Disease Control. 2012. North Dakota: State Nutrition, Physical Activity, and Obesity Profile.

To identify superior varieties for gardeners, it makes sense to determine which varieties perform best in gardens under the management of gardeners.

2. Gardeners will identify superior varieties of vegetables, herbs and flowers.
3. Youth will develop skills in science, eat a healthier diet, and enjoy increased levels of physical activity.

Selecting Varieties

Seed catalogs are carefully studied to identify varieties that are widely available and appear promising for North Dakota. In many situations, a promising new variety is compared with a variety that is widely grown in the state.

Preparation of Seed Packets

Seeds are ordered in bulk from seed companies. Seeds are subsequently packed into coin envelopes (gladiolus corms are packed into paper bags). Labels containing instructions (variety name, vegetable/flower type, time to plant, and recommended spacing for sowing and thinning) are affixed onto packages. Most seeds are untreated; exceptions being most sweet corn and a few cucurbit varieties. No genetically modified organism (GMO) varieties are used.

Distribution of Seeds

This program is promoted by North Dakota State University (NDSU) Extension Service faculty and staff across the state. Information is available at the web site www.ag.ndsu.edu/homegardenvarietytrials/. Interested households are allowed to participate in up to seven trials. The fees are \$1 per seed trial and \$1.50 for gladiolus trials. Each child can receive one free trial. A fee of \$4.00 is charged for handling and postage.

Each gardener signs a pledge before receiving seeds, promising to do all they can to evaluate the varieties fairly.

Besides seeds, growers receive row labels to mark rows, and a string to help them lay out the 10-foot-long plots. Gardeners receive simple, yet detailed

instructions on laying out their plots (Appendix 1). We encourage a 10-foot plot length to be minimal at getting quality data but container gardening is allowed.

Gardeners are responsible for managing their crops. This includes fertilizing, watering, mulching, and using pesticides. They are encouraged to use their own practices so the varieties are tested under actual home garden conditions.

Quantity and Quality of Participation

In 2016, approximately 231 households submitted results from their trials. Results from over 1,035 research trials were submitted. Data were obtained in 44 of the state's 53 counties (Figure 2).

A pleasant finding of this program is the quality of research conducted by home gardeners. These families demonstrate extraordinary enthusiasm in this project. Besides carefully filling out report forms, they often write detailed letters on their trials.

Weather in 2016

The entire growing season of 2016 was warmer than normal (Figure 1). Rain showers in spring got crops off to a strong start. Unusually high amounts of rain from July through September were a welcome surprise to gardeners in our semi-arid state.

There were no reports of flooding or widespread drought.

Some gardeners mentioned damage from hail and severe winds. Hailstorms and wind in the Northern Great Plains are not unusual.

There were no unusually late occurrences of frost strikes in spring. Frost in fall occurred for most gardeners during the second week of October, which is normal.

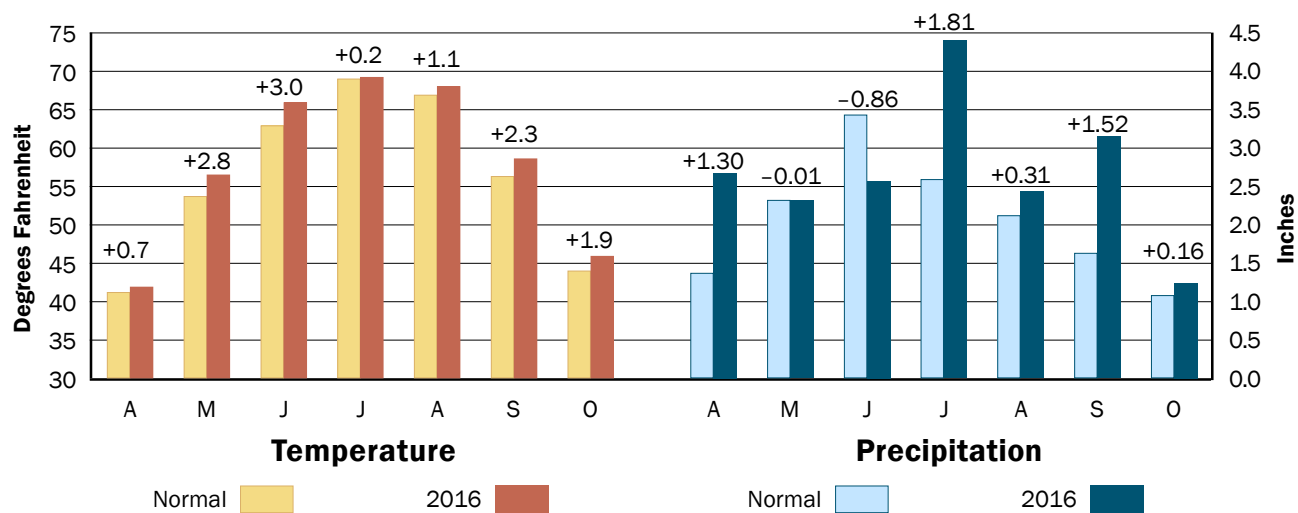


Figure 1. Monthly air temperatures and precipitation amounts in 2016 and normal (1901–2000). The growing season was warmer than usual. Showers in spring got crops off to a strong start. Unusually high amounts of rain from July through September were a welcome surprise to gardeners in our semi-arid state. Source: National Oceanic and Atmospheric Administration.

Compiling Data

Gardeners compare the two varieties in each trial for germination rate, plant health, earliness, yield and quality of harvested product. We ask them which of the two varieties they prefer and which, if any, of the varieties they would recommend to other gardeners (Appendix 2). Comments are strongly encouraged.

Comments of growers regarding their taste preferences of the vegetables are a noteworthy bonus of this grass-roots research approach.

Approximately 5% of reports show data with inconsistencies; these reports are eliminated from our analysis.

A selection of representative comments of gardeners on each variety is included in this report. Reports of previous years are available online at www.ag.ndsu.edu/homegardenvarietytrials/.

Reporting Final Results

Participating gardeners are emailed the final report in December. Results are presented online and at workshops to over 1,000 gardeners every spring. Newspaper and online columns are written to report findings.

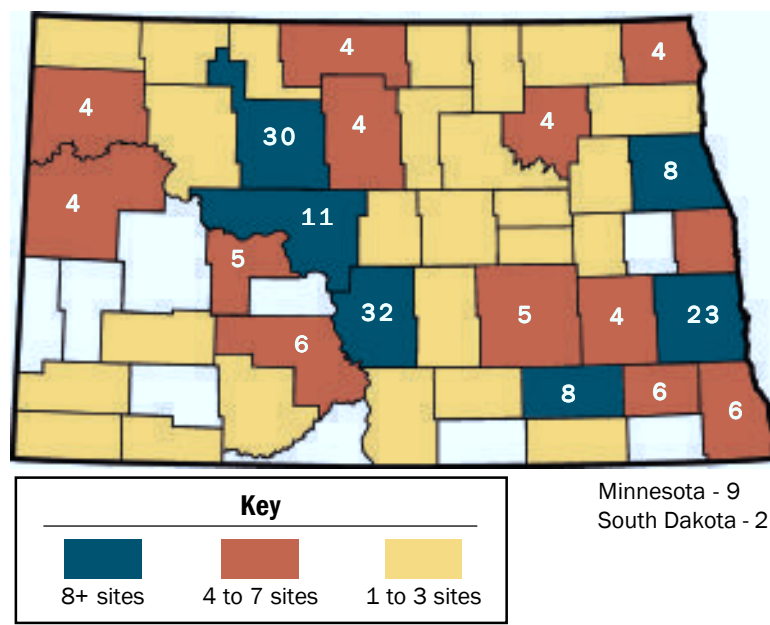


Figure 2. Approximately 231 households submitted results in 2016. Household numbers are shown above for each county with 4+ sites.

Impacts

An evaluation of the project is conducted every few years. A brief impact report is presented (page 91). Our evaluation shows that gardeners are introduced to new varieties and enjoy more productive gardens and healthier diets. Youth in the project sharpen their skills in science. Youth enjoy healthier diets and increased levels of physical activity.

Summary of Results

Gardeners were invited to participate in 50 trials in 2016. Each trial compared two promising vegetable or flower varieties. Approximately 231 households in 44 counties rated varieties for plant health, earliness, yield, and food/ornamental quality. A total of 1,035 side-by-side comparisons were completed in gardens.

In each trial they noted which of the two varieties they preferred (Pref) and which of the varieties they

would recommend (Rec) to other gardeners. They rated the performance of each variety using a scale of 1 to 10, with 1 = poor and 10 = excellent. The mean rating is presented in this summary.

The following is a summary of data, including our conclusions for each trial. Additional data and comments from growers are in the full report.



Bean, Green

Gardeners liked both varieties. They preferred ‘Bush Blue Lake 274’ for its superior pod quality. Its pods were dark green, smooth and slender. ‘Provider’ matured earlier. The varieties rated similarly in plant health and yield qualities.

Variety	Pref (%)	Rec (%)	Rating
B Blue Lake 274	74	63	7.88
Provider	38	56	7.81
			(19 sites)



Bean, Green Filet

Both varieties were exceptional. Their pods were straight, smooth and slender. Gardeners raved over the dark green, delicious pods of ‘Crockett’. ‘Serengeti’ matured earlier and its sturdy plants produced high yields.

Variety	Pref	Rec	Rating
Crockett	47	90	8.32
Serengeti	53	75	8.63
			(26 sites)



Bean, Purple

Most gardeners preferred ‘Purple Queen Improved’. Its disease-resistant plants produced good yields of glossy purple, tasty pods. ‘Royal Burgundy’ matured earlier. Both varieties performed well but neither generated excitement.

Variety	Pref	Rec	Rating
Purple Qn Imp	63	82	7.27
Royal Burgundy	38	73	6.55
			(12 sites)



Bean, Green Pole

The new variety ‘Monte Cristo’ impressed gardeners with its vigorous vines and high yields. It was preferred over ‘Fortex’, a strong performer of the past noted for its long, flavorful pods. Data for this trial are limited; more testing is needed.

Variety	Pref	Rec	Rating
Fortex	25	50	6.75
Monte Cristo	75	75	8.00
			(4 sites)



Bean, Scarlet Runner

The lush, colorful vines of both varieties pleased gardeners as well as hummingbirds and bees. Gardeners did not enjoy the beans. ‘Emperor’ was preferred for its darker green, fuller vines.

Variety	Pref	Rec	Rating
Emperor	83	63	6.50
Lady Di	17	50	5.63
			(9 sites)



Bean, Vegetable Soybean

‘Tohya’ matured earlier and was more productive. Its pods were larger and filled with more seeds. Gardeners liked the taste of both varieties, but more gardeners preferred ‘Tohya.’ ‘Envy’ has been a reliable performer in the past.

Variety	Pref	Rec	Rating
Envy	36	55	6.18
Tohya	64	82	7.18
			(17 sites)



Beet, Gold

Gardeners liked both varieties and were evenly split on their preferences. ‘Touchstone Gold’ showed a slight edge for yield and root quality traits. The most noticeable difference was the brighter interior color of ‘Boldor’ roots.

Variety	Pref (%)	Rec (%)	Rating
Boldor	50	81	7.13
Touchstone Gold	50	88	7.31
(20 sites)			



Beet, Red

Gardeners were impressed with the tops of ‘Early Wonder Tall Top’ but even more impressed with the roots of ‘Red Ace’. ‘Red Ace’ germinated better and was healthier. Its roots were more uniform, globular, attractive and delicious.

Variety	Pref (%)	Rec (%)	Rating
Early Wonder TT	32	38	6.14
Red Ace	68	76	7.47
(22 sites)			



Beet, White

This trial did not generate much interest, but the gardeners who grew white beets enjoyed them. The hybrid ‘Avalanche’ showed superior germination, plant health and yields. Its roots were more uniform in shape.

Variety	Pref (%)	Rec (%)	Rating
Albino	33	67	7.17
Avalanche	67	100	8.50
(7 sites)			



Carrot, Chantenay

Gardeners were most impressed with ‘Caracas’. It performed well at all sites and had a sweeter taste. There was little excitement generated for either of these baby Chantenays. Full-sized varieties seem to be better options.

Variety	Pref (%)	Rec (%)	Rating
Caracas	75	75	8.00
Cumbre	25	75	6.50
(5 sites)			



Carrot, Early Nantes

‘Goldfinger’ roots were straight, long and smooth. It produced heavier yields. ‘Yaya’ was a solid performer and matched ‘Goldfinger’ for many traits. Gardeners who cooked their carrots noted the sweetness of ‘Yaya’.

Variety	Pref (%)	Rec (%)	Rating
Goldfinger	58	78	7.46
Yaya	42	69	7.46
(41 sites)			



Carrot, Mainseason Nantes

‘Bolero’ displayed superior germination and yields. Gardeners liked this storage variety, especially when eaten cooked. Gardeners who eat raw carrots preferred ‘Romance’ for its sweeter flavor and deep orange color.

Variety	Pref (%)	Rec (%)	Rating
Bolero	54	76	8.00
Romance	46	66	7.54
(29 sites)			



Corn, Bicolor

Gardeners loved the flavor of both varieties. ‘Ambrosia’ matched or surpassed ‘Allure’ for all measured traits, including earliness, yield and taste. ‘Ambrosia’ produced large ears and its performance was consistently good.

Variety	Pref (%)	Rec (%)	Rating
Allure	25	60	7.50
Ambrosia	75	90	8.20
(12 sites)			



Corn, Bicolor Super Sweet

Gardeners were split on their preferences. Some liked ‘XTH20173’ for its earliness. Others liked ‘SS2742’ for its higher yields and longer ears. Both varieties performed reliably and tasted great.

Variety	Pref (%)	Rec (%)	Rating
SS2742	50	93	8.00
XTH20173	50	73	7.77
(17 sites)			



Corn, White

‘Sugar Pearl’ was the clear winner. The corn was very sweet and produced higher yields. Every gardener preferred it over ‘Whiteout’ and the vast majority of gardeners recommended it. ‘Whiteout’ did a “wipeout” and failed to impress.

Variety	Pref (%)	Rec (%)	Rating
Sugar Pearl	100	80	7.00
Whiteout	0	20	5.25
			(7 sites)



Corn, Yellow

The modern variety ‘Bodacious’ was healthier and produced higher yields than ‘Jubilee’, a popular hybrid from the 1970s. ‘Bodacious’ cobs were more attractive and sweeter. Neither variety generated much enthusiasm among our gardeners.

Variety	Pref (%)	Rec (%)	Rating
Bodacious	67	75	7.40
Jubilee	33	50	6.60
			(7 sites)



Cucumber, Burpless

Gardeners loved ‘Summer Dance’ for its long, slender and smooth-skinned fruits. Yields were impressive and its performance was consistently strong. ‘Tasty Green’ has always done well in our trials. Its yields are early and reliable.

Variety	Pref (%)	Rec (%)	Rating
Summer Dance	65	95	8.71
Tasty Green	35	71	7.33
			(25 sites)



Cucumber, Pickling

‘Homemade Pickles’ matured earlier and was productive. Gardeners loved its crisp and blocky fruits—perfect for pickling. ‘H-19 Little Leaf’ vines were compact and easier to pick. Its cucumbers were bright green, blocky and flavorful.

Variety	Pref (%)	Rec (%)	Rating
H-19 Little Leaf	44	52	6.75
Home. Pickles	56	71	7.20
			(24 sites)



Cucumber, Slicing

Both varieties produced good crops of quality cucumbers. Gardeners were evenly split on their preferences, but ‘General Lee’ was the more consistent performer. Every gardener rated it highly and recommended the variety.

Variety	Pref (%)	Rec (%)	Rating
Dasher II	50	50	7.25
General Lee	50	100	8.63
			(10 sites)



Cucumber, Snack

‘Mercury’ produced earlier and heavier yields. It was reliable. And yet, the majority of gardeners preferred ‘Muncher’. They felt ‘Muncher’ cucumbers were perfect for snacking: flavorful, free of bitterness and small seeded.

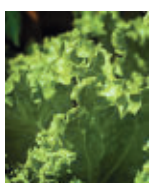
Variety	Pref (%)	Rec (%)	Rating
Mercury	46	79	7.43
Muncher	54	54	7.61
			(27 sites)



Cucumber, White

‘Silver Slicer’ was earlier and higher yielding. Its cukes were more slender and maintained a desirable shape and color as it matured. Every gardener recommended it. ‘Salt and Pepper’ cukes had a fatter shape and turned yellow quicker.

Variety	Pref (%)	Rec (%)	Rating
Salt and Pepper	17	50	6.17
Silver Slicer	83	100	8.17
			(6 sites)



Lettuce, Leaf

‘Tropicana’ produced a good yield of mild tasting, deep green leaves. It tolerated heat and was reliable. Half of the gardeners preferred ‘Starfighter’. They were impressed with its beautiful, dark green leaves and its resistance to bolting.

Variety	Pref (%)	Rec (%)	Rating
Starfighter	50	67	7.50
Tropicana	50	67	7.83
			(13 sites)



Lettuce, Romaine

Both produced good crops of dark green, crisp, delicious lettuce. ‘Fusion’, a cross between leaf and romaine lettuces, was exceptional. Gardeners marveled at its looks, mild flavor and resistance to bolting. ‘Green Forest’ was reliable.

Variety	Pref (%)	Rec (%)	Rating
Fusion	76	94	8.43
Green Forest	24	61	7.40
			(34 sites)



Melon, Cantaloupe

‘Athena’, a popular cantaloupe in the north, produced good yields of melons that looked good and tasted great. ‘Superstar’ was a reliable producer and had the capacity to bear larger melons. Its melons had a short storage life.

Variety	Pref	Rec	Rating
Athena	69	78	7.12
Superstar	31	67	6.47
			(22 sites)



Melon, Galia

Galia melons were well liked for their sweet, aromatic flesh. ‘Passport’ matured earlier and produced higher yields. Both ‘Passport’ and ‘Arava’ have been reliable producers in our trials.

Variety	Pref	Rec	Rating
Arava	44	50	5.19
Passport	56	69	6.63
			(19 sites)



Melon, Specialty

Gardeners enjoyed the sweet and distinctive flavors of both varieties. The summer of 2016 was warm and favorable, yet yields of these varieties were satisfactory at best. ‘San Juan’ matured earlier and was easier to grow.

Variety	Pref	Rec	Rating
Lambkin	54	63	6.07
San Juan	46	56	6.00
			(20 sites)



Okra

‘Clemson Spineless’ was preferred for the quality of its tender, light green pods. ‘Jambalaya’ produced earlier but its pods got tough. Yields were similar.

Variety	Pref	Rec	Rating
Clemson Spineless	56	56	7.00
Jambalaya	44	44	6.00
			(11 sites)



Pea, Shell

‘Lincoln’ again proved to be an outstanding pea for ND. The vines were sturdy and productive. The peas were delicious. ‘Sabre’ matured early and its pods were easy to shell; however its vines lacked vigor and were less productive.

Variety	Pref	Rec	Rating
Lincoln	70	85	7.93
Sabre	30	41	6.15
			(35 sites)



Pea, Snow

Most gardeners preferred ‘Sweet Horizon’. Its pods were straighter, flatter and sweet. ‘Avalanche’ produced earlier but some of its pods curled. The vines of both varieties were healthy and their yields were similar.

Variety	Pref	Rec	Rating
Avalanche	40	58	6.52
Sweet Horizon	60	69	7.32
			(28 sites)



Pumpkin, Garden

Both varieties produced nice, dark orange jack-o’-lanterns on short vines. Pumpkins were upright in shape and averaged near 20 pounds. ‘Cargo’ was earlier and produced higher yields at several sites. ‘Magic Lantern’ was more reliable.

Variety	Pref	Rec	Rating
Cargo	40	69	7.80
Magic Lantern	60	88	8.07
			(17 sites)



Pumpkin, Giant

'Big Moose' is the best variety for gardeners who want to grow a giant orange pumpkin. It produced more pumpkins, bigger pumpkins and prettier pumpkins than 'Big Max'. It matured earlier, which is always appreciated in ND.

Variety	Pref (%)	Rec (%)	Rating
Big Max	33	67	7.00
Big Moose	67	78	8.25
(15 sites)			



Pumpkin, Large

'Howden Biggie' matched or outperformed 'Captain Jack' in all traits. It germinated well and its vines produced bigger pumpkins and more pumpkins. Pumpkins of both varieties were dark orange, upright, and had thick, sturdy handles.

Variety	Pref	Rec	Rating
Captain Jack	25	38	5.00
Howden Biggie	75	63	6.88
(11 sites)			



Pumpkin, Warty

Gardeners loved the bright green warts of 'Warty Goblin', which contrasted well with its orange rind. The orange warts of 'Knuckle Head' were "boring." 'Warty Goblin' produced higher yields. Fruit weights were similar (15 pounds).

Variety	Pref	Rec	Rating
Knuckle Head	8	43	6.14
Warty Goblin	92	79	8.36
(15 sites)			



Radish, Bicolor (Fall)

'French Breakfast' outperformed 'D'Avignon' in all measured traits. Its roots were plumper, more attractive and milder. 'D'Avignon' roots were more slender and the vivid contrast of its red and pure white skin was attractive.

Variety	Pref	Rec	Rating
D' Avignon	27	59	6.39
French Breakfast	73	85	7.30
(50 sites)			



Radish, Red (Fall)

'Roxanne' germinated better, grew more vigorously and produced higher yields. Its roots were big, perfectly globular, and bright red. 'Cherry Belle' grew well. The radishes of both varieties were crisp and delicious.

Variety	Pref	Rec	Rating
Cherry Belle	28	50	7.54
Roxanne	72	80	7.95
(43 sites)			



Spinach, Savoy Leaf (Fall)

'Emperor' germinated better in the warm soil, grew quickly and produced good yields. 'Bloomsdale Long Standing' showed good tolerance to cool temps. Its leaves were more crinkled. Both varieties were delicious.

Variety	Pref	Rec	Rating
Bloomsdale LS	42	63	6.40
Emperor	58	69	6.51
(60 sites)			



Spinach, Smooth Leaf (Spring)

'Olympia' was a reliable producer of smooth, medium green, mild tasting spinach. Its tolerance to heat has made it a noteworthy performer in our trials for years. 'Toucan' was slower to grow and showed exceptional resistance to bolting.

Variety	Pref	Rec	Rating
Olympia	54	66	6.62
Toucan	46	59	6.41
(36 sites)			



Spinach, Smooth Leaf (Fall)

Germination of spinach can be tricky in fall, and 'Olympia' excelled at this. The fuller stands led to good yields and more satisfied gardeners. Many gardeners liked 'Gazelle'. Its leaves were dark green, thick, and rich in flavor.

Variety	Pref	Rec	Rating
Gazelle	47	65	6.44
Olympia	53	82	6.79
(71 sites)			



Squash, Dark Green Summer

‘Raven’ is unsurpassed at producing a fast crop. ‘Raven’ germinated better, matured earlier and produced more zucchini than ‘Noche’. Gardeners appreciated its fruit quality, too. Every gardener recommended ‘Raven’.

Variety	Pref (%)	Rec (%)	Rating
Noche	14	29	7.43
Raven	86	100	9.14
			(7 sites)



Squash, Light Green Summer

Both of these specialty varieties grew well. ‘Bossa Nova’ vines were healthy and produced an early, abundant harvest. Its fruits were attractive and flavorful. ‘Magda’ produced lots of tender, mild squash.

Variety	Pref (%)	Rec (%)	Rating
Bossa Nova	63	63	8.13
Magda	38	63	7.13
			(9 sites)



Squash, Yellow Summer

‘Zephyr’ matured earlier and its unique, green-tipped fruits were more attractive. These fruits were tender, delicious and abundant. ‘Multipik’ got off to a strong start and produced an astounding amount of squash.

Variety	Pref (%)	Rec (%)	Rating
Multipik	25	63	7.71
Zephyr	75	88	8.14
			(9 sites)



Swiss Chard, Pink

Most gardeners thought ‘Flamingo’ looked more attractive and every gardener recommended it. ‘Magenta Sunset’ grew well, matching or outperforming ‘Flamingo’ for all other traits including health, earliness, yield and taste.

Variety	Pref (%)	Rec (%)	Rating
Flamingo	67	100	8.67
Magenta Sunset	33	67	7.33
			(5 sites)



Swiss Chard, Red

‘Rhubarb’ plants were healthy and resisted bolting. The harvested leaves were beautiful, crisp and delicious. Gardeners liked ‘Intense’ but not as much as ‘Rhubarb’. ‘Intense’ showed a greater tendency to bolt.

Variety	Pref (%)	Rec (%)	Rating
Intense	25	75	6.75
Rhubarb	75	100	8.75
			(4 sites)



Turnip (Fall)

‘Hakurei’ matured quickly and produced higher yields. Its pure white roots looked like golf balls. Gardeners were delighted with its sweet, mild flavor. ‘Purple Top White Globe’ grew vigorously but often did not mature in time.

Variety	Pref (%)	Rec (%)	Rating
Hakurei	62	72	6.38
Purple Top WG	38	32	5.21
			(40 sites)



Gladiolus, Orange

Gardeners liked both varieties. The flowers of ‘Sun Kissed’ were vibrant, showy and long lasting. Its stalks were vigorous and healthy. ‘Peter Pears’ bloomed earlier. Gardeners appreciated its sturdy spikes and its softer orange color.

Variety	Pref (%)	Rec (%)	Rating
Peter Pears	50	73	7.90
Sun Kissed	50	91	8.10
			(12 sites)



Gladiolus, Orange/Yellow

‘Fiesta’ blooms were smaller but brighter. Its plants were healthy and grew consistently well across sites. Gardeners were enchanted by the subtle peach and yellow blossoms of ‘Olympic Flame’. It bloomed 1 to 2 weeks earlier.

Variety	Pref (%)	Rec (%)	Rating
Fiesta	53	74	8.06
Olympic Flame	47	74	8.11
			(22 sites)



Gladiolus, Pink

Every gardener liked ‘Chit Chat’. It was healthy and sturdy. Gardeners fell in love with the soft, velvety beauty of ‘Pink Event’ blossoms. It had the “wow factor.” This variety bloomed earlier but was more susceptible to disease.

Variety	Pref (%)	Rec (%)	Rating
Chit Chat	47	100	8.06
Pink Event	53	83	8.41
			(21 sites)



Gladiolus, Plum

The touch of yellow in the ‘Fun Time’ blooms made the colors pop. The flowers were bright and “happy.” The silky colors and large blooms of ‘Plum Tart’ made a greater statement. Its stems were long and filled with brilliance.

Variety	Pref (%)	Rec (%)	Rating
Fun Time	46	88	7.48
Plum Tart	54	88	8.04
			(30 sites)



Gladiolus, Red

‘Sparkler’ bloomed earlier and more abundantly than ‘Rapid Red’. Its yellow/red bicolor blooms were showier in the garden. ‘Rapid Red’ had sturdy spikes and vibrant red blooms. Both varieties performed well as cut flowers.

Variety	Pref (%)	Rec (%)	Rating
Rapid Red	45	73	7.09
Sparkler	55	73	7.18
			(13 sites)



Gladiolus, Rose

Gardeners gave very high ratings to both varieties. ‘Chit Chat’ performed well at all sites and was recommended by all gardeners. ‘Priscilla’ bloomed first and its flowers were large, lovely and abundant.

Variety	Pref (%)	Rec (%)	Rating
Chit Chat	50	100	8.67
Priscilla	50	95	8.42
			(17 sites)

Bean, Green

Varieties

'Bush Blue Lake 274'

56 days. The standard for yield and quality. Dark green, stringless pods. Dependable.

'Provider'

52 days. Early, reliable and heavy yields. Medium-green pods are good for freezing and canning.



Data

Data were collected at 19 sites in 2016.

Trait	B.B. Lake		
	274	Provider	Same
Germinated best	13%	25%	63%
Healthier plants	19	13	69
Harvested earlier	25	69	6
Higher yields	38	31	31
More attractive pods	53	27	20
Tasted better	27	0	73
Preference	63	38	
Recommend	75	56	
Mean score ¹	7.88	7.81	
Median score ¹	8.50	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Excellent germination. Both were very vigorous in spite of dry conditions.
- I was pretty happy with the taste of both varieties. Yields were fine but not prolific. I can't wait to grow some beans like these varieties next year.
- They produced very well.
- Good germination; good taste.
- Both were okay but not great. We had some dry weather in August and they stopped producing even when I watered.
- I would be hard pressed to make a choice of which variety to plant again. Undoubtedly I would plant them both!
- We really liked both varieties.

Comments on 'B. Blue Lake 274'

- I love these beans.

- Nicier, fuller plants. Twice as many pods. Longer, more slender pods.
- Greener, straighter and thinner pods.
- Great bean for bean pickles. Would plant again. 'Bush Blue Lake 274' just did a little bit better in all ways.
- Bigger and more numerous pods. Nice, healthy, thick pods.
- Juicier pods.

Comments on 'Provider'

- Produced earlier and the beans didn't get so big and remained tender. I would raise 'Provider' again.
- Very good yields. Even though not many germinated we still had very high yields. Great tasting. Kept producing.
- Its straight pods were good for canning.
- Lots of flowers; slow pod production.
- With all the rain we had this year, I found more white mold in 'Provider', but the pods stayed nice and slim a bit longer than the 'Bush Blue Lake 274'. I would space them a little further apart to prevent the mold.
- Better quality.
- First to yield and a big producer.
- 'Provider' seemed to be a bit hardier.

Conclusions

Gardeners liked both varieties. They preferred 'Bush Blue Lake 274' for its superior pod quality. Its pods were dark green, smooth and slender. 'Provider' was earlier to mature. The varieties were rated similarly in plant health and yield qualities.

'Provider' produced the first pods, but 'Bush Blue Lake 274' produced the finest pods.

Best green bush bean varieties

Top choice

Bush Blue
Lake 274

Strong performers

Derby
Espada
Greencrop
Jade
Provider
Strike

Bean, Green Filet

Varieties

'Crockett'

60 days. Upright plants produce slim, 6-inch, very dark green pods. Yields are heavy and continuous.

'Serengeti'

55 days. Pods are medium green, slim, straight and tender. Sturdy plants support high yields.



Both varieties had impressive yields of slender, straight pods.

Data

Data were collected at 26 sites in 2016.

Trait	Crockett	Serengeti	Same
Germinated best	17%	17%	67%
Healthier plants	14	10	76
Harvested earlier	22	39	39
Higher yields	28	39	33
More attractive pods	63	21	16
Tasted better	52	16	32
Preference	47	53	
Recommend	90	75	
Mean score ¹	8.32	8.63	
Median score ¹	9.00	9.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Almost all seeds came up. Good looking plants. Amazing production. Very straight pods. Both were delish! This trial was awesome! These plants produced twice! There were so many beans produced by both varieties; I gave a ton of them away.
- Both had great germination. Both were thick, bushy plants that produced tons of beans! Totally amazing how productive both these varieties are. It's mid-September and I'm still picking beans! Both are very straight, green beans.
- Wonderful varieties and I wouldn't go back to regular beans.
- Our green bean varieties this year were both very good in all aspects.

- Very good beans, nice pods and tastes. Highly recommend both varieties.
- Both varieties produced a good bean.
- Excellent germination. Very healthy plants.
- First harvest was on July 18.
- Hail damage.
- Rabbits at the tops and blossoms of the plants.
- Both eaten by deer before any yields.

Comments on 'Crockett'

- Matured earlier by a day or two. I love the intense dark green color of 'Crockett'. Very tender, great flavor. They have everything a bean lover wants: huge production; straight, gorgeous, dark green beans; and super tender and delicious when cooked. These beans made awesome dilly beans for canning.
- It was more impressive. 'Crockett' had a dark green color, smooth, attractive pods, and slow to fill beans. My husband, sister and I preferred its taste.
- 'Crockett' had good taste and texture. Very attractive color and appearance.
- Dark green, slender beans with excellent taste and easier to pick. We finished picking on July 28, but then a second flush of flowers led to another harvest on September 11.
- Darker green plants and darker green pods.
- More uniform size.
- Tasted better.
- Made great pickles and froze well.

Best green filet bean varieties

Top choice
Crockett

Strong performers
Maxibel
Serengeti

More Comments on ‘Crockett’

- The only difference between the varieties was that the pods were darker green and shinier with ‘Crockett’. Everything else was equal.
- Crockett had smoother, better taste.
- Row was more complete. Darker green pod but bitter taste.

Comments on ‘Serengeti’

- ‘Serengeti’ was the better bean by far. It had more pods than ‘Crockett’. It also had a much better second harvest than ‘Crockett’. ‘Serengeti’ gave me a lot of pods in September as a second crop.
- ‘Serengeti’ produced beans about a week earlier than ‘Crockett’. ‘Serengeti’ had a better second crop than ‘Crockett’. Better yields.
- Prefer ‘Serengeti’ for flavor and higher yield.
- Pods had a lighter color and a more pleasant taste.
- Produced twice the yield.
- Better producer.
- More tender.
- Matured a day or two sooner.
- Attractive pods and better taste.
- I liked the less shiny look of the pod...but both pods were attractive.
- I personally have been a big fan of ‘Crockett’ in the past. This year I really liked the taste of ‘Serengeti’.
- ‘Serengeti’ had a bland taste with a chewier and stringier texture. We found it closer to a yellow wax bean.

Conclusions

Both varieties were exceptional. Their pods were straight, smooth and slender. Gardeners raved over the dark green, delicious pods of ‘Crockett’. ‘Serengeti’ matured earlier and its sturdy plants produced high yields.

The pods of ‘Crockett’ were glossy, dark green and delicious. ‘Serengeti’ matured earlier and produced a strong second crop.

Bean, Purple

Varieties

'Purple Queen Improved'

55 days. Dark purple blooms with colorful red stems. Delicious pods turn green when cooked.

'Royal Burgundy'

55 days. Pods are 5 inches long, stringless and tender. Dark purple pods turn green when cooked.



Both varieties produced good crops of colorful pods. 'Purple Queen Improved' resisted diseases while 'Royal Burgundy' matured earlier.

Data

Data were collected at 12 sites in 2016.

Trait	P. Queen Imp.	Royal Burgundy	Same
Germinated best	40%	30%	30%
Healthier plants	50	30	20
Harvested earlier	30	60	10
Higher yields	33	33	33
More attractive pods	33	22	44
Tasted better	20	10	70
Preference	63	38	
Recommend	82	73	
Mean score ¹	7.27	6.55	
Median score ¹	7.00	7.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Their pods looked almost identical. Both were great in taste.
- Rabbits chewed them both down.
- Rabbits liked these plants most of all in my garden.

Comments on 'Purple Queen Improved'

- Loved these beans—they produced three pickings and each time the beans were great!
- More disease resistant and tasted better.
- Slightly better production.
- Later, but a more steady producer. Fewer mold problems.
- There were more pods per plant and also larger pods.

Comments on 'Royal Burgundy'

- Did a bit better and had bigger beans. 'Royal Burgundy' was ready sooner, tasted good and was easier to grow. It came up well and grew well.
- Germinated a little better; the dense stand led to more mold problems. Produced yields 3 days earlier. Produced in big waves.
- Slightly higher yields. Pods were longer and more uniform. Produced more beans, better beans and sooner than 'Purple Queen Improved'.

Conclusions

Most gardeners preferred 'Purple Queen Improved'. Its disease-resistant plants produced good yields of glossy purple, tasty pods. 'Royal Burgundy' matured earlier. Both varieties performed well but neither generated much excitement.

Best purple bush bean varieties

Top choice

Purple Queen Improved

Strong performer

Royal Burgundy

Bean, Green Pole

Varieties

‘Fortex’

70 days. Stringless, dark green, slender, 10-inch pods. Rich flavor. Productive vines.

‘Monte Cristo’

71 days. From a new series of pole beans known for long, straight and tender pods. Bright green pods.



Data

Data were collected at 4 sites in 2016.

Trait	Monte		
	Fortex	Cristo	Same
Germinated best	75%	0%	25%
Healthier plants	25	50	25
Harvested earlier	25	50	25
Higher yields	25	50	25
More attractive pods	25	50	25
Tasted better	25	50	25
Preference	25	75	
Recommend	50	75	
Mean score ¹	6.75	8.00	
Median score ¹	6.50	8.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Neither had very attractive pods.
- A major hailstorm on July 9 stripped plants of many leaves and blossoms of both cultivars.

Comments on ‘Fortex’

- Despite a rabbit’s chewing, it regrew and produced so much better than ‘Monte Cristo’.
- Longer beans. It was fun to have such a long bean. Some of its beans turned yellow and fell off.

Comments on ‘Monte Cristo’

- Vines grew taller and had more continuous flowering. More productive and fuller flavor.
- Nice, large plant. Heavy—broke poles. Almost foot-long beans.
- Faster producing and a more productive variety.

Conclusions

The new variety ‘Monte Cristo’ impressed gardeners with its vigorous vines and high yields. It was preferred over ‘Fortex’, a strong performer of the past noted for its long, flavorful pods. Data for this trial are limited and additional testing is required.

‘Monte Cristo’ was preferred for its vigorous vines and high yields.

Best green pole bean varieties

Top choice
Fortex

Strong performers
Monte Cristo
Orient
Wonder
Stringless Blue
Lake S-7

Bean, Scarlet Runner

Varieties

'Emperor'

75 days. Climbing bean with gorgeous red flowers. Attractive to bees and butterflies. Edible pods.

'Lady Di'

90 days. Very vibrant red blooms produce thick, tender, stringless pods. Attracts bees, butterflies.



Gardeners loved both varieties for their beauty—and disliked both varieties for their beans.

Data

Data were collected at 9 sites in 2016.

Trait	Lady		
	Emperor	Di	Same
Germinated best	43%	0%	57%
Healthier plants	25	0	75
Bloomed earlier	25	25	50
More attractive	25	13	63
More flowers	13	13	75
More beans	38	25	38
Tasted better	17	0	83
Preference	83	17	
Recommend	63	50	
Mean score ¹	6.50	5.63	
Median score ¹	8.00	6.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- The hummingbirds loved the flowers. Very attractive looking. Love these beans because they're easier to pick and you can't goof up their production.
- These bean seeds were enormous! They were so much fun to grow and the hummingbirds were always around, enjoying the flowers! Both were great; hard to decide which one I liked more.
- I had never planted runner beans before. They were very pretty. Lots of bees and hummingbirds were checking them out. They both produced like crazy.
- Pretty little red blooms! So many beans! I would not use these pole beans for food; we did not enjoy them. The vines

make an awesome natural "fence" or privacy barrier. I would recommend a trellis as tall as a barn to see how tall they get. I'm collecting the seeds for next year and to share!

- Both were pretty in the garden. Didn't care for the taste of either—woody.
- Neither produced any beans. All these beans did was produce a big green wall on the fence in my garden.
- Neither variety produced many beans. The few pods produced were large, flat and unattractive.

Comments on 'Emperor'

- Came up first. Vines were fuller, taller, healthier and darker green. Really bloomed and is still blooming (August 22). Tasted "good" but we did not enjoy the taste of either variety. Its beauty really wowed me. I'd grow it anywhere!
- A nicer, fuller, darker green plant.
- Was much better all around.
- Better germination.

Comments on 'Lady Di'

- Produced a few more pods.

Conclusions

The lush, colorful vines of both varieties pleased gardeners, hummingbirds and bees. Gardeners did not enjoy the beans. 'Emperor' was preferred for its darker green, fuller vines.

Best scarlet runner bean variety

Top choice
Emperor

Bean, Vegetable Soybean

Varieties

'Envy'

75 days. Reliable variety for the north. Upright, 2-foot plants bear bright green seeds for edamame.

'Tohya'

55 days. Compact plants produce a concentrated set of pale green pods. Delicious, buttery flavor.



Data

Data were collected at 17 sites in 2016.

Trait	Envy	Tohya	Same
Germinated best	27%	13%	60%
Healthier plants	36	21	43
Harvested earlier	33	44	22
Higher yields	33	58	8
More attractive pods	17	67	17
Tasted better	11	33	56
Preference	36	64	
Recommend	55	82	
Mean score ¹	6.18	7.18	
Median score ¹	7.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Vegetable soybean—my new favorite vegetable!
- Both germinated and grew very well.
- Eaten first by deer or rabbits; then suffered damage due to June hailstorm.
- Equal in germination and health. Deer ate all but four plants on June 7.
- Deer enjoyed them too much!
- Major hailstorm on July 9 stripped many leaves and blossoms.
- Crop failure: plants were eaten by deer and the pods could not fully develop.
- Damage from mice or gophers led to a poor stand.

Comments on 'Envy'

- Taller, bushier, darker green, more attractive plants. More pods per plant.

- All plants grew. Pods were plump and full. Consistently three seeds in a pod.
- Liked the taste better.
- Vines died out quickly. Only one or two pods per plant.
- More pods per plant.

Comments on 'Tohya'

- Higher yield; pods filled out better.
- Grew better; pods filled out better; tasted the best.
- Larger pods and better tasting.
- Bigger pods; longer lived production. Consistently three seeds per pod!
- More of its pods had three seeds; most 'Envy' pods had two seeds.
- Both had bunny attack, but 'Tohya' withstood it better and had a greater produce. Produced more and had fuller pods. Tasted better too.
- Its pods were higher off the ground and easier to pick.
- 'Tohya' had much larger beans in pods with larger number of beans, yet was a more compact plant. Earlier yield (by 3 weeks); larger pods.

Conclusions

'Envy' has been a reliable performer in our previous trials, but it was outshone by the new variety 'Tohya'. 'Tohya' matured earlier and was more productive. Its pods were larger and filled with more seeds. Gardeners liked the taste of both varieties, but most gardeners who expressed a preference chose 'Tohya.'

'Tohya' was earlier and more productive. Its pods were larger and filled with more seeds.

Best vegetable soybean varieties

Top choice
Tohya

Strong performer
Envy

Beet, Gold

Varieties

'Bolder'

55 days. Dark golden beets. Bright yellow flesh keeps its color when cooked. Sweet.

'Touchstone Gold'

55 days. The standard for quality. Smooth golden roots with vibrant yellow flesh. Sweet, mellow flavor.



These varieties were very similar, and gardeners liked both.

Data

Data were collected at 20 sites in 2016.

Trait	Touchstone		
	Boldor	Gold	Same
Germinated best	17%	28%	56%
Healthier plants	29	35	35
Harvested earlier	46	31	23
Higher yields	38	50	13
More attractive roots	31	38	31
Tasted better	25	31	44
Preference	50	50	
Recommend	81	88	
Mean score ¹	7.13	7.31	
Median score ¹	7.50	7.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both were very delicious, so sweet!
- 'Bolder' had higher yields; 'Touchstone Gold' had a better shape; but both tasted great.
- It was fun to try golden beets and we prefer their taste over red beets. I will only plant gold beets after this trial.
- Loved both. Very bright, yellow beets.
- Both produced beautiful beets.
- Liked the taste of both.
- Received showers almost daily after sowing. Super germination for both. Roots were very similar in taste and texture.
- Both were slow to grow. Cannot tell a difference in the taste of the roots.
- Both did very well.
- Neither had very big roots.

- Both germinated on May 18, 11 days after being sown.
- Really enjoyed the greens. We don't rush to eat the beet roots and they were not woody.
- Hail destroyed the planting.
- Rabbits ate the tiny plants and no harvestable roots developed.
- Did not have much luck with either. None germinated; I believe due to lack of rain.

Comments on 'Bolder'

- The beets were almost two-toned with yellow and orange skin. Very pretty. Much sweeter; better taste.
- 'Bolder' had a more orange color. Smaller beets.
- Superior germination. Healthier plants. Higher yields. Average root size was 25–30% larger.
- Higher yields.
- Better yield and fuller taste.
- Richer taste, which I prefer.
- More vigorous plants. Early maturing. All plants had edible beets. The roots were nicer in shape and more uniform.
- 'Bolder' had a nicer shape and richer color than 'Touchstone Gold'. Good yield. I had a lot of rodent damage on the roots of both varieties this year and they seemed to prefer 'Bolder'. We found that 'Bolder' had a smoother, sweeter flavor so I guess the rodents have the same taste preferences as us.
- Nice greens; poor beets.

Best gold beet varieties

Top choice
Touchstone Gold

Strong performer
Bolder

More Comments on ‘Boldor’

- Much better germination (100% compared to 5% for ‘Touchstone Gold’). Roots were larger.
- Both had nice leaves but the ‘Boldor’ had taller plants and bigger leaves. We like to eat the leaves.

Comments on ‘Touchstone Gold’

- Better tasting even though they didn’t produce as well.
- Large, great tasting beets!
- Very tasty and looks beautiful.
- Both were tasty, but ‘Touchstone Gold’ was better.
- Healthier plant, less affected by pests.
- Some plants did not produce a good-sized beet.
- ‘Touchstone Gold’ seemed to wilt in hot weather and got larger at a later date than ‘Boldor’.
- Germinated best; was the first up. Leaves were a little larger. Beets were larger overall.
- Grew better. Roots had a better shape; they were bigger and tasty.
- Slightly more uniform roots.

Conclusions

Both varieties performed well from start to finish. Gardeners liked both varieties and were evenly split on their preferences. ‘Touchstone Gold’ showed a slight edge for yield and root quality traits. The most noticeable difference was the brighter interior color of ‘Boldor’ roots.

Both varieties performed well from start to finish. ‘Touchstone Gold’ showed a slight edge for yield and root quality traits.

Beet, Red

Varieties

‘Early Wonder Tall Top’

50 days. Popular for its rapid growth and bright leafy greens. Dark red, flattened roots.

‘Red Ace’

50 days. Smooth, globular, deep red roots. Sweet and tender. Glossy leaves. Uniform and vigorous.



‘Early Wonder Tall Top’ produced amazing greens but inferior roots.

Data

Data were collected at 22 sites in 2016.

Trait	E. Wonder Tall Top	Red Ace	Same
Germinated best	23%	55%	23%
Healthier plants	24	43	33
Harvested earlier	35	40	25
Higher yields	29	29	43
More attractive roots	0	75	25
Tasted better	11	37	53
Preference	32	68	
Recommend	38	76	
Mean score ¹	6.14	7.47	
Median score ¹	7.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both tasted great and had large bulbs.
- They were both good.
- Great taste on both.
- Both germinated at 75%.
- Both varieties had good germination.
- I am not sure how you can tell which beet tastes better because to me they tasted the same.
- They had nice greens but neither produced any beets.
- Both varieties got a severe case of leaf spot. I did not get any beets that matured. The plants were a total loss. I ended up pulling them in mid September. I would like to find a variety of red beet that is resistant to leaf spot.
- Both had brown spots on leaves. I liked the roots of both varieties.

Comments on ‘Early Wonder Tall Top’

- ‘Early Wonder Tall Top’ beets definitely started producing first but it didn’t take long for the other to catch up.
- I was worried that ‘Early Wonder Tall Top’ was giving all energy to the leaves, but the bulbs were perfect, with even the largest not becoming woody, but remaining tender and delicious.
- Had the most amazing greens on top. I used them for salads and cooking. Never had seen such tops before. And they were delicious! I would actually grow this variety again just for the greens but the beets were just okay.
- Huge tops—more tops than root.
- When drought time came, these beets were not as hard to peel as others.
- Its roots were bigger. This is a good variety if you need lots of beets.
- Germinated at 90% compared to 75% for ‘Red Ace’. This led to higher yields. Both tasted good but I prefer the firmer texture of ‘Early Wonder Tall Top’ when cooked.
- More vigor; three times the top growth. Roots were not uniform in color or shape. Some were white and pointed. Had very good early harvest; turned bland later. Recommend this for an early harvest.
- There was a bunch of Swiss chard seeds in our trial because they took over the ‘Early Wonder Tall Top’ and their roots never grew past the size of a quarter.

Best red beet varieties

Top choice
Red Ace

Strong performers
Bull’s Blood
Detroit Dark Red
Early Wonder Tall Top
Merlin

More Comments on ‘Early Wonder Tall Top’

- Produced uniform plants.
- A few of the roots were strange looking.

Comments on ‘Red Ace’

- ‘Red Ace’ had a more uniform, round shape with very good red color.
- We really liked ‘Red Ace’; more uniform and circular roots.
- These had the best looking beet; nice roots and tasty!
- As a beet pickler, I prefer ‘Red Ace’; they didn’t get the white rings in them and looked good in the jar.
- ‘Red Ace’ as a hybrid produced better. The beets were more uniform. It was earlier. It had a sweeter and better flavor.
- ‘Red Ace’ had better flavor. It had a great shape and great color.
- All around better: production, taste, attractive round red beets.
- Prettier, nice, round, uniform beet.
- I like its root shape better.
- More attractive, globe shape.
- Had bigger roots and was tastier.
- Bigger beet.
- Roots were medium-sized (smaller than those of ‘Early Wonder Tall Top’) and slightly better tasting.
- Good red color. Tasted bland early in the season but had outstanding taste later. Recommend for late harvest.
- Its smaller leaves were better for salads and cooking.
- ‘Red Ace’ was a better looking plant.
- Sprouted in a couple days and were sturdier. Healthier.

Conclusions

Gardeners were impressed with the tops of ‘Early Wonder Tall Top’ but even more impressed with the roots of ‘Red Ace’. The hybrid ‘Red Ace’ germinated better and was healthier. Its roots were more uniform, globular, attractive and delicious.

‘Red Ace’ roots were more uniform, globular, attractive and delicious.

Beet, White

Varieties

'Albino'

50 days. Dutch heirloom with large, rounded roots. Very sweet flavor. Will not stain.

'Avalanche'

55 days. New award winner noted for its uniformity and vigor. Globular roots are mild and sweet.



Data

Data were collected at 7 sites in 2016.

Trait	Albino	Avalanche	Same
Germinated best	29%	43%	29%
Healthier plants	14	43	43
Harvested earlier	29	0	71
Higher yields	14	43	43
More attractive roots	17	33	50
Tasted better	17	17	67
Preference	33	67	
Recommend	67	100	
Mean score ¹	7.17	8.50	
Median score ¹	9.00	8.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both were really nice and very tasty. My family and a number of others I fed them to prefer the white beet over a red beet. We will continue to look for white beet varieties. The only downside of the white beet is that they turn green where sticking out of the ground. Unsure if some sort of mulching or similar would help.
- It was very hard to tell the difference between them. The white beets cooked faster than red beets when I was making pickled beets.
- Slow germination for both—it was dry and windy. Plants were beautiful and healthy. Both varieties did well. I loved the size and beautiful healthy plants even with our extremely hot weather. Roots were thin skinned and easy to peel. It was nice to not deal with red everywhere.

- We enjoyed them more than red beets.
- Came up about the same. White beets are delicious—I gave many away too.

Comments on 'Albino'

- Roots were whiter and smaller. Buttery, smoother taste and better texture.
- A few of the roots were shaped like carrots.

Comments on 'Avalanche'

- Much better germination. The leaves were delicious; even big in salads. Nice, firm roots that peeled easily for roasting. Very uniform in shape and size.
- Better germination and larger beet size. It seemed like we were getting more for our work.
- Reddish color in stems. Black scabs on roots. Larger roots.

Conclusions

This trial did not generate much interest, but the gardeners who grew white beets enjoyed them. The hybrid 'Avalanche' showed superior germination, plant health and yields. Its roots were more uniform in shape.

Gardeners enjoyed white beets. 'Avalanche' displayed superior germination, health, yields and uniformity of roots.

Best white beet varieties

Top choice
Avalanche

Strong performer
Albino

Carrot, Chantenay

Varieties

'Caracas'

57 days. Short, cone-shaped roots are coreless and sweet. Strong, disease-resistant tops.

'Cumbre'

65 days. Cone-shaped roots are shorter and show less green shouldering than other Chantenays.



Data

Data were collected at 5 sites in 2016.

Trait	Caracas	Cumbre	Same
Germinated best	0%	0%	100%
Healthier plants	0	20	80
Harvested earlier	25	0	75
Higher yields	25	25	50
More attractive roots	50	50	0
Tasted better raw	75	25	0
Tasted better cooked	25	0	75
Preference	75	25	
Recommend	75	75	
Mean score ¹	8.00	6.50	
Median score ¹	9.00	6.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both varieties were very healthy but their roots were short and fat. As a consumer I would prefer something longer and skinnier for eating and cooking. I was surprised how short their roots were. I would not recommend either one.

Comments on 'Caracas'

- I really liked 'Caracas'. Nice size and nice taste.
- Sweeter taste.

Comments on 'Cumbre'

- Healthier plants.

Conclusions

Only a few gardeners chose to participate in this trial. These gardeners were most impressed with 'Caracas'. It performed well at all sites and had a sweeter taste. There was little excitement generated for either of these baby Chantenays. Full-sized varieties seem to be better options.

'Caracas' performed well at all sites. Its carrots were sweet and flavorful.

Best Chantenay carrot varieties

Top choice
Hercules

Strong performers

Caracas
New Kuroda

Carrot, Early Nantes

Varieties

'Goldfinger'

69 days. Dark orange roots with strong tops. Roots are uniform, smooth, straight and sweet.

'Yaya'

60 days. Bright orange roots are smooth and uniform. Holds well in field allowing for a late harvest.



Both varieties produced beautiful, crunchy carrots.

Data

Data were collected at 41 sites in 2016.

Trait	Gold-finger	Yaya	Same
Germinated best	28%	21%	51%
Healthier plants	18	18	63
Harvested earlier	35	21	44
Higher yields	49	26	26
More attractive roots	42	39	18
Tasted better raw	30	27	42
Tasted better cooked	5	24	71
Preference	58	42	
Recommend	78	69	
Mean score ¹	7.46	7.46	
Median score ¹	8.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- These carrots are amazing; both varieties. They are attractive, straight, and quick to produce.
- Both had a nice, crisp crunch as a raw carrot. Nice orange color as a cooked product.
- Our carrots were fantastic this year. The carrots were nice sized and tasted very good.
- Excellent taste. Very good keepers.
- These were planted in a raised bed and were ready to harvest much earlier than the carrots in the garden. Both varieties grew well. They both produced well.

- Wonderful varieties! Would plant both again. 'Yaya' grew a little bigger but 'Goldfinger' is a great variety too.
- Enjoyed both.
- Both became large; I should have dug them before September. Similar flavor when cooked.
- It is fun to plant and take care of these carrots. The planting is easy because of the pelleting, the spacing is so uniform. I would plant either of these varieties.
- Both produced sweet, crunchy, delicious carrots. We had trouble with a family of rabbits in the garden this spring. We had trouble germinating carrots (only about 20%) then when they started to sprout, half were eaten before they could produce any good carrots.
- Gophers took out my entire crop of carrots before we were able to harvest ... and they were looking so good!
- Even though I replanted the seeds, only about 10 plants of each grew. There was really no difference.
- Very poor germination. My store-bought packet of 'Danvers' germinated 10 times better.
- Neither germinated well. I was not impressed with either variety. The yields were very small carrots.
- Hail damage.

Best early Nantes carrot varieties

Top choice
Goldfinger

Strong performers
Laguna
Nelson
Yaya

Comments on ‘Goldfinger’

- ‘Goldfinger’ had a great, uniform shape. ‘Goldfinger’ produced early. It was the Reserve Champion winner at the Polk County Fair on July 6. We would plant it again.
- Grandkids loved growing these for the Walsh County Fair (First Place).
- Longer carrots, although they both have a good yield.
- Larger roots.
- These carrots had a nice size.
- Big, straight, tapered roots. Very tasty. Looks like the kind you see in the gourmet grocery.
- I did a test of two people: one liked ‘Yaya’ and one liked ‘Goldfinger’. I liked the taste of ‘Goldfinger’ better. It was a better all-around performer.
- Roots were more tapered; beautiful. More flavor.
- Better shape and yield.
- Very crisp and nice color.
- When eaten raw, it has a brighter, fresher taste compared to ‘Yaya’.
- Great sweet munching carrot.
- Slightly sweeter in taste.
- Yield and appearance were superior.
- Very nice shape; easy to trim.
- Most uniform.
- Brighter orange.
- In our hailstorm, ‘Goldfinger’ came back better than ‘Yaya’.
- Carrots split wide open; more splits.
- ‘Goldfinger’ had some carrots with the double roots.
- ‘Goldfinger’ had some forked roots. They tasted good but were more difficult to peel and clean for eating.

Comments on ‘Yaya’

- I liked the looks of its plants better—bushier greens—just looked healthier. Nice, smooth carrots. Sweeter carrot—especially when cooked. Yummy!
- The favorites of the whole family—sweeter, more uniform, longer carrots.
- ‘Yaya’ had some very large carrots, also very nice roots. ‘Yaya’ had a nicer yield and larger carrots. One of the better yields I have ever had with growing carrots. Both varieties had good yields but ‘Yaya’ was nicer looking and yielded better. I would definitely grow ‘Yaya’ again.
- Sweet flavor.
- Sweeter tasting.
- Smaller core and sweeter taste (both raw and cooked).
- Bigger roots.
- When eaten cooked, I give a slight edge to ‘Yaya’.
- ‘Yaya’ roots were more consistent and nice and straight.
- ‘Yaya’ grew bigger, brighter leaves.
- ‘Yaya’ seemed to be more uniform in size, but ‘Goldfinger’ was close.
- Larger and longer roots on July 12.
- More pleasing taste when eaten raw.
- Very delicious raw.
- Nicer roots.
- Roots were smaller and shorter, but tasty.
- ‘Yaya’ split upon reaching full maturity.

‘Goldfinger’ produced heavier yields. Its carrots were long, smooth and straight.

‘Yaya’ was a solid performer. Gardeners who cooked their carrots noted its sweet flavor.

Conclusions

Gardeners liked both varieties but most preferred ‘Goldfinger’. Its roots were straight, long and smooth. ‘Goldfinger’ produced heavier yields. ‘Yaya’ was a solid performer and matched ‘Goldfinger’ for many traits. Gardeners who cooked their carrots noted its sweet flavor.

Carrot, Mainseason Nantes

Varieties

'Bolero'

75 days. Famous for its storage ability. Heavy yields of sweet, bright orange, tapered roots.

'Romance'

75 days. Deep orange roots have exceptional flavor. Strong tops are easy to harvest.



Data

Data were collected at 29 sites in 2016.

'Bolero'
produced
heavier yields.
This storage
variety was
appreciated by
gardeners who
eat cooked
carrots.

Trait	Bolero	Romance	Same
Germinated best	21%	24%	55%
Healthier plants	14	10	76
Harvested earlier	26	19	56
Higher yields	48	26	26
More attractive roots	21	43	36
Tasted better raw	25	43	32
Tasted better cooked	30	15	55
Preference	54	46	
Recommend	76	66	
Mean score ¹	8.00	7.54	
Median score ¹	8.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- They both produced well.
- Both varieties germinated wonderfully. They were both ready to harvest at the same time.
- Showers daily after planting led to very good germination. Very healthy plants. Roots of the varieties tasted the same when cooked.
- Grew really well.
- Plants looked very nice. Grew very well and produced good yields. Both tasted very good. The roots did not get very big; I should have thinned the rows.
- Both were very nice although the flavor wasn't as good as my heritage carrots.
- Seemed to be 100% germination.
- Both trials sprouted slowly, but eventually we had 100% germination.

- Very slow to come up, but finally good germination. Yields were small; it was very dry (less than one inch of rain) during July and August.
- Both were slow growing at first; then developed good vigor. I could detect a taste difference, but neither one was better than the other.
- Carrots rock!
- Due to the type of soil in my garden (a lot of clay) I was unable to thin the carrots after the roots started growing so I had smaller carrots. I still had plenty of carrots of each variety.
- I had to replant these seeds two times. Germination was poor at best and then the hail came and destroyed the few plants that did germinate.
- Neither germinated nor grew very well. Roots were small. This is the smallest carrot harvest I've ever had.

Comments on 'Bolero'

- Germination was 80% compared to 5% for 'Romance'. Tasted better and produced better. Roots were straight and uniform from top to bottom.
- It was sweet and full of flavor.
- Tasted sweeter.
- 'Bolero' was a smoother, sweeter flavor with no undesirable aftertaste. I prefer the raw flavor of 'Bolero'; I couldn't stop eating them.
- 'Bolero' had more flavor when cooked. 'Bolero' was very crisp and hard to cut.

**Best
mainseason
Nantes
carrot
varieties**

Top choice
Bolero

**Strong
performer**
Romance
Scarlet Nantes

More Comments on ‘Bolero’

- If you like cooked carrots, ‘Bolero’ is your choice.
- When eaten cooked, both tasted great but I give a slight edge to ‘Bolero’.
- Better taste and higher yields.
- Large roots; grew straight and uniformly in the row.
- Its roots were straighter.
- Uniform, large-size carrots.
- Larger carrot.
- Roots were smaller and had a more earthy taste, which I did not prefer.
- Very poor germination. Small, slow growing plants. Roots were more uniform. Definitely more flavorful and crunchier when raw, more flavorful and better texture when cooked.
- The better performer. ‘Bolero’ had 80% germination compared to only 10% for ‘Romance’. Harvested 5.75 pounds compared to 0.53 pounds for ‘Romance’.
- Carrots were pointed and skinner. Had a slight hint of bitterness, especially in littler ones.
- Germination was better, and with the larger size of the roots, yield was better. There were greater variations at the end of the season with smaller roots and pointed ends on some.
- Better germination.
- A few more plants germinated.

Comments on ‘Romance’

- ‘Romance’ was a nicer orange color. ‘Romance’ had better flavor when eaten raw which is how we prefer to eat our carrots. It also had a nicer orange color and wasn’t so crisp.
- Roots had a deeper orange color. Better taste and higher yield.
- Longer, straighter roots. When eaten raw, I liked both but ‘Romance’ was a little better.
- If you prefer eating your carrots raw, ‘Romance’ is the better choice.
- Nice flavor when cooked and excellent flavor when raw.
- Better taste.
- Tasted sweeter.
- Plant stand was fuller. Roots were sweeter and bigger.
- Harvested in early August, a little earlier than for ‘Bolero’. Roots had a nicer shape, larger, slightly sweeter.
- Better yield.
- Straight roots.
- Plants were darker green but shorter. Slightly better taste but roots were unacceptably small.
- Taste was very good.
- A bit better flavor and a nicer root.
- Its roots had more irregularities, but I preferred its fatter shape in its normal carrots. Sweet with better flavor; even in the little ones. Prettier and tasted sweeter.

‘Romance’ was preferred by gardeners who eat raw carrots. Its roots were deep orange and sweeter.

Conclusions

Both varieties performed well. ‘Bolero’ displayed superior germination and yields. Gardeners liked this storage variety, especially when eaten cooked. Gardeners who eat raw carrots preferred ‘Romance’ for its sweeter flavor and deep orange color.

Corn, Bicolor

Varieties

'Allure' (syn)

70 days. Strong stalks produce big ears. Kernels are shiny, sweet and juicy. Impressive performer in ND.

'Ambrosia' (se+)

75 days. Popular for its delicious flavor, early vigor, and resistance to diseases. Large ears. Sturdy stalks.



Gardeners loved the flavor of both corn varieties. 'Ambrosia' matched or surpassed 'Allure' in all measured traits.

Data

Data were collected at 12 sites in 2016.

Trait	Allure	Ambrosia	Same
Germinated best	8%	25%	67%
Healthier plants	0	25	75
Harvested earlier	9	36	55
Higher yields	0	40	60
More attractive ears	20	40	40
Tasted better	10	10	80
Preference	25	75	
Recommend	60	90	
Mean score ¹	7.50	8.20	
Median score ¹	8.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Best corn I have ever raised! Both were amazing varieties!
- These tasted so good. Very sweet and yummy! Cobs were short.
- Both varieties were very good in all aspects. We recommend both to ND.
- Sprouted on June 5 and first harvested on August 16.
- Had a lot of poorly developed ears (small, few kernels). Taste was fabulous for both.
- Both had poor pollination on late cobs. Both tasted very good.
- Neither was as sweet as 'Peaches and Cream'.

Comments on 'Allure'

- The ears were beautiful. Lovely plants.

- My husband and I loved the taste of 'Allure'! Sweet, beautiful ears, best tasting corn I've had.
- Slightly taller stalks. Cobs were smaller with smaller kernels. I cut the kernels off for freezing and 'Allure' had less silk sticking to the cob.
- More cobs.

Comments on 'Ambrosia'

- 'Ambrosia' tasted phenomenal and had no problems growing.
- Harvested about 1 week earlier. Some larger ears compared to 'Allure'. Better taste and production.
- 'Ambrosia' had more ears per stalk on the whole, but they never developed enough to make a difference in the yield.
- Its yields were slightly higher, but 'Allure' had good yields also.
- Ambrosia really outdid 'Allure'. Plants of both varieties looked healthy; however 'Ambrosia' had larger ears and higher yield.
- 'Ambrosia' produced about 1 week earlier. Ears developed better.
- Did not germinate.

Conclusions

Gardeners loved the flavor of both varieties. Almost all gardeners recommended 'Ambrosia'. It matched or surpassed 'Allure' for all measured traits including earliness, yield and taste. 'Ambrosia' produced large ears and its performance was consistently good.

**Best bicolor
se and syn
corn
varieties**

Top choice
Ambrosia

Strong performers
Allure
Cuppa Joe
Delectable
Luscious
Temptation

Corn, Bicolor Super Sweet

Varieties

‘SS2742’ (SSW)

75 days. Superior germination in cool soil. Excellent quality. Reliable. Requires isolation.

‘XTH20173’ (sh2)

73 days. Very good sweetness and very tender. Kernels contrast beautifully. Requires isolation.



Data

Data were collected at 17 sites in 2016.

Trait	SS 2742	XTH 20173	Same
Germinated best	7%	20%	73%
Healthier plants	40	20	40
Harvested earlier	8	62	31
Higher yields	58	25	17
More attractive ears	62	8	31
Tasted better	27	27	45
Preference	50	50	
Recommend	93	73	
Mean score ¹	8.00	7.77	
Median score ¹	8.00	9.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Germinated quickly but cutworms got several plants. Very delicious corn.
- Both had good cobs and sweet taste.
- Both tasted really good.
- I thought ‘XTH20173’ tasted better; my wife thought ‘SS2742’ tasted better.
- I was hoping for better yield.
- Both showed very weak growth compared to my ‘Sugar Buns’ planting.
- Both were stunted by major winds/rainstorm on July 3.
- No corn smut. Both tasted great.
- I liked both the same.

Comments on ‘SS2742’

- Ears were longer and fuller.
- More uniform kernels and ears were slightly better overall.

- Much higher yield and better taste.
- Bigger and more ears. Better taste.
- Two or more ears per plant. Longer and straighter rows of kernels.
- Some plants had three edible ears (two large, one small). Flavor was almost too sweet.
- Stalks were 6 feet tall; shiny green through maturity. ‘SS2742’ made very good frozen corn when cut off the cob.
- Silk was easier to remove from ears.

Comments on ‘XTH20173’

- We felt that both kinds tasted very good, but ‘XTH20173’ seemed a little sweeter.
- Germination was earlier and better overall. Stalks were taller. The kernels pop with juice and flavor! It tasted very good after a week of refrigeration.
- Tasseled 2 weeks earlier.
- Better flavor.
- Matured a little sooner
- Matured 10 days earlier. Stalks looked like they were from an episode of the TV show Green Acres.
- More tender kernels.
- None of its stalks lodged in the winds; whereas half of ‘SS2742’ stalks lodged.

Conclusions

Gardeners were split on their preferences. Some liked ‘XTH20173’ for its earliness. Others liked ‘SS2742’ for its higher yields and longer ears. Both varieties performed reliably and tasted great.

**‘XTH20173’
matured
earlier.
‘SS2742’
produced
longer ears
and higher
yields.**

**Best bicolor
super sweet
corn
varieties**

Top choice
Xtra-Tender
274A

**Strong
performers**
SS2742
XTH20173
Xtra-Tender
277A

Corn, White

Varieties

‘Sugar Pearl’ (se)

72 days. Deep, plump, sparkling white kernels. Stalks show good vigor for such an early variety.

‘Whiteout’ (se)

72 days. Sturdy stalks produce good yields. Easy-to-pick ears filled with delicious, glossy white kernels.



‘Sugar Pearl’ was very sweet and produced higher yields. It was the clear winner.

Data

Data were collected at 7 sites in 2016.

Trait	Sugar Pearl	White-out	Same
Germinated best	20%	0%	80%
Healthier plants	0	25	75
Harvested earlier	40	0	60
Higher yields	75	0	25
More attractive ears	40	0	60
Tasted better	20	20	60
Preference	100	0	
Recommend	80	20	
Mean score ¹	7.00	5.25	
Median score ¹	7.50	5.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- We loved them both!
- Both were growing nicely, but extreme winds blew over the stalks. They stood back up but were not as healthy after that.
- Didn’t get the best yield, but what we did get was really good.

- I couldn’t tell the difference between these varieties. They were planted in June and didn’t do very well. Probably would do better planted in May. We had a dry June so germination was poor on both.
- Germination was not great. The stalks were short and pale yellowish-green. Neither produced much—small cobs—small kernels.

Comments on ‘Sugar Pearl’

- My mom is the corn guru in the family and she voted for ‘Sugar Pearl’. It was very sweet and delicious!
- Seemed to be more uniform in production; the second ear for ‘Whiteout’ was much smaller.
- Ears came off the stalk cleanly. Kernels were more tender but not as flavorful (still good). The stalks produced well, even after the wind beat up the plants.
- A lot more plants. Produced better.

Comments on ‘Whiteout’

- Ears had to be twisted to harvest. More taste but starchier.

Conclusions

‘Sugar Pearl’ was the clear winner. The corn was very sweet and produced higher yields. Every gardener preferred it over ‘Whiteout’ and the vast majority of gardeners recommended it. ‘Whiteout’ did a “wipeout” and failed to impress at most sites.

**Best white
se corn
variety**

Top choice
Sugar Pearl

Corn, Yellow

Varieties

'Bodacious' (se+)

75 days. One of today's most popular varieties. Golden kernels are tender, sweet and flavorful. Sturdy stalks.

'Jubilee' (su)

81 days. One of yesterday's most popular varieties. Remains popular today for its rich, traditional flavor. Good yields. Freezes well.



Data

Data were collected at 7 sites in 2016.

Trait	Bodacious	Jubilee	Same
Germinated best	33%	0%	67%
Healthier plants	50	17	33
Harvested earlier	40	40	20
Higher yields	50	25	25
More attractive ears	50	25	25
Tasted better	50	25	25
Preference	67	33	
Recommend	75	50	
Mean score ¹	7.40	6.60	
Median score ¹	8.00	6.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- It's hard to tell which one tastes better when they both taste so good fresh from the garden.
- Excellent germination. Both were vigorous and recovered well after blowing over in a storm prior to tasseling.
- Raccoons damaged the planting.
- Raccoons got into them before we got to eat any.

Comments on 'Bodacious'

- Performed much better. Larger ears, better taste.
- Germinated quite a bit better. Very easy to grow.
- Seemed to do better overall, but didn't produce as well as the white corn did this year.
- I prefer 'Bodacious' only because the plant had stronger stalks that held up during a very windy summer.
- No sweetness, about like field corn. Kernels were meatier.
- Seemed a bit sweeter.

Comments on 'Jubilee'

- Better taste and its plants were vigorous.
- Cobs were filled well. Cobs were uniform and many. Produced more and was earlier. The cobs ripened at the same time, which is better for freezing.

Conclusions

Gardeners are starting to grow less and less yellow sweet corn. Neither of these varieties captured much enthusiasm among our gardeners. The modern variety 'Bodacious' was healthier and produced higher yields than 'Jubilee', a popular hybrid from the 1970s. 'Bodacious' cobs were more attractive and sweeter.

The modern variety 'Bodacious' showed higher yields and better taste compared to 'Jubilee', a variety from the past.

Best yellow su, se and syn corn varieties

Top choice
Bodacious

Strong performers
Jubilee
Sugar Buns

Cucumber, Burpless

Varieties

'Summer Dance'

60 days. Straight, glossy cukes of exceptional quality. Productive vines tolerate heat and diseases.

'Tasty Green'

60 days. Smooth, dark green cukes are thin skinned and bitter free. Proven performer in ND.



Both varieties produced a prolific amount of long, straight cucumbers.

Data

Data were collected at 25 sites in 2016.

Trait	Summer Dance	Tasty Green	Same
Germinated best	48%	29%	24%
Healthier plants	30	20	50
Harvested earlier	35	65	0
Higher yields	60	15	25
More attractive cukes	68	16	16
Tasted better	35	0	65
Preference	65	35	
Recommend	95	71	
Mean score ¹	8.71	7.33	
Median score ¹	9.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both of these varieties had a slightly sweeter taste than cucumbers I had planted in the past. Both were very prolific and I ended up giving many cucumbers away. I really was glad that I tried this trial!
- Wow, do I love burpless. Never go back to the other kind again. These were not bitter and if watered regularly, were long, straight and tasty. I could tell when water was spotty as they curled more than I wanted, which made peeling them a little tricky.
- We all enjoyed these cukes.
- Both varieties were awesome! I was still picking cucumbers well into the end of September! Cukes were attractive and

delicious. I had so many “extras” my coworkers and friends were “cucumbered” out by the end of the season.

- Picked about 100 cucumbers of each variety and still harvesting.
- Never grown burpless cucumbers before. Loved them. Probably will never grow anything else in the future. These cucumbers produced fruit much later than a normal slicing cucumber.
- Late to produce cucumbers but continued to produce until frost well. Both were great.
- I really did like both of them. I am still picking and October is around the corner. I picked them when tiny for pickles and they were tasty.
- Both tasted good.
- Both very good eating without peeling. I loved eating directly when picked—skin and all!
- Liked the taste of both varieties.
- Good germination. We grew them on a fence and can't believe how healthy these varieties were.
- Neither variety produced a thriving plant. I planted several other types of cucumbers with multiple plantings with minimal success (6% germination).
- Destroyed by hail.

Best burpless cucumber varieties

Top choice
Summer Dance

Strong performers
Orient
Express II
Sweet Slice
Sweet Success
Tasty Green

Comments on ‘Summer Dance’

- First to bloom, first to produce a cuke of size. Wow—wish I counted how many cukes I picked this summer—amazing! Its cukes had smoother skin and fewer spines. Its flavor wins with all my taste testers! Great crunch and super cucumber flavor. Yummy! I had been a fan of ‘Tasty Green’ for years but now I am converted! I still recommend ‘Tasty Green’, but ‘Summer Dance’ is now my new fav.
- The cucumbers were straighter, earlier to mature, and prolific.
- Its cucumbers have a smoother skin.
- Prefer its smooth-skinned cukes.
- Its cucumbers were longer and straighter.
- Liked its long, slender, smooth cukes.
- Very tasty.
- I liked their skin color and the fact that they didn’t curl as much as ‘Tasty Green’.
- Produced more cukes.
- The only cuke worth planting. The star performer!
- Cukes had good green color, smooth skin, uniform shape and size and were straighter.
- Produced better in our soil.

Comments on ‘Tasty Green’

- Germination was better; vines were a little healthier.
- Sprouted better. Produced earlier.
- Germinated best.
- Vines were more sensitive to wind. Good cukes but horrible vines; broke easily. Not good for ND weather.
- Grows well and tastes great. Withstood hail better.
- Second year I’ve grown these and they are very good producers. Hardy vines; its cukes have good size and shape.
- Higher yields.
- Yield was a lot greater.
- First two to eat on July 14. Cukes were lighter green in color, spiny (harder to wash and got thorns in fingers when picking).

Conclusions

‘Summer Dance’ was the big winner. Gardeners loved its long, slender and smooth-skinned fruits. Yields were impressive and its performance was consistently strong across sites. ‘Tasty Green’ has always done well in our trials. Its yields are early and reliable.

Gardeners loved the long, slender, smooth-skinned fruits of ‘Summer Dance’.

‘Tasty Green’ yields were early and reliable.

Cucumber, Pickling

Varieties

'H-19 Little Leaf'

62 days. Vines are compact but produce remarkable yields through summer and late into the season.

'Homemade Pickles'

55 days. Vigorous, disease-resistant vines produce loads of crisp cukes ideally shaped for pickling.



Both varieties produced lots of crisp cucumbers for pickling.

Data

Data were collected at 24 sites in 2016.

Trait	H-19 L. Leaf	Home. Pickles	Same
Germinated best	29%	29%	43%
Healthier plants	16	32	53
Harvested earlier	12	82	6
Higher yields	29	53	18
More attractive cukes	35	25	40
Tasted better	33	19	48
Preference	44	56	
Recommend	52	71	
Mean score ¹	6.75	7.20	
Median score ¹	7.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both grew well. Both produced cucumbers that were crisp and good for eating fresh. None were bitter. Pickles were good from both.
- Almost all of the seeds came up. The varieties did great! I was picking and eating cucumbers into early October.
- Came up about the same time. Nice leaves and vines. Both were tasty.
- Received showers almost daily after sowing; good germination. Both vined out well. Matured at about the same time. Nice shapes to cucumbers.
- Excellent germination. Vines were healthy the whole season. I prefer a straighter length in a pickling cucumber. Both of these became too round and large after 3–4 inches.

- Made great pickles.
- Yields were not sufficient to can pickles. We used them instead as slicing and salad cucumbers.
- They did not produce very well.
- They were slow to germinate, but that could have been the spring we had. Very dry.
- Both varieties had downy mildew and I trimmed their lower leaves a number of times.
- Damaged by hail.
- Vines of both went everywhere. Neither did well after the hail.
- Due to July 31 hailstorm, I was unable to compare the overall yield of these two varieties. Even though this trial was cut short, I felt both varieties did well and appeared to have a good yield potential.

Comments on 'H-19 Little Leaf'

- Not so many big vines all over my garden. Would plant them again.
- 'H-19 Little Leaf' had more attractive cukes. They had smaller seeds, and did not get too big. Both varieties were good, however, these cucumbers are better tasting, and do not get strong.
- 'H-19 Little Leaf' had healthier plants and was considerably more productive.
- 'H-19 Little Leaf' germinated better, and even though the plant was a lot smaller, with smaller leaves, it appeared to be making just as many flowers as 'Homemade Pickles'. I did not have a chance to evaluate yield due to hail damage.

Best pickling cucumber varieties

Top choice

Homemade Pickles

Strong performers

Alibi
Calypso
Eureka
H-19 Little Leaf

More Comments on ‘H-19 Little Leaf’

- Its only advantage is its vines require very little space. The plants stopped producing earlier. The texture of the cucumbers was almost “woody”; the texture of ‘Homemade Pickles’ was crisp.
- An all-around better cucumber.
- Its cucumbers were a very deep green and quite straight, but the vines did not produce well. I would not have had enough cukes to make pickles if I only had this variety.
- Tasted better.
- Seemed to produce better early in the season. Vines were healthy earlier, but some died in September. More sensitive to frost.
- While the ‘Homemade Pickles’ started dying out in late August, ‘H-19 Little Leaf’ came into its own and produced for another month. At the last harvest, I gathered 10.4 pounds of cukes for pickling.
- Better size for pickles.
- Cucumbers were fatter and blunt shaped, and not as good for pickling.
- Peaked later. Seemed slightly easier to pick since the vines had smaller leaves.
- Nice flavor.
- Fine for fresh eating.
- Were very late and didn’t produce very many. Its cucumbers seemed to have more seeds inside. Plants died earlier.

Comments on ‘Homemade Pickles’

- They tasted great and made great pickles.
- Had so many plants and so many cucumbers! Awesome! It produced enough for eating, pickling and sharing for others to pickle too.
- Produced about 1–2 weeks earlier. I liked the size of the cucumbers.
- Higher yields. Produced first and produced the last cucumbers of the season.
- Vines were nicer, fuller and more productive.
- Better yields.
- Healthy plants—early start.
- ‘Homemade Pickles’ were early, prolific, had good taste with no bitterness noted, and could be used as a slicer (gets longer and not just balloons up).
- Its cucumbers were easier to pack in jars. For pickling, this variety turned out better for me.
- It got a blight that decimated it toward the end of August.
- While ‘Homemade Pickles’ produced the first cucumbers it severely shut down production when the heat arrived.
- Vines had much larger leaves.
- Larger yield, however the cucumbers become large too quickly. The skin is a little bitter.
- Made a better comeback after hail.

The compact vines and small leaves of ‘H-19 Little Leaf’ made harvesting easy.

‘Homemade Pickles’ yields were early and abundant. Its cukes had a uniform shape.

Conclusions

‘Homemade Pickles’ always wins our pickling cucumber trials. It matured earlier and was very productive. Gardeners loved its crisp and blocky fruits—perfect for pickling. ‘H-19 Little Leaf’ vines were compact and easier to pick. Its cucumbers were bright green, blocky and flavorful.

Cucumber, Slicing

Varieties

‘Dasher II’

58 days. A leading hybrid for many years. Dependable yields of straight, dark green, 8-inch cukes.

‘General Lee’

66 days. Very productive. Disease-resistant vines set quality slicers even under adverse conditions.



Both varieties produced good crops of quality cucumbers. ‘General Lee’ was the more consistent performer.

Data

Data were collected at 10 sites in 2016.

Trait	Dasher General		Same
	II	Lee	
Germinated best	40%	40%	20%
Healthier plants	22	11	67
Harvested earlier	38	50	13
Higher yields	50	38	13
More attractive cukes	13	38	50
Tasted better	25	13	63
Preference	50	50	
Recommend	50	100	
Mean score ¹	7.25	8.63	
Median score ¹	7.00	9.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- It was a great year for cucumbers! We enjoyed cucumbers from June through August.
- Both varieties were very good in all aspects.
- Great year for all six varieties of cucumbers we planted.
- Both varieties had very tough skin—this is good for insect control but tough to eat.
- I did not like the white spines on either—ouch.
- Planting was destroyed by hail.

Comments on ‘Dasher II’

- Abundant harvest—more than ‘General Lee’ by a little.
- Better taste and overall production.
- Less bitter taste.
- ‘Dasher II’ had much higher yields, more attractive cukes and slightly better taste. So overall, ‘Dasher II’ was just a little better even with slightly lower germination rates.

Comments on ‘General Lee’

- Produced nice cucumbers. A lot more blossoms and cucumbers.
- Good taste. Good production. Produced the first cukes.
- I have grown ‘General Lee’ before and was happy with it then too.
- Produced great. Lots of cukes.

Conclusions

Both varieties produced good crops of quality cucumbers. Gardeners were evenly split on their preferences, but ‘General Lee’ was the more consistent performer. Every gardener rated it highly and recommended the variety.

Best slicing cucumber varieties

Top choice
General Lee

Strong performers
Dasher II
Raider
Straight Eight

Cucumber, Snack

Varieties

'Mercury'

55 Days. Crunchy and tasty. Slender cukes with thin skins and small seeds.

'Muncher'

62 days. Perfect for fresh eating. Mild and tender. Burpless. Good for pickling too. Reliable.



Data

Data were collected at 27 sites in 2016.

Trait	Mercury	Muncher	Same
Germinated best	44%	32%	24%
Healthier plants	38	17	46
Harvested earlier	54	33	13
Higher yields	43	26	30
More attractive cukes	29	13	58
Tasted better	25	25	50
Preference	46	54	
Recommend	79	54	
Mean score ¹	7.43	7.61	
Median score ¹	8.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- These both did fabulous! Never have had so many cukes! And both so tasty!
- Both grew well in our raised garden bed. Both produced crisp cucumbers.
- Both were crisp and fresh tasting. Good crunchy texture. My kids loved the snack cucumbers! They were a refreshing treat.
- Both great varieties. Love them both!
- Great year for cucumbers.
- Excellent germination. Both are great climbers. Both are lovely, spine-free cucumbers. Delicious—same taste. I loved them both. They kept well in the fridge.
- I would plant both for a long season of cukes.
- Really liked both of these cukes and also used them in pickles and got a nice product.

- Both made good pickles.
- Neither variety had a great germination rate. Both produced very delicious, snack-size cucumbers.
- Our family was evenly split when voting on which tasted better.
- Neither variety worked well. The cukes were stunted in growth, and both had mold issues.
- Neither of them spread out a lot and took over the garden.
- Most of crop was destroyed by a June hailstorm. One 'Muncher' plant survived.
- Hailed out.

Comments on 'Mercury'

- Larger leaves and plants. First to flower and fruit. A lot more fruit. Shiny green fruits with light stripes; very uniform and long. Excellent flavor. I have grown 'Muncher' in the past but 'Mercury' was better looking, more productive and tasted much better.
- Higher yield and longer producing.
- Bigger plants and healthier vines. More cukes. 'Mercury' tasted better; a bit sweeter. 'Mercury' had better shaped cukes; most of 'Muncher' cukes were odd shaped.
- Vines were fuller and healthier. Produced cucumbers a few days earlier. Produced twice as many cucumbers.
- It was superior—delicious and a great producer.
- We really liked it. Produced much better.

Gardeners enjoyed snacking on these smooth, crisp cucumbers.

Best snack cucumber varieties

Top choice
Muncher

Strong performer
Diva
Mercury

‘Mercury’ vines grew vigorously. They produced earlier and higher yields.

‘Muncher’ was a perfect snack cucumber. Its flesh was delicious and its seeds were few and small.

More Comments on ‘Mercury’

- ‘Mercury’ grew faster but both plant types were trouble-free. Harvested on July 23, 6 days before ‘Muncher’. Cukes were less firm but had more cucumber taste. Vigorous plants and higher yields. Acceptable taste and texture for pickles.
- ‘Mercury’ lasted longer into the season and therefore produced more fruit. The kids liked the ‘Mercury’ cukes; I thought they tasted about the same!
- First to produce.
- Cukes had many spots on the outside and had to be peeled.
- Cucumbers tended to curl more.
- Did not germinate.

Comments on ‘Muncher’

- Cucumbers were sweeter; seeds were small.
- Seeds were smaller. Better for snacking.
- Cucumbers were attractive. Delicious! Few seeds, not at all bitter. Tasted wonderful.
- ‘Muncher’ is a little more vigorous. Both produced well, but ‘Muncher’ cukes were abundant and delicious.
- Very good flavor—for direct eating—fewer seeds.
- Better germination, more vigorous vines and higher yields.
- Better taste.
- ‘Muncher’ had the first flowers and first fruit only by a couple days.
- Bloomed first. Twice as many flowers. I adore the glossy skin of its cucumbers.
- Produced first.
- It made it through the hailstorm.
- ‘Muncher’ vines never really got going.

Conclusions

‘Mercury’ vines grew more vigorously. They produced earlier and higher yields. It was reliable and most gardeners recommended it. And yet, the majority of gardeners preferred ‘Muncher’. They felt ‘Muncher’ cucumbers were perfect for snacking: flavorful, free of bitterness and small seeded.

Cucumber, White

Varieties

‘Salt and Pepper’

50 days. Snowy white, 4-inch cukes for pickling and snacking. Pleasing, delicate flavor. Vines resist disease. Very early.

‘Silver Slicer’

62 days. Creamy white, straight cukes are 7-inches long, crisp and flavorful. Vines resist disease and produce high yields.



Data

Data were collected at 6 sites in 2016.

Trait	Salt and Pepper	Silver Slicer	Same
Germinated best	33%	17%	50%
Healthier plants	33	17	50
Harvested earlier	33	67	0
Higher yields	33	50	17
More attractive cukes	0	67	33
Tasted better	17	33	50
Preference	17	83	
Recommend	50	100	
Mean score ¹	6.17	8.17	
Median score ¹	7.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- It was fun to try a white cucumber variety. I would plant these again, especially ‘Silver Slicer’.
- Loved these white cucumbers! Both had good flavor! My new favorites—both!
- Little difference in germination. Both grew well on my trellis. Both looked like ghost cucumbers! Mild flavored. Lovely, but have little black spines on them if you let them go too long.
- Started in greenhouse April 29, and they germinated by May 5. Had my first cuke on July 7. Used both varieties in pickles and liked the contrast they provided. Would grow both again.

Comments on ‘Salt and Pepper’

- Better germination; healthier plants; better taste.
- Germinated first. Plants appeared larger with larger leaves. Cucumbers had a milder flavor and were “chubbier.” They got large and fat and turned yellow if not picked.

Comments on ‘Silver Slicer’

- I really liked ‘Silver Slicer’. More consistent size and color. Better taste. Both were good eating when small but ‘Silver Slicer’ was much nicer as it got larger.
- ‘Silver Slicer’ was heads and tails above ‘Salt and Pepper’. It tasted as good, if not better, than typical cucumber varieties. Good tasting as typical slicers and better productivity.
- Produced well into early October. More elongated cukes. Cucumbers never got huge or yellow.
- Popped the first blooms. Bloomed more.
- Germinated poorly and plants were really slow growing.

Conclusions

This was not a popular trial but most of these adventurous gardeners enjoyed white cucumbers. ‘Silver Slicer’ was the clear winner. It was earlier and higher yielding. Its cukes were more slender and maintained a desirable shape and color as it matured. Every gardener recommended it. ‘Salt and Pepper’ was a disappointment. Its cukes had a fatter shape and turned yellow quicker.

‘Silver Slicer’ was superior in earliness, yield and fruit quality. Every gardener recommended it.

Best white cucumber variety

Top choice
Silver Slicer

Lettuce, Leaf

Varieties

'Starfighter'

52 days. High yields of dark green, slightly crinkly leaves. Good flavor. Resists heat and diseases.

'Tropicana'

52 days. Dark green, heavy leaves form a full head. Tolerates heat. Great flavor. Proven performer.



'Tropicana'
had high yields
and
'Starfighter'
showed
exceptional
resistance to
bolting.

Data

Data were collected at 13 sites in 2016.

Trait	Star- fighter	Tropi- cana	Same
Germinated best	8%	46%	46%
Healthier plants	17	42	42
Harvested earlier	8	17	75
Resisted bolting better	55	9	36
Higher yields	0	75	25
More attractive	42	33	25
Tasted better	33	33	33
Preference	50	50	
Recommend	67	67	
Mean score ¹	7.50	7.83	
Median score ¹	7.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both had healthy plants. Both fared well in extremely hot weather and were slow to bolt even in August after several days of above 90°F. I haven't planted leaf lettuce in years but these varieties will be in my garden now. Final picking was during the second week of August. Wow! Excellent!
- I thought they were both delicious. Both had nice, crisp leaves.
- Enjoyed late into the season. I shared a lot of lettuce and everyone loved the great taste of both varieties.
- Rains all summer kept the quality up.
- Both matured at the same rate. Both produced large heads.

Comments on 'Starfighter'

- 'Starfighter' did not bolt until August. Dense heads and kept very well. It was very nice to look at; almost ornamental.
- Had beautiful leaves and resisted bolting; tasted great.
- I liked its darker green color.
- Tasted better. Nicer looking plant.
- Better taste.
- With cool temps, this variety really surpassed. Both were good.
- 'Starfighter' tasted very good and kind of tart while 'Tropicana' was more herbal and medicinal tasting. I preferred the taste of 'Starfighter'.

Comments on 'Tropicana'

- Superior germination. Much larger yield. Plants were bigger and nicer looking. No bitter taste—delicious. Sweeter flavor although 'Starfighter' was good tasting.
- Plants were short with many leaves and very slow to bolt. Good to eat!
- Regrowth was better for second cutting.
- Tasted a little better.
- I gave it a slight edge all around.

Conclusions

'Tropicana' has always done well in our trials and 2016 was no exception. It produced a good yield of mild tasting, deep green leaves. It tolerated heat and was a reliable variety. Half of the gardeners preferred 'Starfighter'. They were impressed with its beautiful, dark green leaves and its strong resistance to bolting.

**Best green
leaf lettuce
varieties**

Top choice
Tropicana

**Strong
performers**
Deer Tongue
Royal Oakleaf
Salad Bowl
Slobolt

Lettuce, Romaine

Varieties

'Fusion'

55 days. A cross between leaf and romaine types. Wavy, dark green leaves form a dense, upright head.

'Green Forest'

56 days. Very attractive, dark green leaves. The heads are full and tall. Resists bolting.



Data

Data were collected at 34 sites in 2016.

Trait	Green		
	Fusion	Forest	Same
Germinated best	22%	22%	56%
Healthier plants	27	10	63
Harvested earlier	33	27	40
Resisted bolting better	64	18	18
Higher yields	29	29	42
More attractive	48	16	35
Tasted better	42	16	42
Preference	76	24	
Recommend	94	61	
Mean score ¹	8.43	7.40	
Median score ¹	9.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Fantastic germination. Beautiful plants—great formation. Harvested as leaves in June—great shape in July. Did not bolt. Produced for a good 4 weeks. Both produced high yields. Gave many bags to family and friends. Impressive in appearance as both looked like romaine lettuce you see in stores.
- I liked both of these. Very good tasting. Leaves had a nice, dark color and were crisp.
- They both germinated well. Produced lovely heads.
- Both germinated well. We were happy with both varieties.
- Both had very good taste.
- Both produced a wonderful crop.

- Both germinated well. Both had healthy plants—full, thick and delicious.
- Hard to choose—both very similar in this trial. Both very good varieties. Would plant both again.
- Both are good.
- Both produced nice salads and were welcome at our dinner table.
- Both varieties were excellent as far as keeping fresh in the refrigerator.
- Neither germinated very well.

Comments on 'Fusion'

- The leaves were larger and had ruffled edges. Milder taste, which I prefer.
- More attractive and healthier.
- A curly leaf and didn't form as compact a head. I like its taste better overall.
- Looked more like an oversized leaf lettuce, but it did clump together like romaine. Tasted better.
- Better flavor; more attractive; less bolting.
- I liked its glossy green color and ruffled edges. Milder and superior taste.
- Pretty, vibrant shiny green leaves. Just kept growing even with high temps in late July. Sweeter. Easy to handle.
- Full, sturdy plants. Delicious, mild flavor. Heads were quite large and did not go to seed until late. I was still picking in August and sharing with neighbors.
- Its plants went to seed much later. I liked the way 'Fusion' looked and it tasted better.
- Nice dense head; lots of leaves.

Gardeners liked both varieties. Their leaves were dark green and crisp.

Best green romaine lettuce varieties

Top choice
Fusion

Strong performers
Crisp Mint
Green Forest
Starhawk

Gardeners marveled at the looks and mild flavor of ‘Fusion’, a cross between leaf and romaine lettuces. It resisted bolting.

‘Green Forest’ had the shape and flavor of a traditional romaine. It was reliable and tolerated the heat.

More Comments on ‘Fusion’

- Never bolted. It looked more attractive as the season went on. I preferred the way it grew after it was cut down.
- I prefer this variety because it was slower to bolt.
- Lasted a longer time. I picked and ate throughout the summer, even into fall.
- Great taste; resisted bolting; always had plenty of new growth for the harvest.
- Produced a second harvest (‘Green Forest’ did not). Taste was better.
- Slightly better germination. Resisted bolting for a long time. Plants were a bit smaller. Higher yields since the plants stayed healthier longer. Guests like the crunch of romaine for salads. ‘Fusion’ is crisper.
- Better germination (70% vs. 50% for ‘Green Forest’). Overall, I prefer ‘Fusion’ although it was a bit bitter. Maybe more water would help; otherwise it was best.
- ‘Fusion’ and much of our spinach trial suffered badly when the growing conditions became hot. The rapid change to hot days caused it to struggle, though it was not a complete failure as we had harvestable produce. The germination percentage also lacked behind ‘Green Forest’ measurably.
- Made a wetter salad, which I prefer.
- Milder taste.
- Tasted less bitter.
- Less bitter.
- Nice dense head; lots of leaves.
- I kept waiting for them to get big ... like at the store ... and they bolted. Planted a small sample in August, rabbits ate both to the dirt. They left the spinach alone! So they must have been tasty.

Comments on ‘Green Forest’

- It looks like romaine should. Its inner core of leaves was great; the outer leaves were slightly bitter. I prefer its compact head.
- Looked more like the romaine in the store.
- ‘Green Forest’ produced higher yields. It seemed more adaptable than ‘Fusion’ to rapidly changing weather conditions.
- Plants turned brown late in the season. Harvested a week earlier. Plants were bigger earlier. Really never bolted. Ate this romaine for months. The texture is not crunchy enough to be the romaine of choice.
- Nice color. Smooth ribs.
- Germinated better. Heads were fuller and greener. Bolted first.
- ‘Green Forest’ leaves did not bolt as fast and seemed to stay fresh longer. Its leaves stayed fresh and moist longer and seemed to taste better.
- Tasted better—milder and juicier. Slightly better germination.
- Mild flavor.
- Germinated 2 days earlier. Leaves were less shiny. Tasted a little bitter but was still good.
- A little bitter.

Conclusions

Both varieties performed well. Both produced good crops of dark green, crisp, delicious lettuce. ‘Fusion’, a cross between leaf and romaine lettuces, was exceptional. Gardeners marveled at the looks and mild flavor of its wavy leaves. Its resistance to bolting was remarkable. ‘Green Forest’ has always done well in our trials and it grew well in 2016. This traditional romaine was reliable and tolerated the heat of summer.

Melon, Cantaloupe

Varieties

‘Athena’

75 days. Melons are 5–6 pounds with thick, orange flesh. Most popular cantaloupe in the north.

‘Superstar’

86 days. Big yields of 6–8 pound melons. Popular among growers. Flavorful, salmon-color flesh.



Data

Data were collected at 22 sites in 2016.

Trait	Athena	Superstar	Same
Germinated best	32%	16%	53%
Healthier plants	18	41	41
Matured earlier	44	44	13
Higher yields	47	24	29
More attractive fruits	38	25	38
Tasted better	44	38	19
Preference	69	31	
Recommend	78	67	
Mean score ¹	7.12	6.47	
Median score ¹	8.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both got nice and big; both were very sweet. We had lots of compliments when we shared our crop with others. Great taste and nice size for both.
- My family would recommend both, although they seemed to ripen almost all at once starting just 2 weeks before our first freeze in early October. We have a lot of cantaloupe that has made its way to our freezer.
- This is my first year participating in this study. I appreciate the opportunity to grow and learn so much. A lot of people that we know never imagined that cantaloupe could really be grown in North Dakota. None of us could believe the amazing flavor that a garden grown cantaloupe had.

- We had a hard time telling when the melons were ripe. We tried a ‘Superstar’ on August 25, and it was not ripe. When we tried the next cantaloupe, it was overripe. We did have a few to eat. Samantha has tried growing cantaloupe for many years (of her 11 years anyway) and these two varieties were by far the ones that grew the best.
- It was difficult to tell when a cantaloupe was actually ripe.
- Poor germination due to a cold, wet spring. I would like to try this trial again since none of our heat-loving plants did well this year.
- Both varieties tasted great. Need to watch closely as they ripen quickly near the end. Some got overripe on me.
- Both sprouted the same day. Both had nice vines and blossoms. Melons were about the same size.
- Both were low yielding with really small melons.
- Both were slow to ripen.
- Hailed out.
- Both were good melons. Not planting until June 3, I feel the season got a little short. Less than half of the melons on each plant made it to maturity.
- Deer damage.
- It definitely extended the season by planting both varieties.
- Really hard to choose between the taste of these melons.
- Neither matured (northern site).

‘Athena’ produced good yields of melons that looked and tasted great.

Best cantaloupe varieties

Top choice
Athena

Strong performers
Goddess
Solstice
Superstar

‘Superstar’ was a reliable producer. Its melons were bigger but had a short storage life.

Comments on ‘Athena’

- Very sweet cantaloupe. Loved it!
- We felt that the ‘Athena’ had better texture.
- I preferred the flavor and texture slightly more on ‘Athena’, and the fruits were on the whole larger.
- ‘Athena’ has a more attractive melon. It seemed to keep longer and stay firm.
- My daughter says it looked better and tasted better.
- Vines grew more aggressively. Bloomed earlier. More melons (23 vs. 19 for ‘Superstar’). Delicious.
- Vines were healthy and produced well. It ripened faster—in North Dakota this is a great asset due to our early frost. Yields were higher. Melons were very juicy and tasty.
- Produced the first melons. Tasted great.
- Better overall.
- Had a poor taste. Mice attacked and oversaturation of soil may have been a factor.

Comments on ‘Superstar’

- Amazing in all respects. I harvested melons over 11 pounds. Yield was amazing. Its taste and quantity far outperformed ‘Athena’.
- I would plant these again. Did better in our area.
- Seemed to have germinated quicker and have more productive plants.
- ‘Superstar’ seemed to get soft but still tasted excellent. Once it started to ripen, it produced lots of melons. ‘Superstar’ melons were not great looking but had a very good, sweet taste. Although ‘Superstar’ didn’t seem to keep too long in the refrigerator, it seemed that every 2 or 3 days another melon in the garden became ripe.
- ‘Superstar’ was soft; did not keep. Most spoiled in a couple days.
- ‘Superstar’ didn’t make ripe edible melons.

Conclusions

Most gardeners preferred ‘Athena’, the most popular cantaloupe in the north. It produced good yields of melons that looked good and tasted great. ‘Superstar’ was a reliable producer and had the capacity to bear larger melons. Its melons had a short storage life.

Melon, Galia

Varieties

'Arava'

77 days. Luscious, green flesh. Reliable yields. Three-pound fruits slip off when ripe.

'Passport'

71 days. Large melons ripen early. Thick green flesh is sweet and aromatic. Fruits slip when ripe.



Data

Data were collected at 19 sites in 2016.

Trait	Arava	Passport	Same
Germinated best	6%	18%	77%
Healthier plants	23	23	54
Matured earlier	27	67	7
Higher yields	29	53	18
More attractive fruits	33	33	33
Tasted better	7	14	79
Preference	44	56	
Recommend	50	69	
Mean score ¹	5.19	6.63	
Median score ¹	4.50	6.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Enjoyed the different flavors.
- Both melons were okay. Neither produced a lot of melons, but they had a nice size and tasted good. 'Arava' was a little better than 'Passport'. More heat would have produced earlier melons. I would grow either of these again.
- I would have liked to see more melons.
- Very small melons that did not ripen.
- Poor germination. Poor yields.

Comments on 'Arava'

- 'Arava' performed much better last year. I was surprised and disappointed.
- More and nicer melons.
- Slower to ripen. Smaller melons.
- Took a long time to ripen. Melons were a lot bigger and nicer looking. I liked its taste and the size of the melons.

- Harvested five melons. Wonderful taste.
- 'Arava' produced slowly but over a longer time. I liked the appearance and size of melons from 'Arava' better.
- Most of the harvest was on a single picking (September 12). This would be good for a truck gardener.

Comments on 'Passport'

- Yield was amazing; very robust plants.
- First melon (5.5 pounds) on July 26, 12 days earlier than the first 'Arava' melon. Produced 120 pounds in total, compared to 88 pounds for 'Arava'. The harvest was spread over many days; great for a home garden to have fruit many days.
- Produced four melons compared to one for 'Arava'. Better flavor. Very flavorful and smelled delicious.
- Produced twice as many melons.
- Ripened early while 'Arava' never ripened before frost.
- 'Passport' far exceeded expectations. Tasted great; larger in size; ripened early.
- Higher yields but all the melons came at the same time. I had a whole lot of melons at once!
- Produced five ripe melons while 'Arava' produced none (northern ND).
- Slightly better yielding.

Conclusions

Galia melons were well liked for their sweet, aromatic flesh. 'Passport' matured earlier and produced higher yields. Both it and 'Arava' have been reliable producers in our trials.

Gardeners enjoyed these aromatic melons. 'Passport' was earlier and more productive.

Best Galia melon varieties

Top choice
Passport

Strong performer
Arava

Melon, Specialty

Varieties

'Lambkin'

70 days. Spanish "Christmas" type. Very sweet if harvested when melon slips from vine. Early.

'San Juan'

78 days. Sweet, aromatic, slightly spicy, pear-like flesh. Mideast melon slips from vine when ripe.



'Lambkin'
fruits were
sweet and
juicy but
ripened late in
the season.

Data

Data were collected at 20 sites in 2016.

Trait	San		
	Lambkin	Juan	Same
Germinated best	22%	33%	44%
Healthier plants	13	13	73
Matured earlier	15	69	15
Higher yields	33	33	33
More attractive fruits	31	15	54
Tasted better	33	33	33
Preference	54	46	
Recommend	63	56	
Mean score ¹	6.07	6.00	
Median score ¹	6.00	6.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Similar yield per plant. The melons were sweet and juicy.
- Vines were free of disease.
- I lost one-half to two-thirds of 'San Juan' plants due to wildlife and they still produced the same as 'Lambkin' (which lost less than one-half of the plants to wildlife). Both produced well.
- Neither produced any melons.
- Both tasted good but had different flavors. If you really like melons, these are worth trying.
- As far as taste went with these melons, they were both very distinct. Both varieties seemed to struggle a bit with being eaten by millipedes or other insects

near the end of the season even if the melons were not quite close to ripe yet. 'Lambkin' seemed to struggle with it a bit more.

- The vines got beat up really bad with our high winds.

Comments on 'Lambkin'

- If it wasn't for the long fall, it may not have ripened before frost. More productive. Melons had harder shells—less marks on them. Love the flavor. Melons stayed nice in the fridge for a long time—still enjoying the harvest. Tastes wonderful. Firm flesh, sweet juicy—like the best honeydew ever.
- They grew very well. Withstood the hail better than 'San Juan'. Each vine produced a lot of melons. They were sugary sweet.
- They looked different, which made it fun. Texture was mushier. Seemed to have a bit of an aftertaste.
- Produced later. They did not all ripen before frost. Tasted better.
- Produced more but none ripened.
- As of September 15, the vines have produced 21 melons; they are just turning and I will be surprised if they ripen in time.
- It was harder to tell when 'Lambkin' melons were ripe and they tended to split before fully ripe. 'Lambkin' was extremely sweet but the flavor was not as good.
- Vines seemed stronger.

**Best
specialty
melon
varieties**

Top choice
Sun Jewel

**Strong
performer**
San Juan

Comments on ‘San Juan’

- We ate most of the melons before the first ‘Lambkin’ ripened. We liked the texture of ‘San Juan’ better.
- Supersweet.
- Very sweet; too sweet.
- It seemed to be an easier melon to grow. It still tasted fine if you picked it a little too early or a little later.
- ‘San Juan’ melons were very attractive and obvious when they were ripe. ‘San Juan’ was almost done producing when ‘Lambkin’ began ripening. ‘San Juan’ was very sweet and juicy and a very good flavor.
- Produced melons earlier, but didn’t produce late in the season.
- Produced 3 weeks earlier, but did not like the flavor at all.
- Matured faster so it had more ripe melons before the first frost.
- Vines started running first and bloomed first. Ripe 2 weeks earlier. A heavy crop of mild, very good melons.
- ‘San Juan’ did not germinate, or died shortly after germination.
- ‘San Juan’ had a few that just rotted off the vine, and we were not sure why. There was no insect damage.
- Did not ripen.

Conclusions

Gardeners enjoyed the sweet and distinctive flavors of both varieties. The summer of 2016 was warm and favorable, yet yields of these varieties were satisfactory at best. ‘San Juan’ matured earlier and was easier to grow.

**‘San Juan’
matured
earlier and
was easier to
grow. Its
melons were
sweet.**

Okra

Varieties

'Clemson Spineless'

60 days. The leading variety. Bright green, quality pods. Productive, spineless plants grow 4 feet.

'Jambalaya'

50 days. Compact plants produce uniform, deep green, 5-ridged pods. Beautiful blooms. Early.



Data

Data were collected at 11 sites in 2016.

Trait	Clemson Spineless	Jambalaya	Same
Germinated best	45%	18%	36%
Healthier plants	22	11	67
Matured earlier	38	50	13
Higher yields	38	38	25
More attractive pods	25	38	38
Tasted better	63	25	13
Preference	56	44	
Recommend	56	44	
Mean score ¹	7.00	6.00	
Median score ¹	8.00	6.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Okra is fun to grow in North Dakota!
- Bushy plants.
- Glad I tried this.
- Neither one did very well. The plants looked very nice but it's like they are in slow motion compared to the rest of the garden. I want to try okra again but not these two varieties.
- Not sure I can tolerate the taste. Would possibly do the trial again and pickle them. No experience with okra so wasn't sure how to grow or eat them.

Comments on 'Clem. Spineless'

- Plants were bigger and more blooms. Pods were more tender and I prefer their lighter green color.

- Pods were lighter and more tender. Softer; better taste. The small tender pods were good pickled.
- I liked the taste of 'Clemson Spineless' better and they were better when they were bigger than the 'Jambalaya'.
- Plants grew taller (7 feet vs. 5 feet for 'Jambalaya'). Light green pods. The pods stay soft and tender even when large.
- Easier to pick.
- Have not yet produced fruit and it's nearly September.

Comments on 'Jambalaya'

- Good early harvest: seven pods on July 26, compared to one for 'Clemson Spineless'. Pods were dark green. Get hard and stringy when slightly bigger.
- I plucked four very nice okra pods off the 'Jambalaya' today. I had given up on this fruitless okra trial.
- Pods were darker green and had a slight curl at the tip, which seemed to give character.
- Pods got hard right away. I didn't care for the darker color and smoother texture of its pods.
- Shorter plants. Pods were darker and tougher.
- More pods.

Conclusions

'Clemson Spineless' was preferred for the quality of its tender, light green pods. 'Jambalaya' produced earlier but its pods got tough. Yields were similar.

'Jambalaya' produced the first pods but 'Clemson Spineless' produced tenderer pods.

Best okra variety

Top choice

Clemson Spineless

Pea, Shell

Varieties

'Lincoln'

65 days. Good for freezing. Pods are filled with 8–10 tender peas. Excellent flavor. Height 28 inches.

'Sabre'

55 days. Double sets of pods filled with dark green, delicious peas. Easy to shell. Vines are productive and tolerate heat.



Data

Data were collected at 35 sites in 2016.

Trait	Lincoln	Sabre	Same
Germinated best	45%	10%	45%
Healthier plants	42	15	42
Matured earlier	28	36	36
Higher yields	56	7	37
More attractive pods	36	29	36
Tasted better	63	26	11
Preference	70	30	
Recommend	85	41	
Mean score ¹	7.93	6.15	
Median score ¹	8.00	6.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both varieties were very similar. Both varieties were excellent in all criteria. This year was the best pea crop that we have ever had. Very happy with both.
- Both these peas produced well. I would plant either of these again.
- Both produced many peas that tasted sweet.
- Both grew well.
- Their pods were equally tasty.
- The kids all quickly ate the peas.
- The seeds popped right up.
- Both varieties did very well in my garden. Nice to know as I like to grow more than one variety. Both would definitely find a home in my garden again!
- Both had a good taste.

- Both produced very well and the yields looked nice.
- It wasn't a good pea year; we had a very small yield compared to previous years.
- These did not grow well. Both varieties developed some sort of disease or mold and died, and the pea pods were stunted, with only one or two small peas in the pod.
- Bunny damage.
- We had rabbit problems this year, as we lost our dog Shadow last fall. It seems both varieties were too attractive to the bunnies. As a result the yield was down.
- Sown May 7. Spring frost killed the seedlings.

Comments on 'Lincoln'

- Twice the yield; fuller and longer pods. Sweeter peas. We will be planting only 'Lincoln' peas in the future.
- I liked the size and taste of 'Lincoln' much better.
- I was really impressed from the beginning. Shot up nicely. A very strong plant; it trellised well with a close planting. Unbelievable yields. The plants got really big and produced a lot! I got really sick of picking peas! Nice, smooth pods. Relatively uniform. 'Lincoln' won the taste test every time. Sweet! Tastes like peas! I'm keeping my seeds for next year.
- 'Lincoln' has always been one of my favorite varieties. Vines were big, bushy and vigorous. Nice pods (one had 11 peas inside). Easy to pick. Easy to shell. Reliable taste.

'Lincoln' vines were productive and its peas were delicious.

Best shell pea varieties

Top choice
Lincoln

Strong performers

Early Frosty
Green Arrow
Little Marvel
Maestro
Improved Wando

**‘Sabre’
matured early
but its vines
lacked vigor.**

More Comments on ‘Lincoln’

- Better flavor and higher yields.
- ‘Lincoln’ plants stayed healthier longer into hotter months. ‘Lincoln’ pods weren’t quite as bitter if left on vine too long. Peas seemed to taste better if accidentally left on vines and became overripe.
- There was nothing specifically wrong with ‘Sabre’; we just seemed to prefer ‘Lincoln’.
- ‘Lincoln’ had larger pods and larger peas.
- A better all-around producer, with more peas per pod.
- Pods were longer. The little fingers in our home love peas! ‘Lincoln’ kept up with their appetites and let them enjoy plucking peas from pods at a satisfactory rate!
- Tasted better. Produced throughout the season—not all at once.
- Vines were more vigorous but got powdery mildew. Matured slightly earlier. Slightly higher yield.
- I think the pods were a bit bigger.
- Better production.
- Better germination. Produced more pods but a similar number of peas compared to ‘Sabre’.
- We chose ‘Lincoln’ because I believe it produced just a little bit longer.
- Overall, a better type of pea.
- Both were OK but ‘Lincoln’ was slightly overall better. A better producer.
- More produce harvested and a sweeter taste. More susceptible to downy mildew.
- I used to grow ‘Green Arrow’; this is now my favorite pea.

Comments on ‘Sabre’

- We liked ‘Sabre’ because it had more flavor and the peas weren’t as hard. There were more peas in the pod, so more to eat. Longer pods.
- First to form pods. Picked on July 1. Pods were 4 inches long—nine peas to a pod—perfect eating quality and size. Longer pods and more peas per pod.
- Flowered first. Pods were easier to shell. Sweeter flavor.
- Better taste. Pods shell easily.
- Slightly sweeter taste. Better resistance to powdery mildew.
- Earlier by a few days.
- Slightly sweeter.
- Bigger pods.
- It was difficult to tell when ‘Sabre’ was ready to pick.
- Higher yield and tasted better.
- ‘Sabre’ tasted a bit better.
- The few ‘Sabre’ sprouts that germinated were sickly looking. Pods were very hard to shell and the peas tasted bitter.
- Took their time to germinate. My husband asked if I forgot to plant them; I didn’t. Vines were kind of pathetic little creatures. Pods were skinny, pathetic and thin-skinned.
- Peas were bland and dry.

Conclusions

‘Lincoln’ again proved to be the finest all-purpose pea for North Dakota. The vines were sturdy and productive. The peas were delicious. ‘Sabre’ matured early and its pods were easy to shell; however its vines lacked vigor and were less productive.

Pea, Snow

Varieties

‘Avalanche’

60 days. Deep green, crisp pods. Good yields. Vines grow 30 inches; trellising optional.

‘Sweet Horizon’

65 days. Gourmet pea noted for its straight pods. Vines grow 30 inches; trellising optional.



Data

Data were collected at 28 sites in 2016.

Trait	Avalanche	Sweet Horizon	Same
Germinated best	35%	38%	27%
Healthier plants	16	28	56
Matured earlier	42	23	35
Higher yields	33	29	38
More attractive pods	12	68	20
Tasted better	35	43	22
Preference	40	60	
Recommend	58	69	
Mean score ¹	6.52	7.32	
Median score ¹	7.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Every seed came up! Both varieties had healthy plants and flowered a second time! Tasted great.
- Both peas were deliciously sweet.
- Both are delicious. Most pods never even made it to the kitchen; mostly eaten in the garden.
- Both varieties were delicious and I enjoyed eating them.
- Both were tasty.
- Tasted about the same.
- Both varieties showed good health and vigor.
- They were both free of disease.
- I thought they tasted very similar. Both varieties were hit hard with downy mildew but continued to produce while and after their leaves were trimmed.

- These did far better than my shell peas this year.
- Germination was not great with either variety. The pods were equally attractive and tasted great.
- We only got one picking from each variety; had good plants but no pods.
- This was my first time planting snow peas. I wasn't real impressed with either one but I have no history to base it on.
- I'll grow these on a fence next time—they stand quite tall.

Comments on ‘Avalanche’

- ‘Avalanche’ was fresh, crisp and delicious!
- ‘Avalanche’ pods tended to curl. ‘Avalanche’ had more tender pods. ‘Avalanche’ pods were very tender and sweet (we ate them straight out of the garden; most never even made it inside!). Would definitely plant ‘Avalanche’ again!
- All neighbors preferred the sweetness of ‘Avalanche’. It was a very tough year for peas: first the cool weather, which was good, but then the heat of June and July slowed the growth. Even with that, ‘Avalanche’ produced more mature peas for a longer period of time.
- ‘Avalanche’ had nice pods and good taste, but had to be picked early or the shells became too tough for eating raw or used in stir-fries.
- Overall better production and growth.
- Better production and taste.
- More and longer yield. Beautiful pods.

‘Avalanche’ matured earlier. Its pods were sweet and crisp but sometimes curled.

Best snow pea varieties

Top choice
Sweet
Horizon

Strong performer
Oregon Sugar
Pod 2

**Gardeners
loved the
straight, sweet
pods of ‘Sweet
Horizon’.**

More Comments on ‘Avalanche’

- Great taste and higher yields.
- Pods seemed to curl a bit but were sweeter and crunchier when eaten fresh.
- First yield.
- ‘Avalanche’ plants had quite a bit of tendrils. I felt the plants seemed less healthy and more fragile. ‘Avalanche’ did however produce the first yield.
- They tasted good. They had very healthy plants and they had really attractive pods. There were so many pods, I could not count them! ‘Avalanche’ had a thicker, stringier pod.
- Wider pods; good yield but not as tasty.
- Slower growth. Pods curled sometimes.
- Pods had an underlying bitterness.

Comments on ‘Sweet Horizon’

- Germinated a little bit better. Vines were fuller; more leaves; bigger stems. Many more pods. I prefer its narrower pods. More flavor; pods very tender. Froze well. Less “strings.”
- ‘Sweet Horizon’ had nice, uniform, flat pods. ‘Sweet Horizon’ pods were sweet, but I much prefer a tender pod and the ‘Sweet Horizon’ tended to be tough and stringy.
- ‘Sweet Horizon’ produced 640 pods; ‘Avalanche’ produced 309 pods total. ‘Sweet Horizon’ pods were shorter and fuller. ‘Sweet Horizon’ was a bit more stringy and meaty, but still tasted sweet.
- Both varieties are decent snow peas, but ‘Sweet Horizon’ was preferred. ‘Sweet Horizon’ had nice pods and was tasty raw or in stir-fry.
- Healthier plant overall and produced better.
- Tasted better.
- Almost 100% germination. Better looking pods. Grew the best.
- Seemed to have better looking pods and tasted a little better.
- Nicer pods.
- Pods stayed straighter.
- Thinner pods.

- ‘Sweet Horizon’ peas were sweeter. Good germination; high yield; nice pods (slow to fill out) and when they did they were very good shelled peas.
- These were very hardy and I got two harvests out of it! Very sweet.
- ‘Sweet Horizon’ germinated best, had healthier plants and produced higher yields.
- Lots and lots of blooms. Hands down a stronger bearer. Even after the frost (kept covered to produce bigger nodules), they started to bloom again!
- My mom preferred the ‘Sweet Horizon’ because she said they had more peas in the pods and they were longer than the ‘Avalanche’.
- Very weak production.

Conclusions

Most gardeners preferred ‘Sweet Horizon’. Its pods were straighter, flatter and sweet. ‘Avalanche’ produced earlier but some of its pods curled. The vines of both varieties were healthy and their yields were similar.

Pumpkin, Garden

Varieties

‘Cargo’

100 days. Dark orange, 20-pound jack-o’-lanterns with strong handles. Short vines resist disease.

‘Magic Lantern’

115 days. Popular for its classic, 20-pound, dark orange jack-o-lanterns. Vines are short and resist disease.



Data

Data were collected at 17 sites in 2016.

Trait	Cargo	Magic Lantern	Same
Germinated best	19%	25%	56%
Healthier plants	20	13	67
Harvested earlier	38	31	31
Higher yields	40	27	33
Bigger pumpkins	29	43	29
More attractive	20	27	53
Preference	40	60	
Recommend	69	88	
Mean score ¹	7.80	8.07	
Median score ¹	8.00	9.00	
Median weight (lbs)	19	20	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both of these grew well. Mainly I chose these two varieties because of their resistance to powdery mildew that I have had problems with in the past. Neither of them had that problem. They both produced nice large pumpkins that turned orange early.
- Had so much fun planting them with our little granddaughters. Great for jack-o-lanterns and decorations in the yard—very uniform—stayed round and turned orange quickly. Shared them with others and have them decorating our yard. Our little girls have theirs to carve. Loved both varieties. Nicest ones I’ve ever planted.

- I loved watching these pumpkins grow this summer and was so excited to see them all turn orange before the first frost. I only planted the rows 10 feet apart so it was a challenge to trace them back to their original row.
- Perfect, 100% germination for both. I picked five pumpkins of each variety on September 9. Got 35 pumpkins in total from six seeds of each. Both varieties are great!
- Very healthy plants. Similar-sized fruit.
- Both sprouted the same day. Both grew very well and produced a very high amount of fruit.
- Our killing frost was on September 12 and the pumpkins of both varieties were green when picked.
- Good sized pumpkins; not too big and not too small. Would plant both again, but would plant further than 10 feet away from the squash as they were a bit overpowering!
- Both had powdery mildew by September.
- Both sprouted about the same time. Vines looked real strong; good. They are both doing their job and taking over the garden. They are still producing as of September 12. We are so excited for the pumpkins.
- Never germinated. Don’t know why. We sowed squash in the same section and they germinated.
- Neither performed as well as my old pumpkins I have been growing for years.

Both of these short-vined varieties produced nice, dark orange jack-o’-lanterns.

Best short-vined pumpkin varieties

Top choice
Neon

Strong performer
Cargo
Magic Lantern

‘Cargo’ was earlier and produced more pumpkins.

‘Magic Lantern’ was a strong performer across sites.

Comments on ‘Cargo’

- Had slightly larger pumpkins but both were good.
- ‘Cargo’ had better germination; its pumpkins were more uniform in size.
- Plants had some leaf spotting during a wet cycle—‘Cargo’ was worse.
- Produced more.
- Pumpkins weighed more; too heavy for a boy to carry.
- Definitely larger fruits. They were attractive but varied a lot in size.
- Pumpkins were odd shaped.
- The shape of the pumpkin was better for carving.
- The ‘Cargo’ pumpkins were more uniform in size and more plants germinated.
- Healthy looking plants but no pumpkins. ‘Magic Lantern’ produced eight large (20 pound) pumpkins.
- Liked the way the vines spread out. Had a little bigger fruit.

Comments on ‘Magic Lantern’

- Nicer looking fruit.
- Its pumpkins seemed to have harder skins.
- Slight edge on yields. Rounder fruit and just a smidge larger pumpkin. Pumpkins turned orange quickly.
- Nice shape.
- Pumpkins were extremely uniform in size.
- The pumpkins tended to have narrower bases that made them tip over when stood up.
- Only one ‘Magic Lantern’ plant germinated from the seeds we planted but it produced a lot of pumpkins.
- Plants did not seem to sprawl as much but yet had about the same yield.
- Great size (30 pounds) and many produced.

Conclusions

Both varieties produced nice, dark orange jack-o’-lanterns on short vines (perfect for small gardens). Pumpkins were upright in shape and averaged near 20 pounds. ‘Cargo’ was earlier and produced higher yields at several sites. ‘Magic Lantern’ showed itself to be reliable and its pumpkins were appealing.

Pumpkin, Giant

Varieties

'Big Max'

120 days. Huge, 75+ pound, bright orange fruits. Give it lots of water, fertilizer and space. Thin out fruits to maximize size.

'Big Moose'

110 days. Pumpkins grow 50–125 pounds. Orange-red rind with faint stripes. Vigorous. Easily grown.



Data

Data were collected at 15 sites in 2016.

Trait	Big Max	Big Moose	Same
Germinated best	45%	36%	18%
Healthier plants	10	30	60
Harvested earlier	14	71	14
Higher yields	25	63	13
Bigger pumpkins	25	75	0
More attractive	13	75	13
Preference	33	67	
Recommend	67	78	
Mean score ¹	7.00	8.25	
Median score ¹	7.50	8.50	
Median weight (lbs)	50	55	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- These plants put out vines, but the few pumpkins never ripened. Mom's note: There were smaller varieties near these and they produced just fine.
- Poor germination. Only one seedling (a 'Big Max') germinated.
- I loved my pumpkins.
- They are bigger than me! I'm 5 years old.

Comments on 'Big Max'

- Heaviest pumpkin was 60 pounds. None of them really reached maturity before our killing frost on October 6. The spring season got off to a slow start this year.
- Produced the biggest pumpkin.
- 'Big Max' produced seven big pumpkins while 'Big Moose' succumbed to powdery mildew and produced two small pumpkins.
- No pumpkins on their vines.

Comments on 'Big Moose'

- More pumpkins. Our average was 100 pounds.
- Nicer looking fruit.
- Plain and simple. The boys liked these big pumpkins best!
- Better shaped as well as larger pumpkins.

Conclusions

'Big Moose' is the best variety for gardeners who want to grow a giant pumpkin that looks like a classic pumpkin (orange and globular, not beige and flattened). It produced more pumpkins, bigger pumpkins and prettier pumpkins than 'Big Max'. It matured earlier, which is always appreciated in North Dakota.

'Big Moose' produced more pumpkins, bigger pumpkins, and prettier pumpkins.

Best giant pumpkin varieties

Top choice
Big Moose

Strong performer
Dill's Atlantic Giant

Pumpkin, Large

Varieties

'Captain Jack'

105 days. Vigorous vines produce good yields of 40-pound, dark orange, barrel-shaped pumpkins.

'Howden Biggie'

115 days. A classic big jack-o'-lantern. Dark orange, 45-pound fruits. Productive, vigorous vines.



Data

Data were collected at 11 sites in 2016.

Trait	Captain Howden		
	Jack	Biggie	Same
Germinated best	11%	56%	33%
Healthier plants	0	38	63
Harvested earlier	29	57	14
Higher yields	0	67	33
Bigger pumpkins	14	71	14
More attractive	29	29	43
Preference	25	75	
Recommend	38	63	
Mean score ¹	5.00	6.88	
Median score ¹	5.50	8.50	
Median weight (lbs)	15	28	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- The pumpkins of both varieties were amazing. Both had very thick stems. My granddaughter was so excited to go out to the pumpkin patch to see how big her pumpkins were each time she came out to the farm.
- The worst pumpkin harvest ever—one pumpkin! I rotate my garden and the area this trial was planted in was prime.

Comments on 'Captain Jack'

- 'Captain Jack' produced larger, more uniform pumpkins.
- Poor germination, perhaps affected by excessive rain.
- Very slow to mature.

Comments on 'Howden Biggie'

- Very vigorous vines. Good producer. My grandkids loved these big pumpkins. I needed help to move them.
- Germinated best and had more pumpkins. Otherwise, the performance of these varieties was very similar.
- 'Howden Biggie' produced more long, unbalanced pumpkins.
- Recovered well from hail better. Nice big fruits; taller and narrower.
- Bigger fruits.

Conclusions

'Howden Biggie' matched or outperformed 'Captain Jack' in all traits. It germinated well and grew vigorously. Its vines produced bigger pumpkins and more pumpkins.

Gardeners liked the pumpkins of both varieties. They were dark orange, upright in shape, and had thick, sturdy handles.

'Howden Biggie' excelled from germination to harvest. It produced bigger pumpkins and more pumpkins.

Best large pumpkin varieties

Top choice
Howden Biggie

Strong performers
Captain Jack
Cronus

Pumpkin, Warty

Varieties

'Knuckle Head'

105 days. Barrel-shaped, 12–15 pound, dark orange fruits with freaky warts.

'Warty Goblin'

105 days. Tall, 8–20 pound, orange fruits covered with green warts. Strong handles.



Data

Data were collected at 15 sites in 2016.

Trait	Knuckle Head	Warty Goblin	Same
Germinated best	13%	33%	53%
Healthier plants	15	15	69
Harvested earlier	38	46	15
Higher yields	31	54	15
Bigger pumpkins	33	33	33
More attractive	8	54	38
Preference	8	92	
Recommend	43	79	
Mean score ¹	6.14	8.36	
Median score ¹	6.50	9.00	
Median weight (lbs)	15	15	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Came up the same day. Lots of vines and flowers from both. The warts made the pumpkins look so neat.
- Very healthy vines. Really liked both varieties. The vine leaves were huge and the blossoms were big. The kids in the community loved the pumpkins.
- Liked them.
- Both produced flowers but only 'Warty Goblin' produced fruit. We think we planted too late in season (June 21).

Comments on 'Knuckle Head'

- Pumpkins turned orange in August, earlier than those of 'Warty Goblin'.
- Vines had powdery mildew; 'Warty Goblin' did not.
- Boring compared to 'Warty Goblin'.

- The first pumpkin is big (18 pounds) and beautiful orange. Very nice.
- Our favorite. More warts and knobs that were pronounced. The pumpkin turned orange earlier and was larger.

Comments on 'Warty Goblin'

- Good sized, very warty pumpkins. Kids loved them!
- Beautiful pumpkin with many big, bright green warts. Nice contrast.
- Many more green bumps.
- More warts, which was what I wanted.
- 'Warty Goblin' had far more pumpkins and I think was better looking. I liked the color. Very decorative.
- Could pick earlier to decorate, if wanted. Many more pumpkins. Larger pumpkins (19 pounds compared to 7 pounds for 'Knuckle Head'), but both were nice.
- Liked the compact shape of 'Warty Goblin' for decorating. The warts were more varied and scattered. I love that the warts are greenish and the pumpkins are orange! This is very cool and a desirable effect.

Conclusions

Gardeners expressed a strong preference for 'Warty Goblin'. They loved its bright green warts, which contrasted well with the orange rind of each pumpkin. The orange warts of 'Knuckle Head' were "boring" by comparison. 'Warty Goblin' produced higher yields. The vines of both varieties grew vigorously and fruit weights were similar (15 pounds).

Gardeners loved the bright green warts on 'Warty Goblin' pumpkins.

Best warty pumpkin variety

Top choice
Warty Goblin

Radish, Bicolor (Fall)

Varieties

'D'Avignon'

21 days. Long, slender, red radishes with white tips. Very uniform. From France.

'French Breakfast'

28 days. Plump, cylindrical roots. Carmine red with white tips. Crisp with mild pungency. Popular heirloom from France.



Both varieties grew well in the fall. Their roots were crisp and mildly pungent.

Data

Data were collected at 50 sites in 2016.

Trait	D'Avignon	French Breakfast	Same
Germinated best	13%	27%	60%
Healthier plants	16	27	58
Harvested earlier	26	43	32
Higher yields	33	37	30
More attractive roots	27	43	30
Tasted better	12	45	43
Preference	27	73	
Recommend	59	85	
Mean score ¹	6.39	7.30	
Median score ¹	6.50	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Excellent germination. Both were very good. They were slow to get woody and many are still crisp and tender.
- Both varieties performed well; were healthy and robust. After so many years of spring-planted radishes that failed to please, this fall planting trial was a real treat. We harvested between 12–14 pounds between the two varieties.
- Both are good varieties and will order seed for 2017.
- Germinated at same time (4 days) and same density. Identical health of plants; both had some insect damage. Both had very long roots. I liked both. I had a taste test at a party and it was a tie!
- We liked the taste of both.
- I was impressed with how well these did so late in the season.
- Both germinated well; good yields.
- Very similar varieties. Loved both!
- I liked how these radishes grew. They grew up and out of the dirt so you could see how big they were. I will plant bicolor radishes instead of red radishes in the future.
- Both were very good tasting. They did not get woody and are both quite mild tasting. We are still harvesting them (October 25). Late summer is a great time to plant radishes!
- They would have probably done better being planted a week or two earlier (sown August 30). I have never planted radishes in the fall but now I am convinced that is the way to go—they were very mild flavored and good textured vs. spring-planted radishes.
- I may like the fall radishes now better than the spring plantings. I've never planted radishes this late before—loved them. Both were very sweet and crispy. Both had 30% of roots hollow inside.
- Both radishes were really good overall!
- Germination was 55/70 seeds (79%) for both. Both harvested at the same time.
- I probably wouldn't do radishes again. I think they were both pretty "hot" due to the later season drier, warmer temps.
- Neither variety was woody, but neither was very flavorful. Bland.
- Some of both varieties were hollow. Both tasted good this fall!
- Twenty percent of radishes were hollow.
- Both varieties had good germination, about 75–80%. Both were attractive.

Best bicolor radish varieties

Top choice

French Breakfast

Strong performer

D'Avignon

More General Comments

- We've had several frosts and they seem hardy to the cold temps.
- These germinated but didn't do much after that (sown August 25). I am thinking the weather likely had something to do with that. Had a few 2-inch sprouts but that was all.
- Both should have been planted 2 weeks earlier for my location; plants are very small (sown August 24).
- Flea beetles came in from the canola fields and ate the tops.

Comments on 'D'Avignon'

- Prettier because the colors contrasted more. Slender radish.
- 'D'Avignon' matured earlier. They were very good (even my two toddlers ate them!) They had a nice, consistent half pink/half white appearance.
- They were the first to yield. Nice, long, tasty radishes.
- Slightly higher yield. Liked the taste better. Taste was milder.
- Flavor was more peppery. Some roots were a little woody.
- First yield and a longer radish.
- The few we ate were mild and decent flavored. Just not as large.
- Had overall better performance
- Produced bigger radishes.
- Still producing late in fall; tasting good.
- Seeds germinated in 4 days. Had four to five times more plants. Better yield.
- Roots had less heat but both varieties tasted good.
- 'D'Avignon' looked a little more attractive since it had more white.
- Healthier plants and better yields.
- 'D'Avignon' didn't grow any radishes, just greens (sown September 11).
- Very thin roots; none larger than three-quarter inch.
- Roots curled to a "C" shape.

Comments on 'French Breakfast'

- Much better flavor—more juicy—delicious! Plumper radish.
- Not hot or woody—crispy. Appearance and flavor were better.

- I liked its taste better. Not as peppery.
- Shorter, thicker roots. Late in the season the roots had hollow softer centers. I wanted to see how long (length) of a radish I can grow.
- Stronger plants. Looks like more resistance to insects.
- Roots were slightly fatter. Looked more attractive due to more "roundness." Milder flavor.
- Had a larger bulb size and produced better in the same amount of time.
- Though I am not much of a radish eater, I like its slightly milder flavor.
- Radishes were more uniform and tender.
- Delicious with a nice bite but not peppery. I would plant this again.
- Had a slightly sharper flavor that was tasty and not too hot. Remained firm and crisp. Plants suffered less damage from the first mild frosts.
- A bit "sweeter." Crisp.
- I prefer its milder radish taste.
- Tasted much better (not bland). Grew slower for the first 4 weeks, but then grew rapidly. Yield was only 2–3 days later.
- Crisp, clean taste.
- 'French Breakfast' tasted better because it was milder. Roots were plumper.
- Much stronger/fuller plants. Early germination.
- Produced a lot more.
- Germinated faster and stronger.
- Had better luck with 'French Breakfast'.
- Produced a bit earlier.
- Look good; taste good; had good germination.
- Fatter roots.
- Not as long, so nicer.
- Had a bite!
- More vigorous.
- Still eating on November 7.

Conclusions

'French Breakfast' outperformed 'D'Avignon' in all measured traits. Its roots were plumper, more attractive and milder. The vast majority of gardeners preferred it. 'D'Avignon' roots were more slender and the contrast to its red and pure white skin was attractive.

The contrasting red and pure white skin colors of 'D'Avignon' were beautiful.

'French Breakfast' roots were plumper and milder.

Radish, Red (Fall)

Varieties

'Cherry Belle'

22 days. The standard red radish known for its fast growth, round shape and snow white interiors. An All-America Selections winner.

'Roxanne'

21 days. Big crops of red, round and uniformly shaped radishes. Tolerates heat. This hybrid is reliable and grows vigorously.



Fresh radishes in fall were a treat for gardeners.

Data

Data were collected at 43 sites in 2016.

Trait	Cherry		
	Belle	Roxanne	Same
Germinated best	10%	56%	34%
Healthier plants	21	44	36
Harvested earlier	21	61	18
Higher yields	21	67	13
More attractive roots	19	54	27
Tasted better	17	22	61
Preference	28	72	
Recommend	50	80	
Mean score ¹	7.54	7.95	
Median score ¹	7.00	9.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Having fresh radishes in fall was a treat. We'll plant radishes again next August.
- The quality of the radish is much better with this late season planting.
- Both had nice looking roots. Crisp, beautiful color on the outer layer. Pure white on the inside. Nice flavor.
- We enjoyed the radishes. Both tasted well and had a bite to them!
- Both are mild flavored and very hardy. Neither got woody or went to seed.
- Both were flavorful without any bite.
- Both varieties did well, but grew slowly. I'm still harvesting radishes late in the season (October 25). Possibly an earlier start would have speeded up the growth cycle (sown August 27 in north).
- Both had healthy growth.

- I am a dry lot gardener. Both varieties did well under a short dry spell.
- Their tops looked the same.
- Both were vigorous growing but not as vigorous as spring planting. Healthy foliage and similar taste.
- Neither variety did well; each producing one small radish (sown August 16). Both varieties were covered with light frost cloth. Received an early frost.
- Both varieties were attacked by flea beetles so I treated them with Sevin and that took care of them.
- I will plant 2 weeks earlier next year (sown August 24).

Comments on 'Cherry Belle'

- They grew very well. Not as spicy.
- More uniform and attractive radishes.
- Size was more consistent. Great tasting and better appearance.
- Bigger radishes. Bright red. Not hot or woody. Better health and taste.
- More vigorous.
- Similar in size, but more attractive.
- Larger roots and better flavor.
- A little stronger flavor.
- First yield. We have always grown 'Cherry Belle' and have not had good luck with sowing in spring. They bolted and had strong flavor. Grown in fall, we didn't have the strong, hot taste but they bolted (all greens and no radish).
- Seemed sweeter.
- My kids liked the taste of 'Cherry Belle' better, but I couldn't tell a difference.

Best red radish varieties

Top choice
Roxanne

Strong performers
Cherry Belle
Rover

More Comments on ‘Cherry Belle’

- I thought ‘Roxanne’ was going to win out as it seemed to grow faster. However, now that I’ve been picking them, ‘Cherry Belle’ has bigger roots.
- Good but had more of a bite in flavor. Its roots varied in shape and color.
- There was some splitting in the roots.
- Many never reached a size big enough to harvest. ‘Cherry Belle’ had a lot more cracking than ‘Roxanne’. However ‘Cherry Belle’ tasted better overall.
- Never got large enough to eat.
- Smaller roots.
- Never formed bulbs. Seedlings were spaced at least one inch apart.
- The globes did not develop as well.
- I prefer ‘Cherry Belle’. I have had previous experience with it.
- More scab and brown marks on roots.

Comments on ‘Roxanne’

- Roots were larger and rounder. Absolutely beautiful! Perfectly uniform. Great flavor! The best radish I’ve ever grown.
- ‘Roxanne’ germinated in 3 days; ‘Cherry Belle’ 4 days. ‘Roxanne’ produced a larger radish sooner and was a larger, perfectly round red radish. ‘Roxanne’ was more uniform; perfectly round with a bright red color.
- ‘Cherry Belle’ is the radish I always grew so ‘Roxanne’ surprised me. It grew larger, looked prettier, and had a milder taste. When friends stopped by, I would pull up a bunch of ‘Roxanne’ radishes to give them and they were surprised by its uniformity, color and even size.
- Germinated a day or two earlier. Matured 3 days earlier. Larger and more radishes. Good taste; milder flavor. Nice looking, round radishes.
- Large radishes after 29 days. Awesome yields. Nice roots—not too hot. Would definitely plant again.
- Better germination and stronger plants.
- Two times larger. Nice, uniform roots.
- Germinated faster and better. By far the best. True radish taste.
- Earlier, more vigorous growth. Developed bulbs earlier.

- Earlier producing. I like my radishes fast!
- I have always had difficulty raising radishes. It seems no matter how far I space them, most go to top with no edible root. At least I got to eat some ‘Roxanne’. I would try them again.
- I believe each seed germinated. Larger red radish. Excellent yield. Bright red radishes; large; some 1.5 inches across; however a few split. Somewhat milder in taste. Best crop of radish I have ever raised. Will plant ‘Roxanne’ again.
- Grew faster. Mild flavor. Far better than radishes planted in spring.
- ‘Roxanne’ was more evenly sized; better yielder; nice, red colored radish. The larger ones didn’t crack; ‘Cherry Belle’ did. I really liked ‘Roxanne’. It was a nicer looking, better yielding variety.
- ‘Roxanne’ radishes were larger, resulting in higher yield. Both varieties had good flavor but I couldn’t stop eating ‘Roxanne’ radishes. They were very crisp with a smooth texture with a wonderful, mellow radish flavor. ‘Roxanne’ was a gorgeous, dark red with very uniform roundness. Both were good but ‘Roxanne’ was a definite winner.
- Almost all ‘Roxanne’ radishes matured. There were more radishes harvested and they maintained their globe shape instead of cracking. Lacks flavor.
- Good germination; beautiful dark red color; great taste; and didn’t get woody.
- Better germination; near 100%. Larger roots. More leaves and fuller looking.
- Better taste (spicier) and overall better performer.
- Higher germination. Bushier, stronger looking plants. First to produce radishes.
- Looked better; produced first; produced more.
- Best tasting and largest radishes.

Conclusions

‘Cherry Belle’ grew well but it could not compete with the vigor of the hybrid ‘Roxanne’. ‘Roxanne’ germinated better, grew more vigorously and produced higher yields. Its roots were big, perfectly globular, and bright red. The radishes of both varieties were crisp and delicious.

The goodness of ‘Cherry Belle’ was overshadowed by the greatness of ‘Roxanne’.

‘Roxanne’ had big yields of big, beautiful radishes.

Spinach, Savoy Leaf (Fall)

Varieties

'Bloomsdale Long Standing'

38 days. Deep green, very crinkly leaves. Popular for its flavor and tolerance to cool temperatures.

'Emperor'

37 days. Upright, dark green leaves with long stems for bunching. Semi-savoy hybrid. Resists downy mildew but is sensitive to heat.



Data

Data were collected at 60 sites in 2016.

Trait	Bloomsdale		
	L.S.	Emperor	Same
Germinated best	20%	42%	38%
Healthier plants	24	34	42
Harvested earlier	26	38	36
Higher yields	34	41	24
More attractive	28	32	40
Tasted better	21	16	63
Preference	42	58	
Recommend	63	69	
Mean score ¹	6.40	6.51	
Median score ¹	7.00	7.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both varieties germinated well and showed good vigor. We have had issues with spring-planted spinach when the days get too warm early in the year. This was a nice complement to our harvest. Fall spinach should be considered by all North Dakota gardeners who enjoy this vegetable. It is extremely frost tolerant and is a perfect way to close out the garden for the year.
- Both varieties are still producing spinach even after a few frosts.
- Healthy plants.
- I prefer savoy-leaf spinach. I used the spinach in smoothies and juiced some.
- They both looked so nice and green.
- I've never tried to grow spinach in the fall before so I found this trial very interesting. Perfect weather for a cool weather crop. We had lots of rain so combined with the cool temps the spinach grew well and I will now plant some each August (sown August 19).
- Both of these were good, and long producing plants. I still am harvesting spinach and it is October 28.
- So awesome to have fresh spinach in the fall. I will do this again! The seed germinated a little faster and produced more. The varieties were similar in taste.
- I would plant either of these varieties in the fall again.
- Crisp taste on both. No insect or disease issues. Both grew well. Fall planting is worth doing. We add mulch to keep the soil moist for germination, even under hot, windy conditions. We will use polyspun blankets to protect the crop and expect production through October.
- These were good varieties of spinach. It was fun to have some in the fall.
- Both were delicious.
- Both survived two hard frosts with minimal frostbite on a few leaves.
- Both were excellent. Very productive and fast growing.
- Covered with a light frost cloth and they are doing well into late October.
- Both near 100% germination.
- Didn't germinate.
- Neither variety produced more than a few plants.
- Neither one germinated well. Plants stopped growing after 35 days; they were only 1.5 inches tall. Taste was okay.

Germination rates were sometimes disappointing, but gardeners enjoyed the rich flavors of these varieties.

Best savoy-leaf spinach varieties

Top choice
Tyece

Strong performers
Bloomsdale
Long Standing
Emperor
Melody

- I love spinach but they are struggling to grow this fall. First I sowed them in a container but they were not doing well so I sowed them straight in the garden and they are doing much better.
- Loved that I planted these late and, in November (albeit a mild November), both varieties are still going strong. I have not covered these once and they have no frost damage.
- The plants were healthy but pretty small.
- None of the spinach varieties did well. ‘Bloomsdale Long Standing’ started out, but then didn’t progress beyond each seed germinating and showing minimal growth. The other spinach plants barely emerged out of the ground (sown August 27).
- Didn’t do well in regards to stand. Its rate of growth seemed slow (sown August 28). Not impressed. Perhaps the wet conditions hindered growth of the spinach.
- Neither variety germinated. I replanted the trial a couple times but they never took. I was disappointed.
- One ‘Bloomsdale Long Standing’ seedling sprouted. Seven ‘Emperor’ seedlings grew to about 1 inch. Basically no yield. Fall planting is not recommended for Minot (sown August 12). Maybe spring will work.
- Both germinated in about 4 days; flavor was good for both. I will plant 2 weeks earlier next year (sown August 24).
- If not for the stick markers, we wouldn’t have known the difference. Slow to germinate and stayed small (sown August 26).
- Germination was terrible; less than 10%.
- Much better all around. Leaves were bigger and luscious. Higher yields.
- Very sweet tasting. Better producer.
- Nice leaves by September 13, after approximately 30 days, for baby spinach. Yields were a bit larger and had more vigor. Earlier harvest.
- Bright green leaves; frost hardy; preferred its texture.
- Loved its large, dark-green, ruffled leaves. I just cut it again (October 25) and I hope to get a couple more cuttings before freeze up.
- A slightly better taste.
- ‘Bloomsdale Long Standing’ has a slightly sweeter, moist flavor; a great substitute for lettuce.
- Produced better in our short season.
- I really enjoyed its slightly milder flavor.
- I was able to eat this one first.
- While both varieties are outstanding for fall plantings, ‘Bloomsdale Long Standing’ stayed a healthier green as the fall progressed.
- Grew much better.
- More delicate leaf; milder flavor.
- ‘Bloomsdale Long Standing’ was more vigorous throughout the growing season. Higher yields.
- It grew a little bigger but not much. Both did not do well in my garden.

Comments on ‘Bloomsdale Long Standing’

- ‘Bloomsdale Long Standing’ performed way better on all counts, even though they both sprouted on the same day. It was amazing on salads! Better taste and a hardier plant. It survived our first dusting of frost!
- Earlier germination and produced more leaves. Leaves were bigger.
- Heavier producer.

Comments on ‘Emperor’

- Germinated better and earlier. Produced first. Enjoyable, mild flavor.
- All seeds germinated. Produced the first yield a few days earlier. Higher yields.
- Fast growing.
- Great germination. Strong, healthy leaves. Great tasting spinach.
- Matured faster. Crisper looking leaf.
- Overall performance was better. Healthy and good yield.
- Grew taller and germinated slightly better. Leaf was chewier in texture.
- Vigorous seedlings. Harvested about a week earlier. Nice, round leaves. I liked its rounder leaves. They were also a bit flatter, making them nicer to put on a sandwich.
- Overall a better variety.

‘Bloomsdale Long Standing’ showed good tolerance to cool temperatures. Its leaves were very crinkly and delicious.

**‘Emperor’
germinated
better in the
warm soil,
grew quickly,
and produced
good yields.**

More Comments on ‘Emperor’

- Germinated first. Grew better and tasted way better. A meaty taste.
- Germinated better.
- Hardier and better producing.
- Had bigger leaves each time I picked them. Produced earlier and more.
- ‘Emperor’ produced more; also larger leaves. ‘Emperor’ leaves were less crinkly so easier to wash.
- Produced more yield, and bigger leaves.
- It tasted better but both were good.
- Delicate leaves. Could be eaten alone or mixed with other salad greens. Flavor nice and not overpowering like ‘Bloomsdale Long Standing’.
- Plants looked healthier. Earlier by a few days. Leaves were less crumpled; easier to clean. My taste testers preferred the milder flavor of ‘Emperor’. Tastier.
- Overall better growth, though both were slow (sown August 25).
- Very small leaf.
- ‘Emperor’ might be better with spring planting.
- Poor germination. Smaller leaves.

Conclusions

Most gardeners preferred ‘Emperor’. It germinated better in the warm soil (a challenge in fall spinach production), grew quickly and produced good yields. ‘Bloomsdale Long Standing’ showed good tolerance to cool temperatures. Its leaves were more crinkled. The leaves of both varieties were attractive and delicious.

Spinach, Smooth Leaf (Spring)

Varieties

'Olympia'

45 days. Yields are quick and abundant. Leaves are smooth and mild in flavor. Plants resist bolting.

'Toucan'

50 days. Tolerates heat and resists bolting. Leaves are oval-shaped and medium-dark green. Upright habit.



Data

Data were collected at 36 sites in 2016.

Trait	Olympia	Toucan	Same
Germinated best	46%	17%	37%
Healthier plants	32	19	48
Harvested earlier	41	7	52
Higher yields	41	24	34
Resisted bolting better	14	50	36
More attractive	26	15	59
Tasted better	26	11	63
Preference	54	46	
Recommend	66	59	
Mean score ¹	6.62	6.41	
Median score ¹	8.00	7.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both varieties did well. Beautiful plants throughout the season.
- Loved both! Both resisted bolting!
- Great taste with both.
- We grew them in partial shade and enjoyed them through July.
- Both varieties failed due to adverse weather conditions. Neither provided a yield and succumbed in the heat and bolted.
- Both bolted very early—our location had no rain for 3+ weeks after planting date.
- Neither variety was able to be harvested due to this year's growing conditions. Neither variety could tolerate the rapid changes in weather. I am unable to recommend either.

- Needs to be planted very early or in fall (sown May 26).
- Both were good as summer rains kept them from getting bitter.
- Very sporadic yield. We have the best garden this year but this crop doesn't want to flourish. Both were unattractive and never developed enough to harvest.
- Virtually no difference in yield. I would grow both varieties again.
- This was fun to try as I've never planted it before.
- Seemed to have 100% germination.
- These did not grow well for us. Neither variety grew larger than 2 inches in diameter nor produced enough leaves to actually eat.
- Both varieties were small compared to others I have grown in the past.
- Neither variety flourished like spinach generally does when I plant it in the spring.
- A hailstorm on June 9 damaged plants—they came out of it but neither produced very well.
- As soon as the plants were 1 to 2 inches high, a cottontail rabbit ate both varieties down to the ground with equal relish. He continued to eat as they tried to regrow. I think he would give both a 10 rating and would want me to plant them again next year.
- Bunny damage.
- Rabbits liked both.

'Olympia' was a reliable producer of smooth, medium green, mild tasting spinach.

Best smooth-leaf spinach variety

Top choice
Olympia

Comments on ‘Olympia’

- Nice dark green leaf, very productive. Good, milder flavor.
- Better taste; better resistance to bolting; and higher yields.
- ‘Olympia’ had a nice spinach flavor, and bigger plants. When grown in the fall garden, ‘Olympia’ performed better as well.
- Seemed to be greener and taller, both of which I prefer.
- Definitely did better in all growth traits including yield. We couldn’t tell a difference in taste, however.
- Leaves seemed to stay a healthier green for a longer time.
- Matured earlier.
- Germinated better (80% vs. 60 for ‘Toucan’). Slightly better taste.
- Better germination.
- Germinated best.
- Germinated better.
- Significant germination issues with ‘Olympia’. Came up very spotty.
- Tastes a lot better. Bolted first (July).
- Died out and yellowed much sooner. Shortened the growing season.
- Started bolting on July 1. Had a stronger spinach taste, which I like.
- Bolted first.

Comments on ‘Toucan’

- Resisted bolting during our hot summer. Baby leaves were great for salad; large leaves were great for pesto (with or without basil).
- Lasted longer in the summer. Taste seemed milder; we loved it in our salads.
- Bolted 1 week later. Enormous, beautiful leaves. Overall, a better plant.
- Better resistance to bolting; healthier.
- Slower to bolt. Its leaves were more crinkled.
- Slower to bolt.
- Produced the most. I was surprised at how long it resisted bolting (almost a month longer than ‘Olympia’).
- I liked its oval-shaped, dark green leaves.
- Leaves were a darker green.
- Smaller leaves and didn’t bolt as early.
- ‘Toucan’ bolted several days later than ‘Olympia’.
- Slower growing and slower to bolt.
- Barely outdid ‘Olympia’ in germination, yield and bolting. It wound up producing consistently.
- Really liked the taste.
- More and better yield.
- Much better germination.
- ‘Toucan’ had very poor germination.
- Had dried-up leaves.

‘Toucan’ was slower to grow and slower to bolt.

Conclusions

‘Olympia’ was a reliable producer of smooth, medium green, mild tasting spinach. Its vigor and tolerance to heat has made it a noteworthy performer in our trials for years. ‘Toucan’ was slower to grow and showed exceptional resistance to bolting.

Spinach, Smooth Leaf (Fall)

Varieties

'Gazelle'

36 days. Dark green, smooth and oval leaves. Long stems for bunching. Resists downy mildew. Susceptible to bolting.

'Olympia'

45 days. Heavy yields of smooth, mild tasting leaves. Plants resist bolting. Very reliable.



Data

Data were collected at 71 sites in 2016.

Trait	Gazelle	Olympia	Same
Germinated best	19%	44%	37%
Healthier plants	25	30	45
Harvested earlier	28	31	41
Higher yields	35	41	24
More attractive	31	27	42
Tasted better	21	25	54
Preference	47	53	
Recommend	65	82	
Mean score ¹	6.44	6.79	
Median score ¹	7.00	7.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- I loved both varieties. They are both still producing nice large leaves. It got down to the upper 20s last night and they both are still fine. Tastes so good to have fresh greens in the fall.
- Both were healthy and the baby spinach was similar in taste for both varieties. I had much more success planting this spinach as a fall crop than I have ever had with a spring crop. I am still picking spinach in November and I love it!
- I always plant spinach in the fall. These are still producing after multiple low temps (20s) and frosts. Milder—yummy!
- Really enjoy my fall spinach! I am still harvesting. Taste was very similar.
- Varieties showed the same rate of growth. Plants were about the same size. Both tasted excellent after cooking.
- I liked both. Still harvesting.

- Both did great this fall—as compared to the summer trial which was a bust. I will definitely try fall spinach again and not do spring spinach as I can't get it in early enough to make it work.
- Both grew well; excellent varieties. This is the first time I have planted spinach in the fall but definitely not the last. The spinach loved the fall conditions and grew well. It was interesting to compare the smooth-leaf varieties with the savoy. I liked the smooth-leaf types better.
- Both were delicious! It's early November and we are enjoying spinach salads!
- Both germinated well (80–90%). Both grew at the same pace.
- Fall plantings are productive. They are free of insects and diseases. No heat stress in October. Our polyspun cover should allow spinach production to the end of October.
- Grew well once I kept the birds away.
- Beautiful upright leaves—tasted great as well! Squirrels enjoyed both varieties!
- Both very productive plants.
- Very tasty!
- Germinated and grew nicely. Healthy plants. Developed at a similar rate. Both seemed to have a slightly bitter taste as opposed to spring planting. I might try planting it a week or so earlier next year (sown August 14).
- Both survived two frosts with very minimal leaf damage. Similar flavor.
- Both are great.
- Both varieties did pretty well. I blanched and froze most of it for my family.

Gardeners enjoyed fresh salads through October.

Best smooth-leaf spinach variety

Top choice Olympia

More General Comments

- Both are good varieties. I liked that they grew slowly and didn't go to seed so I am still able to pick them.
- We should have planted these a week or two earlier as they started to produce well but seemed to slow down once the weather got cooler (sown August 18).
- They were both very good varieties and I'm still harvesting them on October 28.
- Both of these varieties were wonderful. I have continued to harvest tasty spinach past many freezing temperatures.
- I have never tried fall planting spinach before and am pleased with the results. I will do it again.
- Both tasted great.
- These varieties grew about the same and both were definitely better than the savoy-leaf spinaches.
- The rabbits ate this spinach. They did not eat other salad greens planted later.
- Both varieties survived a hard frost on October 12.
- Sparse germination and poor yields. Need earlier planting (sown August 27).
- Poor germination. Few seeds grew.
- Liked the smooth-leaf varieties better than the savoy-leaf varieties. Very surprised they all germinated so quickly (sown August 16). Thoroughly enjoyed planting in August rather than in spring. No bugs for one thing and shocked that all varieties tolerated light frost. Still harvesting on October 31. Fantastic!
- Did not have good germination on any of my spinach varieties. Kept soil moist, etc. Germination was less than 10%. Both varieties had beautiful dark green color and attractive leaves. Tasted good.
- They were so very identical; liked both. The plants stayed quite small. They germinated slowly (sown August 26). The harvest was tasty.
- Mid-August planting in this northern county did not give plants enough warm weather to grow. Frost in mid-September halted growth. Only harvested a small amount of mature, fully grown spinach leaves (about 1 cup of each variety).
- Neither germinated well (three or four plants of each).

**'Gazelle'
leaves were
dark green,
thick, and rich
in flavor.**

- Yields were small but okay. We planted August 19. Next year we will plant earlier and enjoy more.
- The trial froze before harvesting (sown August 15). Should have planted earlier.
- Both varieties germinated poorly; big gaps in plant row. Both tasted sweet; not a harsh taste at all.
- I don't know if North Dakota's changeable weather would make me plant one variety over another. Next year I will sow several varieties.

Comments on 'Gazelle'

- Leaves grew quicker and larger faster. Darker, richer colored leaves. Higher producing variety; bright green appearance; flavorful.
- Seemed to get bigger leaves faster. Higher yields.
- 'Gazelle' sprouted more plants, and the plants grew faster and were larger.
- Extremely hardy with continued production after frosts and snow.
- Leaves were very dark green and puckered. Leaf was thicker but wonderful in taste.
- Bigger leaves. Better tasting.
- Darker green. Stronger spinach taste.
- Leaves are meatier.
- Produced the first yield. When growing a crop like spinach, the sooner I have an edible crop the better.
- Both germinated in 5 days. 'Gazelle' seemed to always look better. Its leaves were always bigger. The plant was larger and looked healthier.
- Germinated later but harvested earlier.
- Germinated fast. Fuller plants.
- Smoother leaved.
- Had blemishes on leaves while 'Olympia' was healthy. Its fresh leaves tasted bitter.
- Better germination. Better yields.
- Large, very thick, green leaves. Easy to clean. Tastier.
- Tasted better—less bitter—but there was not a whole lot of difference.
- Plants were a bit ahead. Flatter, larger leaves.
- Nice baby spinach—would try again. Better taste; tender greens.

More Comments on ‘Gazelle’

- Larger, darker leaves.
- Its flavor is milder and I like the shape of the leaves better.
- It seemed to have less pest pressure and held its quality a lot better in the field. ‘Gazelle’ had deeper green, shinier leaves. Its flavor was earthier; whereas ‘Olympia’ had a sweet, grassy flavor. I pick spinach a little bit at a time as I use it. ‘Gazelle’ stayed green and had fewer bad spots.
- Tasted great.
- These grew better but were not amazing. They were big enough to eat though. The plants were maybe 8 inches in diameter.
- Fared better with the limited rain we got in late summer and fall. It excelled when cold, dry weather arrived.
- I prefer its lighter texture; good flavor.
- Roundish-oval leaves. Nicely shaped. Pretty, dark green.
- It struggled in the open field but did well in my high tunnel. I watered every few days. It had slow germination and low vigor but later grew well. The leaves were darker green and tasted slightly better compared to ‘Olympia’.

Comments on ‘Olympia’

- Milder flavor. Germinated and grew better.
- Dark green leaves, smoother leaf. Its flavor was preferred by my test tasters.
- Huge leaves. Best producer. Tastes best. Still eating spinach on November 10!
- Germinated 4–5 days earlier than ‘Gazelle’. Leaves were smaller but more abundant. A milder, pleasant taste.
- Looks like savoy. Better germination. Quicker to mature.
- Germinated 20% better. I liked its lighter color. Much better flavor fresh; pleasant, mild flavor.
- Leaves were milder in taste and more tender. More leaves.
- Better germination and slightly higher yields.
- More rigorous growth; tolerated rabbit feeding better. Leaves were tougher but the flavor was better.

- Withstood the bunnies better and produced more yield.
- Larger leaves. Grew slower but good production. Very crispy texture.
- Near 100% germination.
- Germinated first.
- Germinated better; 20% more.
- Better spinach taste. More of a ‘green’ taste, although both were good.
- Produced better in this short season. Good in salads.
- ‘Olympia’ produced more at each picking.
- Healthier plants.
- The leaves have remained slightly smaller, which I prefer.
- Germinated and performed better. The leaves were bigger.
- Germinated much better. Produced much better early in the season.
- Heavier leaf and stronger taste.
- Germinated better. It flourished and produced.
- Excellent germination. Leaves were vibrant green and smooth. Taste was delicious but had some bitterness.
- ‘Olympia’ had the advantage of being ready slightly earlier than ‘Gazelle’. ‘Olympia’ started to turn yellow and get spots a lot sooner.
- More brown spots on the leaves compared to ‘Gazelle’.
- ‘Olympia’ had more leaf damage (I’m not sure what caused it). ‘Olympia’ seemed to get tougher as it got older.
- ‘Olympia’ had about 50% the germination and much, much slower growth. What did grow was yellow and looked sickly.

‘Olympia’ germinated better and had consistently good yields. Its leaves were mild and delicious.

Conclusions

‘Olympia’ always does well in our testing and this variety showed its reliability again in this fall trial. Germination of spinach can be tricky in fall plantings, and ‘Olympia’ excelled at this. The fuller stands led to good yields and more recommendations from gardeners. Most gardeners liked ‘Gazelle’. Its leaves were dark green, thick, and rich in flavor.

Squash, Dark Green Summer

Varieties

'Noche'

48 days. Dark green fruits are easy to harvest from open, spineless plants. High yields all summer.

'Raven'

48 days. Dark green, smooth, glossy fruit. Vines have an open habit. Big yields but harvest season is short.



Data

Data were collected at 7 sites in 2016.

Trait	Noche	Raven	Same
Germinated best	0%	86%	14%
Healthier plants	0	43	57
Harvested earlier	29	71	0
Higher yields	17	67	17
More attractive fruits	0	43	57
Tasted better	0	33	67
Preference	14	86	
Recommend	29	100	
Mean score ¹	7.43	9.14	
Median score ¹	8.00	10.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Our family split 50/50 between the varieties in our taste test.
- Both varieties grew well.
- Very similar. Yields were very plentiful! Veggies were yummy. Nice flavor. Best picked smaller.

Comments on 'Noche'

- Fruits got too big faster than desired.
- 'Noche' outproduced 'Raven' and seemed to have a thicker skin and resisted rotting better.

Comments on 'Raven'

- Overall better. Germinated better; had higher yields. We had more produce to sell at the farmers market.
- Fruits were small and tender.
- Even with hailstorms, 'Raven' continued to produce; although some fruits were deformed.

Conclusions

'Raven' is unsurpassed at producing a fast crop. This is a valuable trait in ND, where our growing season is cool and short. 'Raven' germinated better, matured earlier and produced more zucchini than 'Noche'. Gardeners appreciated its fruit quality, too. Every gardener recommended 'Raven'.

'Raven' matured earlier and produced loads of glossy fruits. Every gardener recommended it.

Best green zucchini varieties

Top choice
Raven

Strong performer
Spineless Beauty

Squash, Light Green Summer

Varieties

'Bossa Nova'

48 days. Dark and light green mottled zucchini. Compact vines bear early and prolifically to frost.

'Magda'

48 days. Blocky, pale green fruits are picked small for stuffing and stir fries. Sweet, nutty flavor.



Data

Data were collected at 9 sites in 2016.

Trait	Bossa Nova		
	Nova	Magda	Same
Germinated best	57%	43%	0%
Healthier plants	57	29	14
Harvested earlier	43	29	29
Higher yields	50	25	25
More attractive fruits	43	29	29
Tasted better	38	13	50
Preference	63	38	
Recommend	63	63	
Mean score ¹	8.13	7.13	
Median score ¹	9.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- You know summer squash: you can get many more than you would like but that is just fine. It was fun!

Comments on 'Bossa Nova'

- Liked the flavor better. Firmer texture.
- Best for frying.
- Produced vastly more. They were good fried, baked, and shredded for baked goods.
- It germinated first and it tasted good.

Comments on 'Magda'

- The young squash were more tender. 'Bossa Nova' had more robust flavor but we prefer the milder flavor of 'Magda'.
- Bigger plants. Produced lots of squash—could not keep up.
- Plants were twice the size. Twice the yield.
- Best for grating or soups.
- Grew healthier squash and produced more.
- Tasted nice.

Conclusions

'Bossa Nova' vines were healthy and produced an early, abundant harvest. Its fruits were attractive and flavorful. 'Magda' produced lots of tender, mild squash.

Both of these specialty varieties grew well and produced delicious squash.

Best specialty summer squash varieties

Top choice
Portofino

Strong performers
Bossa Nova
Green Tiger

Squash, Yellow Summer

Varieties

'Multipik'

50 days. Smooth, bright yellow fruits. No green streaking. Amazing yields. Great for grilling.

'Zephyr'

54 days. Yellow fruits with thin white streaks and distinctive green ends. Nutty flavor and firm texture.



Both varieties produced an amazing amount of squash. Gardeners preferred 'Zephyr' for its beauty, tenderness and flavor.

Data

Data were collected at 9 sites in 2016.

Trait	Multi-pik	Zephyr	Same
Germinated best	56%	0%	44%
Healthier plants	11	33	56
Harvested earlier	29	57	14
Higher yields	43	43	14
More attractive fruits	0	38	63
Tasted better	0	25	75
Preference	25	75	
Recommend	63	88	
Mean score ¹	7.71	8.14	
Median score ¹	8.00	9.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Once again, the yellow squash varieties amazed me this year in regards to yields, germination, and health of plants. We would highly recommend both of these varieties to ND gardeners. Both are great varieties in every aspect.
- Both grew well.
- I didn't notice a difference in taste. I mostly used them grilled with other vegetables. I liked them and I don't always like squash.

Comments on 'Multipik'

- 'Multipik' definitely lived up to its name. It continued to produce with regular harvesting, even after light frosts. The yield was impressive. Yielded better; excessive production!

- If you want a ton of summer squash, go with 'Multipik'.
- 'Multipik' was far and away the better producer. I would plant 'Multipik' again. Did very well for me. Lots of squash!

Comments on 'Zephyr'

- Very nice looking. Easy to cook. Nice flavor.
- The skin of 'Zephyr' stayed tender; 'Multipik' would get tough even when small if the sun hit it.
- The only reason we picked 'Zephyr' over 'Multipik' was because of the green tip at the end of the squash. We felt this was unique and attractive.
- Higher yield. Better taste.
- Much larger canopy. I did have a little blossom end rot on both varieties; less on 'Zephyr'.

Conclusions

Most gardeners preferred 'Zephyr'. It matured earlier and its unique, green-tipped fruits were more attractive. These fruits were tender, delicious and abundant. 'Multipik' got off to a strong start and produced an astounding amount of squash.

Best straightneck squash cultivars

Top choice
Zephyr

Strong performer
Multipik

Swiss Chard, Pink

Varieties

'Flamingo'

60 days. Hot pink stems topped by smooth and shiny green leaves. Very uniform.

'Magenta Sunset'

55 days. Vivid magenta stalks contrast with glossy, semi-smooth leaves. Tender and nutritious.



Data

Data were collected at 5 sites in 2016.

Trait	Flamingo	Magenta Sunset	Same
Germinated best	25%	50%	25%
Healthier plants	33	33	33
Harvested earlier	33	33	33
Higher yields	33	33	33
More attractive	67	33	0
Tasted better	0	33	67
Preference	67	33	
Recommend	100	67	
Mean score ¹	8.67	7.33	
Median score ¹	9.00	7.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both grew very well.
- Both tasted great.
- Bunny attack; worst in our 8 years of gardening.

Comments on 'Flamingo'

- Stayed shorter and looked better. Prettier pink stalks.
- Plants were stronger, healthier.

Comments on 'Magenta Sunset'

- Liked the taste and size of the stalks better.
- Grew taller.
- Several plants bolted right away.

Conclusions

Most gardeners thought 'Flamingo' looked more attractive and every gardener recommended it. 'Magenta Sunset' grew well, matching or outperforming 'Flamingo' for all other traits including health, earliness, yield and taste.

All gardeners recommended 'Flamingo.' Its hot pink stems and glossy green leaves looked beautiful.

Best pink Swiss chard

Top choice
Flamingo

Strong performer
Magenta Sunset

Swiss Chard, Red

Varieties

'Intense'

60 days. Bright red stems with dark green leaves. Very uniform. Good for baby greens and bunching.

'Rhubarb'

60 days. Leading variety for baby greens and bunching. Red stems with dark green, red-veined leaves.



Data

Data were collected at 4 sites in 2016.

Trait	Intense	Rhubarb	Same
Germinated best	25%	25%	50%
Healthier plants	25	50	25
Harvested earlier	50	25	25
Higher yields	25	25	50
More attractive	25	75	0
Tasted better	0	50	50
Preference	25	75	
Recommend	75	100	
Mean score ¹	6.75	8.75	
Median score ¹	8.00	8.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both germinated very well. Both performed equally well.

Comments on 'Intense'

- Enjoyed both varieties. 'Intense' gave me a better harvest.
- It had a greater tendency to bolt.
- Had some green plants that were larger than its red plants. Bolted quite easily; 'Rhubarb' did not bolt. It was ready to harvest a few weeks earlier.
- Most of 'Intense' did not germinate.

Comments on 'Rhubarb'

- Survived better and yielded first. Plants were beautiful, crisp and delicious. After the first batch was picked, they kept growing again and replenishing. Very hardy.
- More uniform leaves. Never bolted and still harvesting in late September.
- Prettier leaf, more red.

Conclusions

Our testing is limited, but 'Rhubarb' showed why it is the standard red-stem Sweet chard. Its plants were healthy and resisted bolting. The harvested leaves were beautiful, crisp and delicious. Gardeners liked 'Intense' but not as much as 'Rhubarb'. 'Intense' showed a greater tendency to bolt.

'Rhubarb'
plants were
prettier, more
uniform, and
resisted
bolting.

**Best red
Swiss chard
variety**

Top choice
Rhubarb

Turnip (Fall)

Varieties

'Hakurei'

38 days. Salad turnip with flat, round, 2-inch roots. The pure white roots are crisp and sweet. A popular hybrid in Asia.

'Purple Top White Globe'

50 days. The standard American turnip. Smooth, round, 4-inch roots are white below the soil line and bright purple above.



Data

Data were collected at 40 sites in 2016.

Trait	Purple Top		
	Hakurei	WG	Same
Germinated best	18%	42%	39%
Healthier plants	21	43	36
Harvested earlier	55	36	9
Higher yields	48	40	12
More attractive roots	50	33	17
Tasted better	65	20	15
Preference	62	38	
Recommend	72	32	
Mean score ¹	6.38	5.21	
Median score ¹	6.00	6.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Good germination. Healthy plants. Tasted really good. They took the frost really well in my garden.
- Fall turnips are a good crop to lengthen out the growing season and bring more produce to the table.
- Both close to 100% germination.
- Thick and very healthy plants. I would not plant turnips again; haven't found a great way to use them.
- Plants looked good above soil. Neither yielded. Sown on August 16 and harvested October 8. The roots were only the size of marbles. Sad.
- Plants were similar looking.
- Both germinated well (80–90%).
- Both varieties were easy to grow.

- Turnips were the same size.
- Not enough of a growing season to do a decent comparison. Their tastes were two distinct flavors; I liked both.
- Both varieties had a lot of flea beetle damage shortly after germination. They looked pretty bad and the largest root I could find at the end of October was about the diameter of my thumb.
- Neither produced to full size (sown August 20).
- Poor germination. Adjacent radish and beans germinated fine.
- I don't think I will try raising turnips in the fall. I don't think they produced enough to make it worthwhile. When my sons plant radishes and turnips as part of a cover crop, they bring in some of both for us to eat and they are huge and mild.

Comments on 'Hakurei'

- Produced roots the size of a golf ball in 37 days. Tasted very good.
- Leaves were more compact and deeper green. Roots matured at least one week earlier. Roots were beautiful white color and uniform. Nice sweet flavor—loved it! Delicious! Mild and sweet flavor.
- Few seeds germinated, but it had the best turnips. Smooth roots needed no peeling. Mild and tasty.
- 'Hakurei' had a very sweet taste. Faster growing.
- 'Hakurei' produced 20 times more yield. Roots were the size of a golf ball. Sweeter taste.

Gardeners were delighted with the sweet, mild flavor of 'Hakurei'.

Best turnip varieties

Top choice
Hakurei

Strong performer
Purple Top
White
Globe

The plants of 'Purple Top White Globe' grew vigorously but were slower to mature. Yields were inconsistent.

More Comments on 'Hakurei'

- I liked its taste more. Very nice.
- Its skin was thin and did not have to be removed before eating. Sweeter, nonlingering taste.
- Larger yields. Nice, white and round. Not much flavor at all.
- Loved the golf ball-sized, white turnips popping out of the soil. I didn't notice that until I moved the leaves away. Just pulled them up! Very yummy; thinly sliced in my fall spinach salad. Tasted like a radish but milder and sweeter.
- More plants.
- It produced small, tender, tasty turnips.
- 'Hakurei' had better tasting roots. Its plants were a little bigger and more uniform than those of 'Purple Top White Globe.'
- Better yield and earlier.
- Its greens were more attractive.
- Did better than 'Purple Top White Globe' but not great.
- Have never grown turnips before. 'Hakurei' is much fuller in size; similar to a larger radish. Would be great for soups. I would certainly choose 'Hakurei'.
- I like its round shape. Tasted great; sweet. Thin skin.
- Roots were quite small. Slugs liked them better.
- 'Hakurei' was very bitter and slow growing.

Comments on 'Purple Top White Globe'

- Its roots were more attractive for the kids.
- Wonderful flavor.
- Bigger, stronger plants.
- Healthier plants; more vigorous growth; higher yields.
- Produced very few turnips large enough to use. Never fully matured (sown August 12).
- Only 25% of roots were big enough to eat.
- Did not develop enough (sown August 14). Just little stringy roots.
- It survived in my garden whereas the

other did not produce at all.

- Long and skinny roots—lots of top growth but not much on the bottom to use in the short season.
- It formed numerous small roots along the side of the bulb. The skin needs to be removed before eating.
- Germinated slightly better, but the plants died soon after.
- Near 100% germination. It appeared to grow better in a rough, compacted, dry environment.
- Roasted nicely; 'Hakurei' just got soft without browning.
- This plant grew larger. Maybe if there had been a little more time it would have grown a bit bigger. It's still out there doing pretty good now but its really too small to eat.
- Ok taste; had a lingering taste.
- Better germination (73 vs. 51% for 'Hakurei'). More, thicker growth of greens. Better production.
- With the exception of just a few plants 'Purple Top White Globe' produced only thin long roots, largely unusable for harvest. We don't believe it is a suitable fall-planted turnip (sown August 15).

Conclusions

'Hakurei' matured quickly and produced higher yields. Its pure white roots looked like golf balls. Gardeners were delighted with its sweet, mild flavor. 'Purple Top White Globe' grew vigorously but often did not mature in time. Most gardens were sown in mid-August. We had a warm fall, but we need to sow earlier.

Gladiolus, Orange

Varieties

‘Peter Pears’

Deep apricot-orange with red centers.

‘Sun Kissed’

Bright orange florets with a splash of yellow.



Data

Data were collected at 12 sites in 2016.

Trait	Peter Pears	Sun Kissed	Same
Germinated best	9%	9%	82%
Healthier plants	0	36	64
Bloomed earlier	55	9	36
More blooms	45	45	9
Prettier in garden	18	45	36
Better cut flower	18	27	55
Preference	50	50	
Recommend	73	91	
Mean score ¹	7.90	8.10	
Median score ¹	8.00	8.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Both were healthy. They bloomed at the same time—large and beautiful. Excellent color. Will replant next year.
- Germinated slowly. Bloomed in late August. Each corm produced three stalks. Lasted well as cut flowers.
- Surprising how both varieties came back after a bad hailstorm.
- All corms emerged. Plants turned yellow and didn’t produce flower stalks.

Comments on ‘Peter Pears’

- Bloomed at least a week earlier. Produced a small second stalk of flowers. Peachy or sherbet-colored blooms. Soft color with brighter centers. Gorgeous!
- Nice, straight stems. Stems are stronger and hold up better in our ND winds. Larger blooms. Prettier color.
- Very sturdy stems and a beautiful pale orange color.

- I preferred the pastel orange over the darker. Its flowers were subtle and pretty.
- Had a second smaller shoot, which led to more flowers.
- Big blooms.
- Did not tolerate heat very well; some turned brown and two died.
- The health of its leaves declined rapidly after harvesting the flower spikes. Only one corm could be saved.

Comments on ‘Sun Kissed’

- Lasted into mid-September. Several corms produced more than one spike. This is a tall plant and would look great at the back of a border. Overall better-looking. Lovely flowers and long lasting.
- Taller stalks with more flowers. Brighter orange; faded more to yellow.
- A dark vibrant orange color.
- ‘Sun Kissed’ is a much showier flower and has an outstanding color. As a cut flower, they garnered many compliments from guests we had at a fall gathering.
- More blooms. Flowers were absolutely beautiful! Every plant bloomed.
- Lasted longer. Colors were beautiful.

Conclusions

Gardeners liked both varieties. The flowers of ‘Sun Kissed’ were vibrant, showy and long lasting. Its stalks were notably vigorous and healthy. ‘Peter Pears’ bloomed earlier. Gardeners appreciated its sturdy spikes and its softer orange color.

The flowers of ‘Sun Kissed’ were vibrant, showy and long lasting. ‘Peter Pears’ bloomed earlier and had sturdy stalks.

Best orange gladiolus varieties

Top choice
Sun Kissed

Strong performer
Peter Pears

Gladiolus, Orange/Yellow

Varieties

'Fiesta'

Small yellow florets edged in blazing orange.

'Olympic Flame'

Peachy orange with yellow throats.

Data

Data were collected at 22 sites in 2016.

Trait	Olympic		
	Fiesta	Flame	Same
Germinated best	18%	27%	55%
Healthier plants	28	28	44
Bloomed earlier	0	79	21
More blooms	44	33	22
Prettier in garden	42	37	21
Better cut flower	35	24	41
Preference	53	47	
Recommend	74	74	
Mean score ¹	8.06	8.11	
Median score ¹	9.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

'Fiesta' blooms were small but vibrant. The blooms of 'Olympic Flame' were large and enchanting.

General Comments

- The colors were beautiful and crisp. The flower spikes stood up nicely.
- Loved growing these!
- Both are attractive; just different!
- Great in the garden and for bouquets.
- Both varieties grew too tall (they were on the east side of a cedar slat fence) before the flowers bloomed most of them were falling down.
- The planting failed in our windy spot.

Comments on 'Fiesta'

- More blooms and longer lasting. Although their flowers tended to be a little smaller, their color was lovely.
- Several double flower spikes. Vibrant colors; exciting. Had a few extra flowers.
- Bloomed after 'Olympic Flame' was done. Flowers were small and very dainty. Its texture looked different next to the rest of the flowers.



- It is prettier. I like the two-tone look.
- It was prettier.
- It is still producing blooms. I loved the multi-color in the blooms.
- An all-around better plant.
- Healthier plants and more blooms.
- They were beautiful. It gives more flowers and they stick out.

Comments on 'Olympic Flame'

- First bloom was on August 1, 6 days earlier than 'Fiesta'. Larger flowers. Very nice, orange/pink/yellow flowers. Peaceful, relaxing large flowers.
- I like its coloring. The flowers were larger and had deeper color.
- Muted shades of orange ... very pretty.
- Bloomed 2 weeks earlier.
- The spikes started to look a bit straggly about halfway through the season.
- Nicer, fuller flowers.
- Larger blooms.
- Its blooms were beautiful but did not last as long.
- About half of stalks dried up before blooms formed. First bloom was August 27. Larger blooms.

Conclusions

Most gardeners recommended both varieties. 'Fiesta' blooms were smaller but brighter. Its plants were healthy and grew consistently well across sites. Gardeners were enchanted by the subtle peach and yellow blossoms of 'Olympic Flame'. It bloomed 1 to 2 weeks earlier.

**Best orange/
yellow
gladiolus
varieties**

Top choice
Fiesta

Strong performer
Olympic
Flame

Gladiolus, Pink

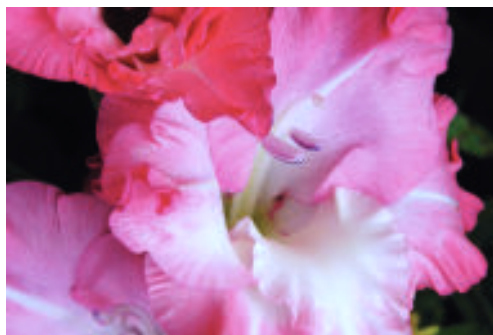
Varieties

‘Chit Chat’

Pink florets with darker pink throats. Note: we substituted ‘Chit Chat’ for ‘Captiva’ after receiving inferior corms of that variety.

‘Pink Event’

Rose pink with white throats.



Data

Data were collected at 21 sites in 2016.

Trait	Chit Chat	Pink Event	Same
Germinated best	11%	5%	84%
Healthier plants	33	0	67
Bloomed earlier	17	78	6
More blooms	27	20	53
Prettier in garden	29	41	29
Better cut flower	13	19	69
Preference	47	53	
Recommend	100	83	
Mean score ¹	8.06	8.41	
Median score ¹	8.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Plants had tall and thick blades—deep green. Strong, vigorous growth. The blooms were striking.
- Both produced nice full stalks of blossoms. I really enjoyed both varieties. Beautiful blossoms.
- Both varieties had beautiful flowers; gorgeous when cut.

Comments on ‘Chit Chat’

- ‘Chit Chat’ was more attractive and was a stronger plant. More brilliant color.
- I liked its two-tone look better than one solid color.
- I enjoyed its blossoms a little more ... pretty white detail!
- A much better flower. Did much better in the garden.
- Hardier stalks.

- Nice, healthy stalks.
- Every corm came up, but only a few of ‘Pink Event’ did. Plants were healthier.
- Long stalks with more flowers. Blooms had more shades of pink.
- Beautiful long stalks of blooms.

Comments on ‘Pink Event’

- These gems won me a first place at the local garden show. They are so pretty! Spectacular! Velvet, pure, deep pink!
- It is so pretty!
- They were both attractive but ‘Pink Event’ is prettier.
- Personal choice: I like the light yellow throats of ‘Pink Event’.
- Blossoms opened more uniformly, so really was eye-catching.
- Bloomed first, on August 17. Not all plants bloomed; they did not do as well.
- Some stalks died before blooming. Bloomed almost 2 weeks earlier. Blooms were a solid, warm pink. Beautiful—wow. So cool! It was not as healthy as ‘Chit Chat’, but it had the “wow” factor.
- Some plants appeared to be diseased as a few did not flower, as leaves died early.
- ‘Pink Event’ fell during heavy rains.

Conclusions

Every gardener liked and recommended ‘Chit Chat’. It was healthy and sturdy. Gardeners fell in love with the soft, velvety beauty of ‘Pink Event’ blossoms. It had the “wow factor.” This variety bloomed earlier but was more susceptible to disease.

Gardeners appreciated the reliability of ‘Chit Chat’ and were awed by the beauty of ‘Pink Event’.

Best pink gladiolus varieties

Top choice
Pink Event

Strong performer
Chit Chat

Gladiolus, Plum

Varieties

'Fun Time'

Buttery yellow florets with margins of rose-plum.

'Plum Tart'

Dark purplish wine.

Data

Data were collected at 30 sites in 2016.

Trait	Fun Time	Plum Tart	Same
Germinated best	7%	19%	74%
Healthier plants	8	35	58
Bloomed earlier	41	45	14
More blooms	17	42	42
Prettier in garden	32	28	40
Better cut flower	8	8	83
Preference	46	54	
Recommend	88	88	
Mean score ¹	7.48	8.04	
Median score ¹	8.00	8.00	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Beautiful long stems with lots of flowers! We couldn't decide which was best as they were both so beautiful; made great arrangements! Was fun to have them grow in my flower bed!
- All bulbs came up well in the spring. Both were beautiful, gorgeous and very productive. Both produced lots of corms and cormlets for next year.
- These are beautiful! Wow, these were stunners.
- These glads were beautiful in bouquets!
- Nice and straight in growth.
- All came up. All were healthy. Both were attractive, just different!
- Both looked good.
- Both were very pretty!
- Both were very attractive; both germinated very well. This was our first time growing gladiolus in the garden. We



loved them; they produced well and were an excellent cut flower! I was surprised to see two stalks grow out of some of the corms, mostly from the 'Fun Time'. They lasted quite a long time in the garden.

- They were both very nice and had 100% germination. Blossoms were beautiful but smaller than some other varieties.
- They both resisted the frosts we had but that may be due to being along a south wall of the house.
- These were my favorite gladiolus.
- These are both beautiful glads. They were cluster planted in an old washtub. They are beautiful together.
- They both did well in a vase.
- Both produced poorly and neither had blooms. I don't know if it was because we were drier this year and it was harder to stay ahead of the watering but both varieties produced poorly.

Comments on 'Fun Time'

- Loved the two-tone blooms.
- 'Fun Time' was so beautiful. It was such a happy color.
- Our 10-year-old daughter liked the bit of yellow in 'Fun Time'; it made the color pop. Its color was brighter.
- I liked the color better and it kept its flowers longer.
- I absolutely love the bicolor of 'Fun Time' but with the smaller blossoms they weren't as much of a statement in the garden when compared to 'Plum Tart'.

The touch of yellow in the 'Fun Time' blooms made the colors pop.

Best plum gladiolus varieties

Top choice
Plum Tart

Strong performers
Fun Time
Sugar Plum

More Comments on ‘Fun Time’

- I prefer its bloom coloring.
- Liked the bicolor blooms.
- Bloomed first, on September 3.
- Much earlier blooming.
- Pretty and unusual.
- Bloomed earlier and more colorful.
- Beautiful flowers, but the stalks were not strong and broke off in the wind.
- Produced a few more flowers.
- Taller stems. Loved the yellow and burgundy flowers.
- Stalks were smaller and did not require staking.
- Stalks were really small and grew in every direction. Brought color to the garden! They were first to bloom! Plants were petite and didn’t produce much.
- Pretty but didn’t produce as many.
- Bloomed longer.
- Looked like it had a disease—did not look attractive.

Comments on ‘Plum Tart’

- Stalks grew straight as an arrow—strong. Big and tall! So many blooms on such a tall spike. The color was astonishing! Pure. Silky! Brilliant! They stayed around a bit longer as well.
- Beautiful, full, rich-colored flowers. Stayed great even after cutting.
- Bigger flowers.
- So pretty!
- I liked the color better.
- Larger blooms, more flowers and sturdier stems. Better overall plant. Straight stems.
- Longer flower stems with more blooms.

- An amazing cut flower; I put them on the altar every week at church and people took pictures of them.
- Had seven double-spiked plants; ‘Fun Time’ had no doubles but one triple.
- Plants looked better and bloomed 2 weeks earlier. Blooms were nice in size and bloomed all the way to the top of the spike.
- Longer flower spikes. Beautiful color.
- First up. More double plants resulting in more flowers. Corms produced more and larger corms and cormlets for next year. Beautiful deep plum color.
- ‘Plum Tart’ had larger blossoms and more blossoms per stem. I would recommend staking.
- ‘Plum Tart’ lasted longer as a cut flower since there were more buds per stem. The flowers were larger and more visible as I drove into my driveway and they had more blossoms.
- ‘Plum Tart’ had lots of flowers and was a very deep color.
- The plants were somewhat healthier.
- Bigger flowers.
- Bloomed much later.

Conclusions

This trial generated the most comments and enthusiasm from our flower gardeners. The touch of yellow in the ‘Fun Time’ blooms made the colors pop. The flowers were bright and “happy.” The rich, silky colors and large blooms of ‘Plum Tart’ made a greater statement. Its stems were long and filled with brilliance.

The rich, silky colors of ‘Plum Tart’ made a strong statement. Its spikes were long and filled with brilliance.

Gladiolus, Red

Varieties

'Rapid Red'

Large, bright cherry-red florets.

'Sparkler'

Striking red with yellow centers.

Data

Data were collected at 13 sites in 2016.

**The yellow/red
'Sparkler'
bloomed
earlier,
bloomed more
abundantly
and was
showier in the
garden.**

Trait	Rapid		
	Red	Sparkler	Same
Germinated best	11%	22%	67%
Healthier plants	33	33	33
Bloomed earlier	33	67	0
More blooms	20	60	20
Prettier in garden	30	50	20
Better cut flower	20	30	50
Preference	45	55	
Recommend	73	73	
Mean score ¹	7.09	7.18	
Median score ¹	8.00	8.00	

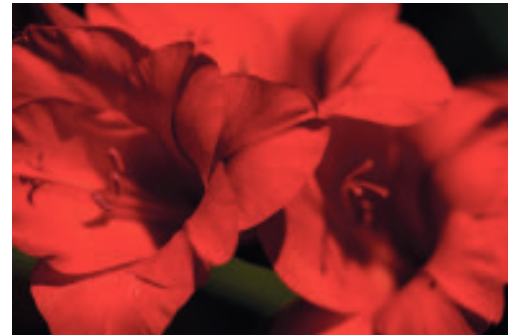
¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- Great cut flowers.
- Both varieties germinated at 100%. The glads did bloom for a long time. They were beautiful cut flowers.
- Germinated well and looked healthy.
- Both very good and pretty.

Comments on 'Rapid Red'

- Came up first in my garden and was more abundant. The flowers held their vivid color longer.
- Larger and stronger stems.
- The red was so beautiful.
- Vibrant red.
- I love bicolor varieties, but the bright red color of 'Rapid Red' really stood out.
- Prettier flowers, but fewer of them.
- The only one that produced flowers and the blooms were gorgeous. Tons of red flowers! Very pretty both in garden and in a vase.



- Taller and was affected more by wind.
- Several plants died before blooming. I liked the red color.

Comments on 'Sparkler'

- Loved the unique bicolor look.
- Almost done blooming before 'Rapid Red' started. Some plants had a second stalk. Stems were straighter. Much healthier plant. The flowers were beautiful and healthy, but I would not consider it red.
- Bloomed 2 weeks earlier but it is a yellow gladiolus.
- Produced more flowers, but they were yellow.
- Its leaves fanned out more which the girls thought was prettier. More flowers.
- Thicker leaves. Loved the yellow and red. Larger, healthier bulbs at fall dig up.
- Plants were more adaptable to our harsh soil.
- Germinated but never formed flower buds.

Conclusions

'Sparkler' was reported to be a red gladiolus with yellow accents; however it was more like a yellow gladiolus with red accents. Nevertheless, it bloomed earlier and more abundantly than 'Rapid Red'. It was showier in the garden. 'Rapid Red' had sturdy spikes and vibrant red blooms. Both varieties performed well as cut flowers.

**Best red
gladiolus
varieties**

Top choice
Flora Red

Gladiolus, Rose

Varieties

‘Chit Chat’

Pink florets with darker pink throats.

‘Priscilla’

Rose with yellow throats.



Data

Data were collected at 17 sites in 2016.

Trait	Chit		
	Chat	Priscilla	Same
Germinated best	0%	29%	71%
Healthier plants	15	15	69
Bloomed earlier	7	93	0
More blooms	23	46	31
Prettier in garden	42	42	17
Better cut flower	25	0	75
Preference	50	50	
Recommend	100	95	
Mean score ¹	8.67	8.42	
Median score ¹	9.00	8.50	

¹Rated from 1 to 10; 1 = poor and 10 = excellent.

General Comments

- These are so amazing; I love the colors and got a lot of compliments on them from people. I loved them both.
- Both varieties were healthy and produced wonderful cut flowers.
- Both were very attractive cut flowers.
- Both had 100% germination. Healthy.
- All came up and produced! Both had about 12 flowers per spike.
- Both gladiolus varieties were healthy and produced wonderful cut flowers.

Comments on ‘Chit Chat’

- ‘Chit Chat’ was more attractive to me because of the variety of color.
- More vibrant. Our kids all thought its vibrancy was much more appealing.
- I preferred the darker pink shade of its blooms.
- My children preferred ‘Chit Chat’. They liked its colors.

- My young daughter liked it because it was bright pink with white speckles.
- ‘Chit Chat’ bloomed later and past the first frosts.
- I liked its color more. Sturdier stems. Its single stem flowers are easier to cut than the multiple stems of ‘Priscilla’.
- Had six doubles; ‘Priscilla’ did not.
- The blooms did not open up nice. More sensitive to winds.

Comments on ‘Priscilla’

- ‘Priscilla’ had a more interesting coloring and bloomed 3 weeks earlier.
- Prettier flowers.
- Bloomed 2 weeks earlier. Double stems. Duller blooms.
- Bloomed 2 weeks earlier.
- Produced more blooms.
- Loved the color.
- I like the color better and I liked that they bloomed earlier. The ones that bloomed earliest sent up new shoots later in the season and bloom again.
- Blooms were mostly white with the rose outside rim.
- More and longer lasting flowers.
- Every corm came up. Looked great in the garden. Very pretty.

Conclusions

Gardeners gave very high ratings to both varieties. ‘Chit Chat’ performed well at all sites and was recommended by all gardeners. ‘Priscilla’ bloomed first and its flowers were large, lovely and abundant.

‘Chit Chat was recommended by all gardeners. ‘Priscilla’ bloomed earlier and its flowers were lovely.

Best rose gladiolus varieties

Top choice
Priscilla

Strong performers
Chit Chat
Wine and Roses

Appendix 1

Welcome Letter

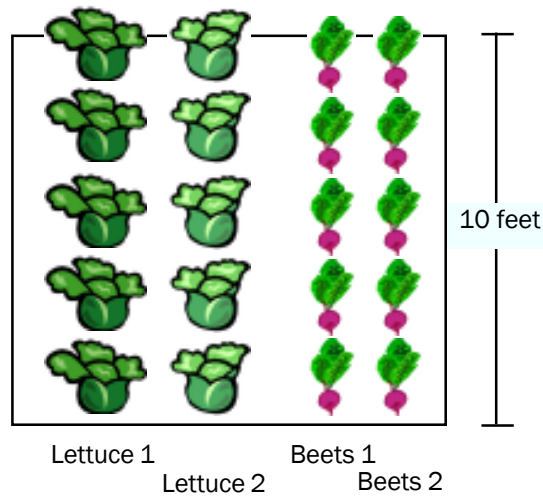
Spring 2016

NDSU EXTENSION SERVICE

Dear Gardener,

Welcome to our research team! It will be fun to work with you this summer. Enclosed are the seeds you ordered. If you are missing anything, please let me know. Let's go over some key points:

1. Each trial compares two varieties. **You must plant both varieties.**
2. To make it a fair comparison, you need to **treat both varieties in the same manner.** They should get the same amount of sunlight and general care (watering and fertilizing).
3. We want to see how these varieties perform under real-life home garden situations. The seed packets have instructions on how to sow your seeds, but you may **use your own gardening practices.** For example, I sow my cucumber seeds in a row but you can plant them in hills if you wish. It's up to you.
4. When possible, **grow the varieties for each trial in rows next to each other.** You have enough seeds to grow at least 10 feet of each variety. To make it easier for you, I've enclosed a row marker with string. There is a 10-foot space between the two marks on the string. It's okay if you don't have enough space for 10-foot rows, but try to get a fair look at both varieties.
5. **Use the plot labels** that are enclosed. This will help you remember which variety is which. I strongly encourage you to **make a plot diagram after you are done planting** for your future reference in case the plot labels get removed accidentally (this happens a lot with kids in the garden).
6. An example of a completed evaluation form is enclosed. Use this as a guide to help you when evaluating the varieties in your trials.



- Let me know if you have any questions. I'll be happy to help.**
- Sincerely,

Thomas J. Kalb, II

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Welcome to our research team!

More info

Go to the ND Home Garden Variety Trials website: www.ag.ndsu.edu/homegarden/varietytrials/

Appendix 2

Example of Evaluation Form

Cantaloupe Variety Trial

Trial #00

Gardener Name: Jenny Gardener

County: Golden Valley

Date Sown: May 30

Which variety?	Apollo	Zeus	Same	Comments
Germinated best?		X		Both had near 100% germination, but Zeus seedlings showed more vigor
Had healthier plants?		X		Apollo vines turned gray in fall
Produced the first ripe melons?	X			Three days earlier than Zeus
Produced higher yields?		X		Zeus produced 10 good melons; Apollo produced only 6
Had more attractive melons?		X		Zeus had larger fruits and brighter orange flesh
Tasted better?		X		Zeus was heavenly; Apollo was not quite as sweet

Overall Performance Rating	Apollo	Zeus
Rate each variety on a scale of 1 to 10, with 1 = poor and 5 = good and 10 = excellent. Don't give both a "10". Be very critical!	5	9

Preference	
Circle the variety you prefer. Don't circle both—make a choice!	Apollo Zeus
Please state the reason(s) for your preference: <i>Zeus was outstanding. Good yields of large, sweet fruits. The vines looked healthy all summer. Apollo ripened early, but the vines were weak and the melons tasted bland.</i>	

Recommendation
Circle the varieties you recommend for North Dakota gardeners: Apollo Zeus Both Neither

Please write any additional comments on back. They are very helpful!

Appendix 3

Seed Sources



The following are a few sources where seeds and corms of the varieties tested in 2016 may be found. This list is not meant to be a complete list; many other seed companies offer these varieties. The information given herein is for educational purposes only. References to a company are made with the understanding that no discrimination is intended and no endorsement by the North Dakota State University Extension Service is implied.

Key:

Bk = Baker Creek	Bu = Burpee	Fe = Fedco	Gu = Gurney's
Ha = Harris	HF = Henry Field's	HP = HPS	Jh = Johnny's
Jr = Jordan	Ju = Jung	Kz = Kitazawa	MV = Mtn Valley
MZ = Maclure & Zim.	Na = Nagel's	NE = NE	Os = Osborne
Pa = Park	Pi = Pinetree	PR = Prairie Road	Re = Reimer
SS = Seed Savers	St = Stokes	Sw = Swallowtail	Te = Territorial
Vr = Vermont Bean	Vs = Veseys		

BEAN. Bush Blue Lake 274: Bk, Bu, Fe, Gu, Ha, HF, HP, Jr, MV, NE, Os, Pa, Pi, Re, St, Vr. **Provider:** Bu, Fe, Gu, Ha, HP, Jh, Jr, MV, NE, Pa, Pi, Re, SS, St, Sw, Te, Vr, Vs. **Crockett:** Ha, Os, Te, Vr. **Serengeti:** Pi, Vr. **Purple Queen Improved:** Gu, Ju, Vr. **Royal Burgundy:** Fe, HF, Jh, Jr, Ju, MV, NE, Os, Pi, Re, St, Te, Vs. **Fortex:** Fe, HP, Jh, Ju, Pi, Sw, Te, Vr. **Monte Cristo:** Te. **Emperor:** NE, Os, Te. **Lady Di:** Te. **Envy:** Bk, Jh, Pi, SS; **Tohya:** Gu, Jh, Kz, Os.

BEET. Boldor: Fe, Gu, Jh, Te, Vs. **Touchstone Gold:** Fe, Gu, Ha, Jh, Os, Pa, Pi, St, Sw, Te. **Early Wonder Tall Top:** Bk, Bu, Fe, HP, Jh, Jr, MV, Pi, Re, Te. **Red Ace:** Fe, Ha, Jh, Jr, Ju, MV, NE, Os, Pa, Pi, Re, St, Sw, Te, Vr, Vs. **Albino:** Bk, Bu, Fe, Jr, Ju, Re. **Avalanche:** Bu, Gu, Ha, Jh, Ju, Pa, Re, Te, Vs.

CARROT. Caracas: Bu, Jh, Ju, Vs. **Cumbre:** Os. **Goldfinger:** Ha, Os, St, Vs. **Yaya:** Bu, Fe, Gu, Jh, Ju, Pa, Te, Vr, Vs. **Bolero:** Jh, Ju, Os, St, Sw, Te, Vr, Vs. **Romance:** Jh, Pa, St, Te.

CORN. Allure: Ha, Jh, Jr, St, Te, Vs. **Ambrosia:** Bu, Fe, HP, Jr, MV, NE, Re, Vr. **SS2742:** Jh, Vr. **XTH20173:** Jh, Jr, Os, St. **Sugar Pearl:** Fe, Jh, Ju, Os. **Whiteout:** Ha, Os, Re. **Bodacious:** Fe, Gu, HF, HP, Jr, Ju,

MV, Os, Pa, Re, Sw, Te, Vr. **Jubilee:** HP, Jr, Ju, MV, Os, Re, Te.

CUCUMBER. Summer Dance: Bu, Kz, Os, Te, Vr, Vs. **Tasty Green:** Gu, HF, HP, Jr, Ju, Kz, MV, NE, Os, Pa, Re, St, Vr, Vs. **H-19 Little Leaf:** Fe, Jh, Ju, Re, Sw. **Homemade Pickles:** HP, Jr, Ju, NE, Pa, Pi, PR, Re, Sw, Te, Vr. **Dasher II:** Ha, Jr, NE, Re, St, Vr. **General Lee:** Fe, Ha, Jh, Jr, Re, Te. **Mercury:** Os, Vs. **Muncher:** Bk, HP, Ju, MV, Re. **Salt and Pepper:** HF, JH, Sw. **Silver Slicer:** Fe, Ha.

LETTUCE. Starfighter: Jh, Os. **Tropicana:** Gu, HF, Jh, Os. **Fusion:** Jh. **Green Forest:** Jh, Re, Vs.

MELON. Athena: Fe, Gu, Ha, HF, HP, Jh, Jr, Ju, MV, NE, Os, Pa, Pi, St, Te. **Superstar:** Gu, Ha, Jr, Ju. **Arava:** Fe, Jh. **Passport:** Ha, Re, St. **Lambkin:** Ha, HP, Jh, Pa, St, Te. **San Juan:** Jh, NE.

OKRA. Clemson Spineless: Bk, Bu, Ha, HP, MV, NE, Os, Pa, Pi, SS, Sw. **Jambalaya:** HP, Ju, Kz, NE, Os, Pa, Pi, Te, Vr, Vs.

PEA. Lincoln: Bk, Bu, Fe, Gu, H, Jr, Ju, MV, NE, Pa, Pi, Re, St, Te, Vr. **Sabre:** Ju, St, Vs. **Avalanche:** Gu, Ha, Jh, Ju. **Sweet Horizon:** Os, Te.

Seed Sources (continued)

PUMPKIN. **Cargo:** Jh, Ju. **Magic Lantern:** Ha, Jr, Ju, Os, St, Te, Vr, Vs. **Big Max:** Bk, Bu, Fe, Gu, HF, Jr, MV, NE, Re. **Big Moose:** Ha, Jh, Os, St, Te. **Captain Jack:** Ha, Os, Pa, Vs. **Howden Biggie:** Ha, Jr, Ju, MV, Os, Re, St. **Knuckle Head:** Jr, Ju, Os, St, Te, Vs. **Warty Goblin:** Ju, Os, St.

RADISH. **D'Avignon:** Bu, Jh, Sw. **French Breakfast:** Bk, Bu, Fe, Gu, Ha, HF, HP, Jr, Ju, Kz, MV, NE, Os, Pi, Re, SS, St, Te, Vr, Vs. **Cherry Belle:** Bu, Fe, Gu, Ha, HF, HP, Jr, Ju, MV, Pi, Re, St, Te, Vr. **Roxanne:** Pa, St, Te, Ve.

SPINACH. **Bloomsdale Long Standing:** Bk, Fe, Gu, HF, HP, Jh, Jr, Ju, MV, Os, Pi, Re, SS, St, Te, Vr. **Emperor:** Jh. **Olympia:** Fe, Gu, Ha, Ju, Os, Sw, Te. **Toucan:** Os. **Gazelle:** Jh.

SQUASH. **Noche:** Jh, Os, St. **Raven:** Fe, Jh, Pa, Pi, Te. **Bossa Nova:** HP. **Magda:** Jh, Os, Pa, Pi, Vs. **Multipik:** Gu, Ha, Jh, Jr; **Zephyr:** Fe, Gu, Jh, Pi.

SWISS CHARD. **Flamingo:** Bk, Os. **Magenta Sunset:** Jh, Kz, MV, Os, Re. **Intense:** Os. **Rhubarb:** Fe, Ha, Jh, Jr, MV, NE, Os, Pi, SS, St, Te, Vr, Vs.

TURNIP. **Hakurei:** Jh, Kz, Os. **Purple Top White Globe:** Bk, Bu, Fe, Gu, Ha, HF, HP, Jh, Jr, Ju, Kz, MV, NE, Os, Pi, Re, SS, St, Te, Vr.

GLADIOLUS. **Peter Pears:** Na, Pi. **Sun Kissed:** Ha, Ju, MZ, Na, Pi. **Fiesta:** Na. **Olympic Flame:** Ju, Na. **Chit Chat:** Ha, Ju, Na, Pi. **Pink Event:** Unknown. **Fun Time:** Ha, Ju, Na. **Plum Tart:** Na, Pi. **Rapid Red:** Unknown. **Sparkler:** Unknown. **Priscilla:** Ha, Na, Pi.



Appendix 4

Acknowledgements

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Variety Descriptions

This is an academic report published for educational purposes only. The author gratefully acknowledges the sources of the descriptions of the varieties tested in this project: Fedco Seeds, Harris Seeds, Horticultural Products and Services, Kitazawa Seed, Johnny's Selected Seeds, Jung Seed, Osborne Seed, Prairie Road Organic Seed, Reimer Seeds, Seed Savers Exchange, Seeds of Change, Stokes Seeds, Swallowtail Garden Seeds, Territorial Seed and Veseys Seeds.

Making a difference

NDSU EXTENSION SERVICE

NORTH DAKOTA STATE UNIVERSITY

Gardeners try new varieties and reap higher yields

The Situation

Over 93,000 households in North Dakota grow a garden—producing vegetables worth \$56 million. The first step in growing a productive garden is to select a superior variety. A superior variety can lead to major increases in yield, food quality, and protection against plant diseases.

Extension Response

A team of 275 families across the state was formed to evaluate promising vegetable, herb and flower varieties in home gardens. These volunteers evaluated 110 varieties for plant vigor, health, earliness, yield, and food/ornamental quality.

Trials consisted of side-by-side comparisons of two varieties. In most cases we evaluated a new variety versus a well-known variety. An example would be comparing the promising 'Yukon Gem' potato versus 'Yukon Gold', an industry standard.

Results from over 1,000 trials were analyzed. No other program in the USA can match this program for its number of participants and varieties tested.

Impacts

An online survey was conducted to document the impacts of the project. One hundred and forty-six of 255 online gardeners (57%) responded. The survey revealed major impacts during the 2014 season:

- 98% of families were introduced to new varieties.
- 85% of families reported more productive gardens.
- 77% of families who grew vegetables reported healthier diets.

Looking ahead, 94% of families reported their participation in the project will change the way they grow their garden in the future. These persons will be more likely to try new types of vegetables. They will pay more attention to the differences among varieties, including their yields and flavors. They will pay more attention to cultural practices, such as plant spacing and disease management.

An evaluation of this research project's impact on children shows positive impacts:

- 76% of children in families who grew vegetables improved their diets.
- 73% of children increased their level of physical activity.
- 73% of children sharpened their skills in science and math.

These impacts on youth are noteworthy as the Centers for Disease Control and Prevention reported 92% of children in North Dakota do not eat enough vegetables for a healthy diet. An estimated 78% of children do not get enough physical activity (*North Dakota: State Nutrition, Physical Activity and Obesity Profile, 2012*).

Results from testing are presented in educational programs conducted across the state. Over 1,200 gardeners attend these programs every spring. More information and results are published at www.ag.ndsu.edu/homegardenvarietytrials/.

Feedback

"ND gardening trials are the best. The preparation info is very helpful and the trial results have changed the way I garden from year to year."

"We have never planted lettuce before. It will now be a regular in our garden."

"The project has encouraged us to try more varieties. Each year our garden has grown bigger because of it."

"We were growing the old standards but found many of the newer varieties superior in production and taste."

Contact

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Vegetable Cultivars for North Dakota

2017

Selecting an outstanding cultivar can lead to a bountiful garden.

Cultivar selection checklist:

- ✓ Early maturity
- ✓ Flavorful
- ✓ Resists diseases
- ✓ Productive
- ✓ Widely adapted (cool soil, dry weather)

The finest cultivars will lead to the finest gardens. North Dakota State University and its team of over 200 gardeners evaluate promising cultivars every summer. The following cultivars have excelled in these and other trials in the Midwest:

ASPARAGUS. Jersey Giant, Jersey Knight, Jersey Supreme, Purple Passion.

BEAN. *Bush:* Blue Lake 274, Crockett, Derby, Espada, Greencrop, Jade, Maxibel, Provider, Purple Queen Improved, Royal Burgundy, Serengeti, Strike. *Dry:* Arikara Yellow, Great Northern. *Lima:* Fordhook 242, Eastland. *Pole:* Fortex, Orient Wonder, Stringless Blue Lake S-7. *Soybean:* Tohya. *Wax:* Carson, Gold Rush, Rocdor, Soleil.

BEET. Avalanche, Boldor, Bull's Blood, Detroit Dark Red, Early Wonder Tall Top, Merlin, Red Ace, Touchstone Gold.

BROCCOLI. Packman.

BRUSSELS SPROUTS. Jade Cross E.

CABBAGE. *Chinese:* Blues. *Head:* Early Jersey Wakefield, Golden Acre, Ruby Perfection, Stonehead.

CARROT. *Orange:* Bolero, Caracas, Goldfinger, Hercules, Laguna, Mokum, Nelson, New Kuroda, Scarlet Nantes. *Other:* Chablis Yellow, Purple Haze.

CAULIFLOWER. Amazing, Cheddar, Snow Crown, Violet Queen.

CORN. *Shrunken kernel:* SS2742, Vision, Xtra-Tender 274A and 277A, XTH20173. *Sugary enhanced:* Ambrosia, Bodacious, Delectable, Luscious, Sugar Buns, Sugar Pearl, Temptation. *Synergistic:* Allure, Cuppa Joe, Honey Select.

CUCUMBER. *Pickling:* Alibi, Calypso, Eureka, Homemade Pickles, H-19 Little Leaf. *Slicing:* Dasher II, Diva, Fanfare,



General Lee, Muncher, Orient Express II, Raider, Salad Bush, Silver Slicer, Straight Eight, Summer Dance, Sweet Slice, Sweet Success, Tasty Green.

EGGPLANT. Black Beauty, Dusky, Fairy Tale, Millionaire, Orient Express.

GREENS. Hon Tsai Tai, Joi Choi, Komatsuna, Mizuna, Mei Qing Choi, Osaka Purple, Red Giant, Tatsoi, Tendergreen, Vegetable Amaranth.

KALE. Black Magic, Red Russian, Vates, White Russian, Winterbor.

KOHLRABI. Early White Vienna, Kolibri, Kossak, Winner.

LETTUCE. *Leaf:* Deer Tongue, New Red Fire, Red Sails, Red Salad Bowl, Red Velvet, Royal Oakleaf, Salad Bowl, Slobolt, Starfighter, Tropicana. *Bibb/Crisphead:* Buttercrunch, Nancy, Nevada, Red Cross, Sierra, Skyphos. *Romaine:* Crisp Mint, Fusion, Green Forest, Starhawk.

MELON. *Muskmelon:* Athena, Goddess, Solstice, Superstar. *Specialty:* Arava, Earli-Dew, Passport, San Juan, Sun Jewel.

OKRA. Carmine Splendor, Clemson Spineless.

ONION. Ailsa Craig, Candy, Copra, Sweet Sandwich, Walla Walla.

PEA. *Shell:* Early Frosty, Green Arrow, Knight, Lincoln, Little Marvel, Maestro Improved, Wando. ***Snap:*** Sugar Ann, Sugar Sprint, Super Sugar Snap. ***Snow:*** Oregon Giant, Oregon Sugar Pod II, Sweet Horizon.

PEPPER. *Bell:* Bell Boy, Early Sunstation, Jupiter, New Ace, North Star, Orange Blaze. ***Frying/Roasting:*** Carmen, Flamingo, Giant Marconi, Gypsy. ***Hot:*** Cheyenne, Early Jalapeno, Garden Salsa, Hot Paper Lantern, Hungarian Hot Wax, Mariachi, Mucho Nacho, Tiburon.

POTATO. Dark Red Norland, Kennebec, Peter Wilcox, Purple Viking, Red Gold, Satina, Superior, Yukon Gem, Yukon Gold.

PUMPKIN. *Cooking:* Small Sugar, Rouge Vif D'Etampes. ***Jack-o'-lantern:*** Autumn Gold, Cronus, Early Dakota Howden, Gladiator, Howden, Howden Biggie, Magic Lantern, Neon, Orange Smoothie. ***Giant:*** Big Moose, Dill's Atlantic Giant.

RADISH. *Standard:* Amethyst, Cherry Belle, Easter Egg II, French Breakfast, Pretty in Pink, Rover, Roxanne, White Icicle.

RUTABAGA. American Purple Top.

SPINACH. Bloomsdale Long Standing, Emperor, Melody, Olympia, SV2157VB, Tye.

SQUASH, SUMMER. *Crookneck:* Sundance. ***Scallop:*** Flying Saucer, Sunburst. ***Straightneck:*** Multipik, Zephyr. ***Zucchini:*** Easypick Gold, Gold Rush, Green Tiger, Portofino, Raven, Spineless Beauty.

SQUASH, WINTER. *Acorn:* Carnival, Table Ace, Table King. ***Buttercup:*** Bon Bon, Burgess. ***Butternut:*** Early Butternut, Waltham. ***Delicata:*** Cornell's Bush Delicata. ***Hubbard:*** Blue Magic. ***Kabocha:*** Ambercup, Sunshine, Sweet Mama.

SWEET POTATO. Beauregard.

SWISS CHARD. Bright Lights, Flamingo, Lucullus, Oriole, Peppermint, Rhubarb.

TOMATO. *Cherry:* Juliet, Sunsugar, Supersweet 100, Sweet Baby Girl, Yellow

Pear. ***Fresh market:*** Big Beef, Bush Early Girl, Celebrity, Early Girl, Goliath, Mountain Fresh Plus. ***Paste:*** Roma VF, Viva Italia. ***Heirloom:*** Brandywine, Cherokee Purple, Striped German, Stupice, Wisconsin 55.

TURNIP. Hakurei, Purple Top White Globe, Tokyo Cross.

WATERMELON. *Seeded:* Early Moonbeam, Sugar Baby, Sweet Dakota Rose. ***Seedless:*** Millionaire.

Seed Sources

The following is a sample of companies offering seeds. This list is provided for educational purposes only; no discrimination is intended and no endorsement is implied.

Baker Creek Heirloom Seed, 2278 Baker Creek Rd., Mansfield, MO 65704; www.rareseeds.com; 417.924.8917.

Burpee Seed, 300 Park Ave., Warminster, PA 18974; www.burpee.com; 800.888.1447.

Fedco Seeds, PO Box 520, Waterville, ME 04903; www.fedcoseeds.com; 207.426.9900.

Gurney's Seed and Nursery, PO Box 4178, Greendale, IN 47025; www.gurneys.com; 513.354.1492.

Harris Seeds, 355 Paul Rd, PO Box 24966, Rochester, NY 14624; www.harriseseeds.com; 800.544.7938.

Henry Fields, PO Box 397, Aurora, IN 47001; www.henryfields.com; 513.354.1494.

Horticultural Products and Services, W. Stroud St., Randolph, WI 53956; www.hpsseed.com; 800.297.3123.

Johnny's Selected Seeds, 955 Benton Ave., Winslow, ME 04901; www.johnnyseeds.com; 877.564.6697.

Jung Seed, 335 S. High St., Randolph, WI 53956; www.jungseed.com; 800.297.3123.

Kitazawa Seed, 201 Fourth St., #206, Oakland, CA 94607; www.kitazawaseed.com; 510.595.1188.

Mountain Valley Seed, 175 W. 2700 S., Salt Lake City, UT 84115; www.mvseeds.com; 801.486.0480.

Osborne Seed, 2428 Old Hwy 99 S. Rd., Mt. Vernon, WA 98273; www.osborneseed.com; 360.424.7333.

Pinetree Garden Seeds, PO Box 300, Gloucester, ME 04260; www.superseeds.com; 207.926.3400.

Prairie Road Organic Seed, 9824 79th St. SE, Fullerton, ND 58441; www.prairieroadorganic.co; 701.883.4416.

Seed Savers Exchange, 3094 N. Winn Rd., Decorah, IA 52101; www.seedsavers.org; 563.382.5990.

Stokes Seeds, PO Box 548 Buffalo, NY 14240; www.stokesseeds.com; 800.396.9238.

Territorial Seed, PO Box 158, Cottage Grove, OR 97424; www.territorialseed.com; 800.626.0866.



All gardeners are invited to join our team of backyard researchers. Go to www.ag.ndsu.edu/homegardenvarietytrials/

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