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Kohlrabi Variety Evaluation — 2014

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Introduction

Eight kohlrabi varieties were evaluated in a spring replicated trial to determine their performance under central Kentucky conditions. Culinary evaluations were conducted to assess consumer varietal preferences.

Materials and Methods

Varieties were seeded on March 23, 2014, into 72-cell plastic plug trays filled with ProMix MP multipurpose organic media (Premier Horticulture, Inc.) at the University of Kentucky Horticulture Research Farm in Lexington. Greenhouse-grown transplants were set into black plastic-covered raised beds on 6 ft. centers using a water wheel setter on May 9. Beds were marked off into 10-foot long plots. Each contained 40 plants of one variety, set 6 inches apart, in double rows spaced 12 inches apart. Plots were replicated four times in a randomized, complete block design.

Fifty pounds per acre of nitrogen, phosphorus, and potassium were applied as 19-19-19, prior to planting, and tilled in. Approximately 1 cup of starter solution (6 lb of 10-30-20 in 100 gallons of water) was applied to each plant at transplanting. The plot was drip-irrigated as needed. Javelin *Bt* insecticide (1.5 lb/A) was applied twice for caterpillar control.

Kohlrabi (which are actually the plants' stems) were harvested at a diameter of 2 to 3 inches. Harvesting began June 5, and continued at three- to four-day intervals through June 23. Marketable kohlrabi were weighed and counted, and number of culls recorded. Kohlrabi uniformity was rated in the field. Ten kohlrabi from each replication were measured (length and width) and one kohlrabi from each replication was evaluated for external and internal appearance, raw product taste, and internal fiber development.

Consumer panels were conducted on four days at different locations including public libraries and the University of Kentucky campus. Thirty-three adults participated. Participants completed a survey about shopping and eating patterns of vegetables related to kohlrabi. Participants viewed the kohlrabi whole and sliced and sampled raw and diced kohlrabi, and rated their opinions. The participants were diverse in age (19 years to 66+), and ethnicity. Eighty-six percent were females.

Results and Discussion

The spring season was cool, wet, and very good for kohlrabi production. Harvest yield and variety characteristics data are shown in Tables 1 and 2. Varieties are ranked based on total marketable yield by weight. The top varieties based on Horticultural Research Farm and consumer evaluations were Kolibri (purple), Winner, Grand Duke, and Kossak.

Horticultural Research Farm Evaluations

Quickstar, Kolibri, Winner, and Kossak tended to produce the higher marketable yields in terms of weight, however, there were no statistical differences between varieties in number of

marketable kohlrabi per acre (Table 1). Korridor and Purple Vienna tended to have higher numbers of cull stems, while Early White Vienna and Purple Vienna kohlrabi showed less shape and size uniformity. Purple Vienna plots had some green, off-type kohlrabi.

Quickstar and Kolibri, a purple variety, were the two earliest maturing varieties. Both had very nice external and internal appearances; however, Quickstar had a lingering sulfur aftertaste, although this might not be a problem if it is grown as a fall crop. Winner ranked highly for internal appearance and taste and was the best midseason variety. Kossak, an 80-day fall storage variety, ranked very high for external and internal appearance and taste. This variety, when grown to 6 inches in diameter, remained fiber-free and had an outstanding taste. Splitting can be a problem with kohlrabi and this was noted on some varieties, but was not excessive. Early White Vienna, Grand Duke, and Purple Vienna showed some slight fiber formation towards the end of the season.

Consumer Panel Evaluations

Ninety percent of the participants were the primary food purchaser and meal preparers in their homes. Forty-six percent shop at a farmers market less than once a month, 39% shop at them two to three times per month, 7% shop weekly, and 7% never shop at a farmers market. Seventy-six percent prepare meals daily and 17% prepare meals two to three times per week.

The participants were asked if they could recognize these cole crops: broccoli, Brussels sprouts, cabbage, cauliflower, collard greens, kale, turnips, and kohlrabi (Figure 1). Forty-two percent (N=14) of the participants reported that they could identify kohlrabi if seen at a farmers market. The vegetables more often purchased by participants were: broccoli (58% weekly, 36% monthly), cabbage (27% weekly, 33% monthly), cauliflower (24% weekly, 36% monthly), kale (21% weekly, 21% monthly), and Brussels sprouts (9% weekly, 39% monthly). Fifteen percent (N=5) had purchased or prepared kohlrabi, with one person reporting eating kohlrabi weekly while the others had eaten them once to four times per year.

Participants rated each kohlrabi variety for appearance (whole and cut) and taste (texture and flavor). All varieties received high ratings for appearance and taste. Consumer taste panel evaluations are ranked based on the overall score, a composite of whole and cut appearance, texture, and taste (Table 3). Kohlibri, Grand Duke, Winner, and Kossak received the highest overall rating scores. After tasting kohlrabi, 96% will consider purchasing in the future.

In Kentucky, total marketable yield is not a primary grower consideration in selecting a variety since sales are limited and most are sold directly to consumers. Consumers use appearance as a primary consideration at the market, while texture and taste are the basis for repeat sales.

Kolibri, a purple variety, was rated the highest for exterior and internal appearance. It also had high texture and flavor ratings and had the highest overall score. Grand Duke, Winner and Kossak also had very high overall scores. Purple Vienna was rated as tending to have the best flavor of the group but lacked somewhat in appearance compared to other varieties.

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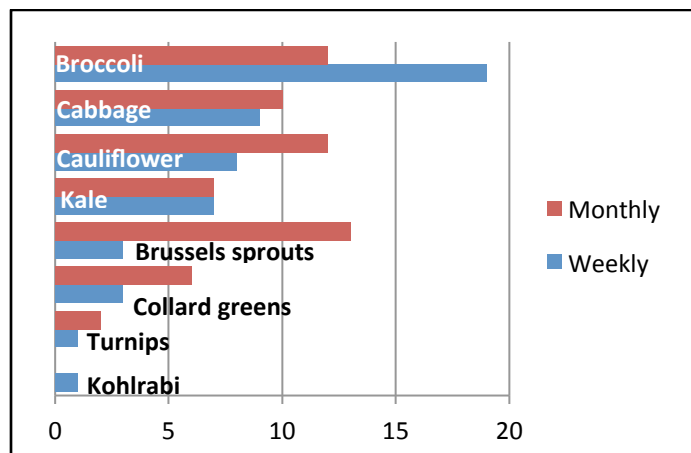


Figure 1. Percent of survey participants eating cole crop types monthly or weekly.

Table 1. Kohlrabi yield data.

Variety	Yield (lbs/A) ¹	Yield (kohlrabi/A) ¹	Cull (%) ²	Stem Uniformity (1-5) ³
Quickstar	7,696 a	15,400 a	7	4.1 a
Kolibri	7,342 a	14,400 a	12	4.3 a
Winner	6,260 ab	14,400 a	9	4.0 a
Kossak	6,136 ab	12,100 a	7	4.5 a
Korridor	5,852 ab	12,000 a	26	4.6 a
White Vienna	5,515 ab	11,800 a	18	2.4 b
Grand Duke	5,196 ab	13,400 a	16	4.1 a
Purple Vienna	4,291 b	10,100 a	25	2.7 b

¹Numbers followed by the same letter are not significantly different (Duncan Multiple Range Test LSD P = 0.05).

²Cull percentage of total kohlrabi number.

³Stem uniformity: 1 = poor; 5 = excellent.

Table 2. Kohlrabi variety characteristics.

Cultivar	Seed Source	Days to Harvest ¹	Exterior Appearance (1-5) ²	Internal Appearance (1-5) ²	Width/Height Ratio ³	Taste Raw (1-5) ²	Internal Fibers (1-5) ⁴	Comments
Quickstar	RU, SI	37-49	4.6 a	4.0	1.4	3.6	1.0	Purple streaks on some; a few split culls; sulfur aftertaste
Kolibri	JS	45	4.7 a	3.9	1.3	4.5	1.0	Purple; several split and small culls
Winner	CF	57	4.3 a	4.9	1.3	4.6	1.0	Some small ones; tender, juicy
Kossak	JS	80	4.4 a	4.7	1.2	4.8	1.0	Several small culls; no splits; sweet; vigorous plants
Korridor	JS	42	4.5 a	4.6	1.2	4.3	1.0	Small plants; several split culls, some small culls
Early White Vienna	RU	58	3.5 b	4.5	1.1	4.3	1.3	Mix of round and flat ones; several split culls
Grand Duke	RU	55	4.4 a	4.8	1.3	4.0	1.3	A few with purple spots, culls due to small size
Purple Vienna	CF	55	3.6 b	4.8	0.9	2.6	1.3	Purple, off-types; culls due mostly to oblong shape

¹Days to harvest from seed catalogues.

²Appearance and taste ratings: 1=poor; 5=excellent.

³Width/height ratio based on the average width and height of 10 turnips per replicate; values >1 indicate wider or squatter roots.

⁴Internal fiber ratings: 1=no fibers; 5=excessive fibers.

Table 3. Consumer panel evaluation of kohlrabi appearance and taste.

Variety	Appearance ¹ (1-5)		Taste ¹ (1-5)		Overall Score ²
	Whole	Cut	Texture	Flavor	
Kolibri	4.2	4.0	4.2	3.8	4.1
Grand Duke	3.8	3.8	4.2	4.0	4.0
Winner	3.8	3.7	4.3	4.0	4.0
Kossak	4.0	3.5	4.4	3.7	3.9
Purple Vienna	3.6	3.4	4.1	4.1	3.8
Quickstar	3.8	3.7	4.1	3.5	3.8
Korridor	3.9	3.9	3.9	3.4	3.8
Early White Vienna	3.7	3.6	4.0	3.5	3.7

¹Appearance: 1=poor; 5=excellent.

²A composite scoring of whole and cut appearance, texture, and taste.