

Tomato Variety Evaluation Study

David Stockert, Jerry Larson, Dr. Daniel Noble

North Dakota State University
Dickinson Research Extension Center

Introduction

This Study is based on determining the best producers from several tomato varieties. Fifteen different varieties of tomatoes were harvested. Of these fifteen varieties, fruit weight, plant weight, and the plant health of each individual variety will be accounted for.

Materials & Methods

A total of 30 rows of tomato plants were planted in the garden. Of these 30 rows, each tomato plant variety accounted for two rows. The different tomato varieties selected, are as follows:

- Keepsake Brandywine
- Banana Legs Early Wonder
- Yellow Currant Opalka
- Dr. Neal Striped German
- Gold Nugget
- Kellogs Breakfast
- Valencia Wonder Light
- Verna Orange
- Dr. Wyche's Yellow
- Moskrich

Two plants from each row were collected giving a total of four plants per variety to be evaluated. The two plants picked from each row sample were separated from their fruit. The plants, and their fruit were individually weighed on a electronic scale to the nearest 1/100 of a pound. From this data, both rows of each variety type will determine the standards of this experiment for each variety. In addition to this a

health scale of each plant will be determined. The health scale consists of the average percent of healthy leaves of each tomato plant variety.

Results and Discussion

From the 60 plants picked a total of 4,603 tomatoes were harvested, making up a total fruit weight of 304.00 lbs. The plants were pulled from the middle of the rows as to help prevent loss of fruit from the public, which may have harvested fruits most likely from the edges. Also, other factors noticed were a slug problem and some partly eaten ripen fruits from local wildlife which could have altered the data slightly.

Evaluation of Tomato Varieties:

Keepsake: This tomato plant variety consists of lush, dark green foliage. It has a strong vine that ranges roughly from 18 inches to 20 inches high. It produces plenty of green tomato with considerable size of up to uniform fist size. **Rated:** this variety rates #1 in tomato yield as it makes up 14.56% of the total fruit weight of all varieties combined. It is also leading in fruit weight compared to its plant weight by a ratio of about 4:1. The health scale indicates an average of 80.0% of its leaves were healthy.

Opalka: This variety consists of a lush foliage. It has a weaker stem. It produces lots of light green tomatoes of oblong shape about 2" long by 1" thick. **Rated:** This variety rates #2 in tomato yield as it makes up 9.25% of total fruit weight of all varieties. The fruit weight and plant weight are very comparable. The health scale indicates an average of 75.0% healthy leaves.

Verna Orange: This plant variety consists of a profuse vine. Its foliage varies from large to small. It produces fruit that ranges of up to fist size. **Rated:** This variety rates #3 in fruit weight production. Its fruit weight to plant weight ratio is about 2:1. The health scale indicates an average of 70.0% healthy leaves.

Brandy Wine: This plant variety consists of profuse foliage. It produced fruit up to 3.5 inches in diameter. **Rated:** This variety rates #4 in fruit weight production of 7.70% of the total fruit weight of all varieties combined. Its fruit weight to plant weight is comparable. The health scale indicates an average of 70.0% healthy leaves.

Banana Legs: This tomato plant variety consists of profuse foliage with a low spreading vine. It produced oblong shaped fruit of about 3 inches long. **Rated:** This variety rates #5 in fruit weight produced which represents 7.08% of the total varieties weight combined. Its fruit weight to plant weight represents a ratio of approximately 3.5:1 lbs. The health scale indicates an average of 80.0% healthy leaves.

Striped German: This tomato plant variety has a leggy vine and contains upper foliage that is widely spaced, and lower condense foliage close to the ground. The fruit it produced were generally fist size. **Rated:** This variety rates #6 in having a fruit weight of 6.54% of the total weight of all varieties combined. Its fruit wight to plant weight represents a ratio of approx. 1:1 lbs. The health scale indicates an average of 80.0% healthy leaves.

Wonder Light: this tomato plant variety is characterized by having a weak stem with frilly foliage that would gain 30.0 inches in high. The

fruit it produced were in a tear drop shape that ranged about 1.0 inches in size. **Rated:** This variety ranks #7 in fruit weight production from the total fruit weight of all varieties combined. It makes up 6.47% of the total fruit weight. Its fruit weight to plant weight presents a ratio of about 1.75:1 lbs. The health scale indicates a 75.5% of healthy leaves.

Dr. Wyche's Yellow: This plant variety is very similar to the wonder light in that it also has a weak stem with frilly foliage up to 30.0 inches in high. The fruit it produces is football shaped with size of about 2" by 3". **Rated:** Dr Wyche's Yellow ranks #8, making up 6.06% of the total fruit weight of all varieties combined. This variety has a 1:1 ratio of fruit weight to plant weight. The health scale indicates a 62.5% of healthy leaves for this plant.

Valencia: This variety has a slow start in its growing season. This plant variety had abundant foliage that varied in height. It produced circular fruit that was generally 2 inches in diameter. **Rated:** Valencia ranks #9 with its 5.97% of the total fruit weight of all varieties combined. Its plant weight was slightly greater than its fruit production weight. It averaged an 80.0% of healthy leaves from the health scale.

Early Wonder: This plant variety consisted of a strong upright stem. It had a lush foliage that reached from 36" to 40" in high. **Rated:** Early Wonder ranks #10 making up 5.67% of the total fruit weight of all varieties combined. Its fruit weight to plant weight is very close to 1:1. The health scale indicates an average of 80.0% healthy leaves for this plant type.

Kellogg's Breakfast: This variety consisted of abundant foliage with a low spreading vine. It produced fruit that varied in size of up to 3 inches in diameter. **Rated:** Kellogg's Breakfast ranks #11 in which it makes up 5.76% of the total fruit weight of all varieties. Its plant weight although comparable is slightly greater than its fruit production weight. The health scale shows it had generally 75.0% healthy leaves.

Gold Nugget: This is a low ground hugging plant that doesn't spread very far. It produces plenty of yellowish-gold colored fruit that is marble like in size. **Rated:** Gold Nugget rates #12 in fruit production, making up a 5.61% of the total fruit weight of all varieties combined. Its fruit weight to plant weight is 3:1. The health scale indicates an average of 62.5% healthy leaves for this variety.

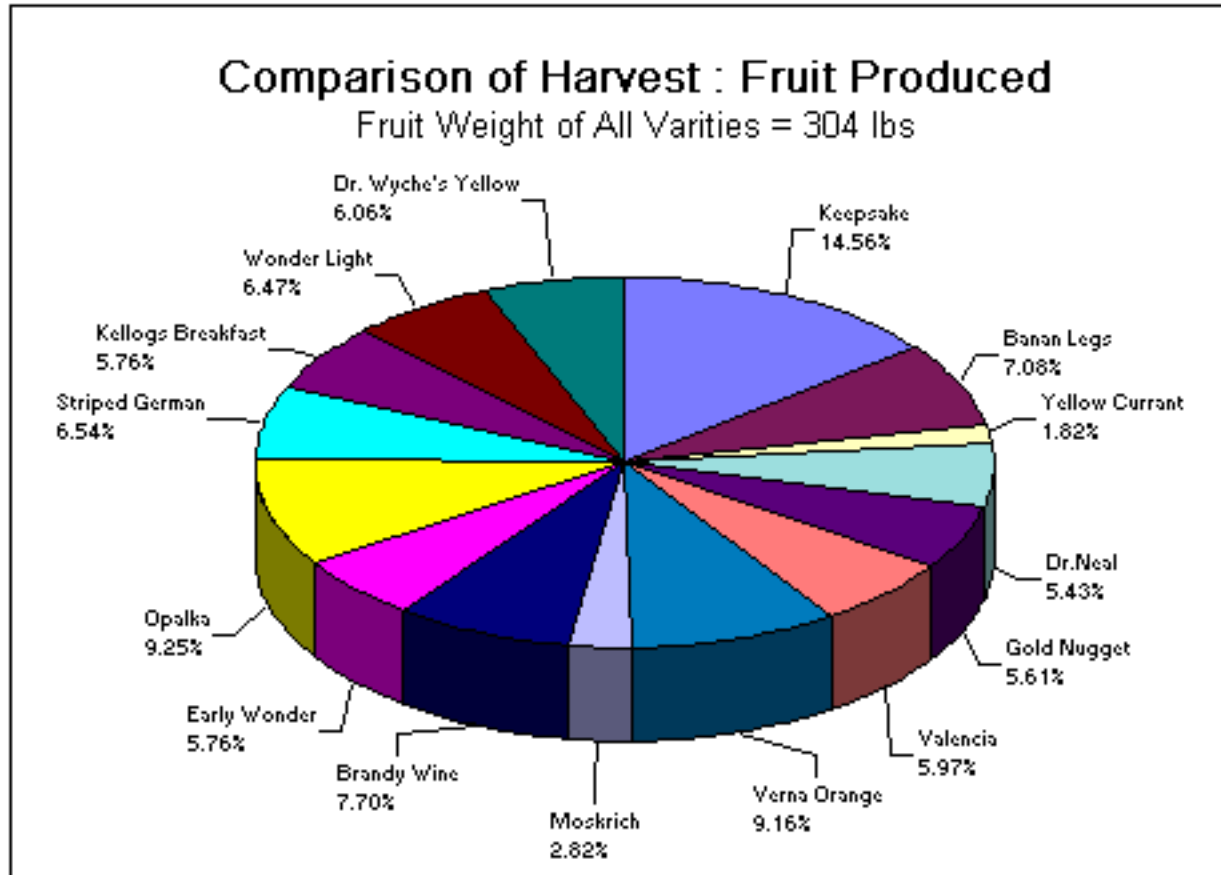
Dr. Neal: This plant variety has stout, upright vines, with abundant foliage. It produced fruit that ranged about 3 inches in diameter. **Rated:** Dr. Neal ranks #13 in fruit production weight, making up 5.43% of the total fruit weight of all varieties combined. Its plant weight is slightly greater than its fruit production weight. It generally had 70.0% healthy leaves per plant.

Moskrich: This variety consisted of uniform light green foliage. It did have a slow start, but produced fist sized fruit that hung low to the ground. **Rated:** Moskrich ranks #14 in making up a 2.82% of the total fruit weight of all varieties combined. Its plant weight was slightly greater than its fruit production weight. The health scale indicates that 87.5% of its leaves were healthy.

Yellow Currant: This variety had abundant foliage which consisted of smaller leaves. The plants height ranged from 26 inches to 30 inches. This variety produced small, marble sized fruit. **Rated:** Yellow Currant ranks #15 in fruit production weight, making up 1.82% of the total fruit weight of all varieties combined. Its fruit production weight was less than half of its plant weight. The health scale indicates that 75.5% of its leaves were healthy.

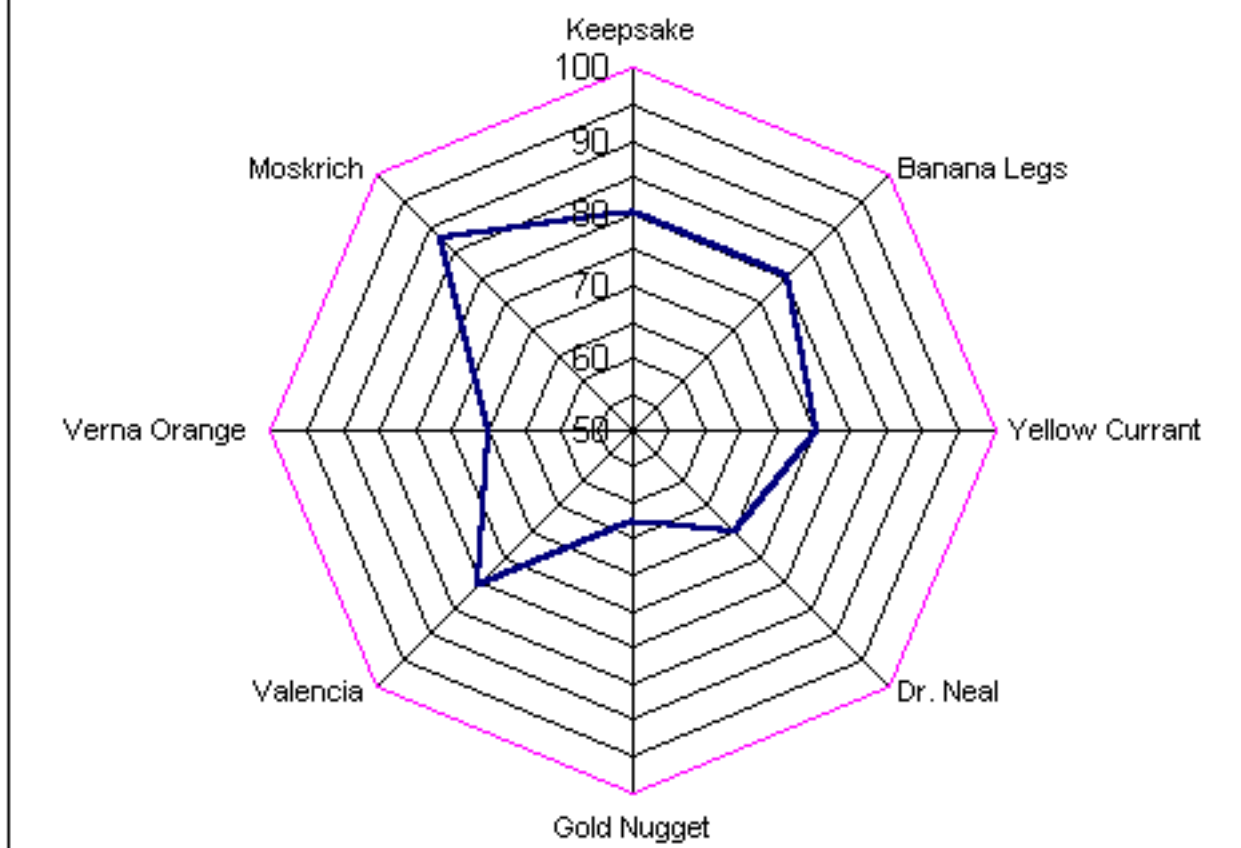
Conclusion/Implications of Research

Tomatoes are commonly found in most gardens, and prove to be a popular ingredient in most recipes. Tomatoes are consumed year round in great demand which makes them a popular choice for home gardeners and mass producers. There are hundreds of different tomato varieties on the market to choose from. These 15 different varieties that were selected are among the more popular choices. The data collected will be helpful to local garden growers in determining which tomato varieties should grow the best under southwestern North Dakota growing conditions.



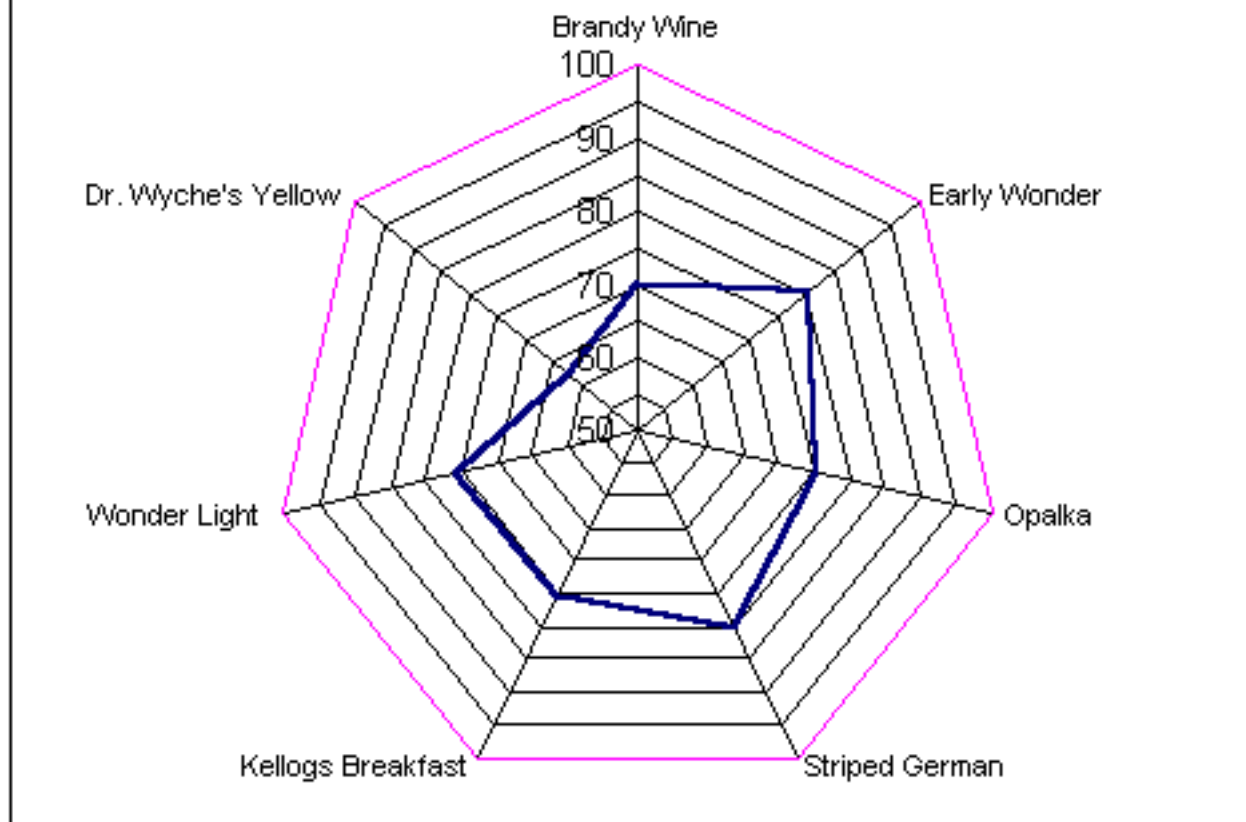
Health Scale

Percent of Healthy Leaves



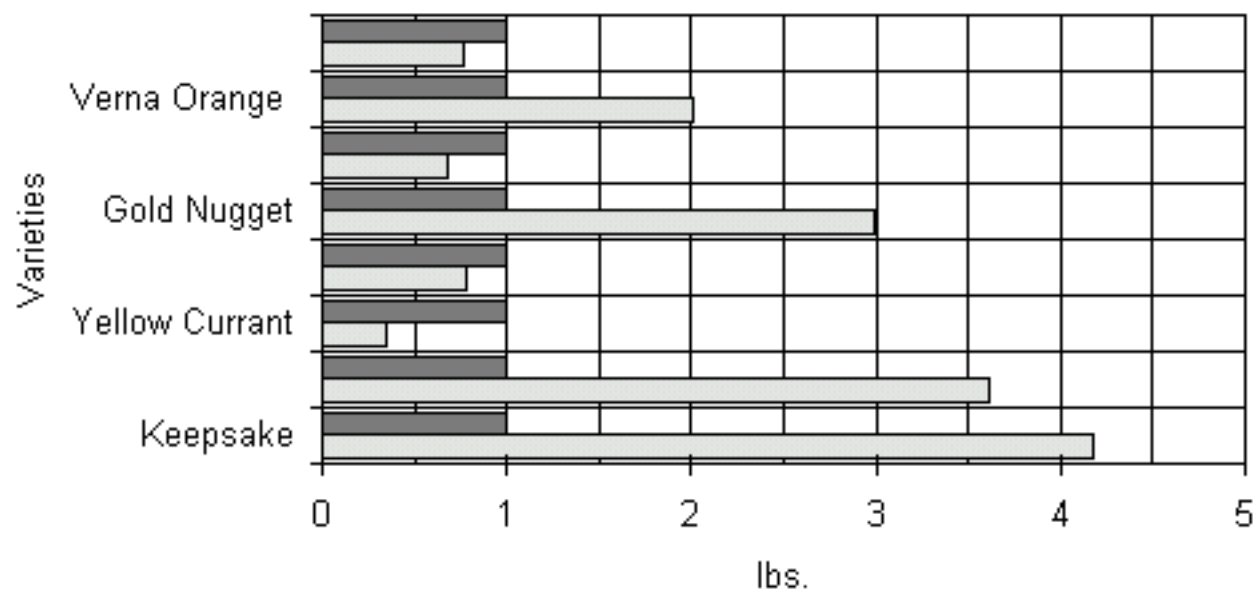
Health Scale

Percent of Healthy Leaves



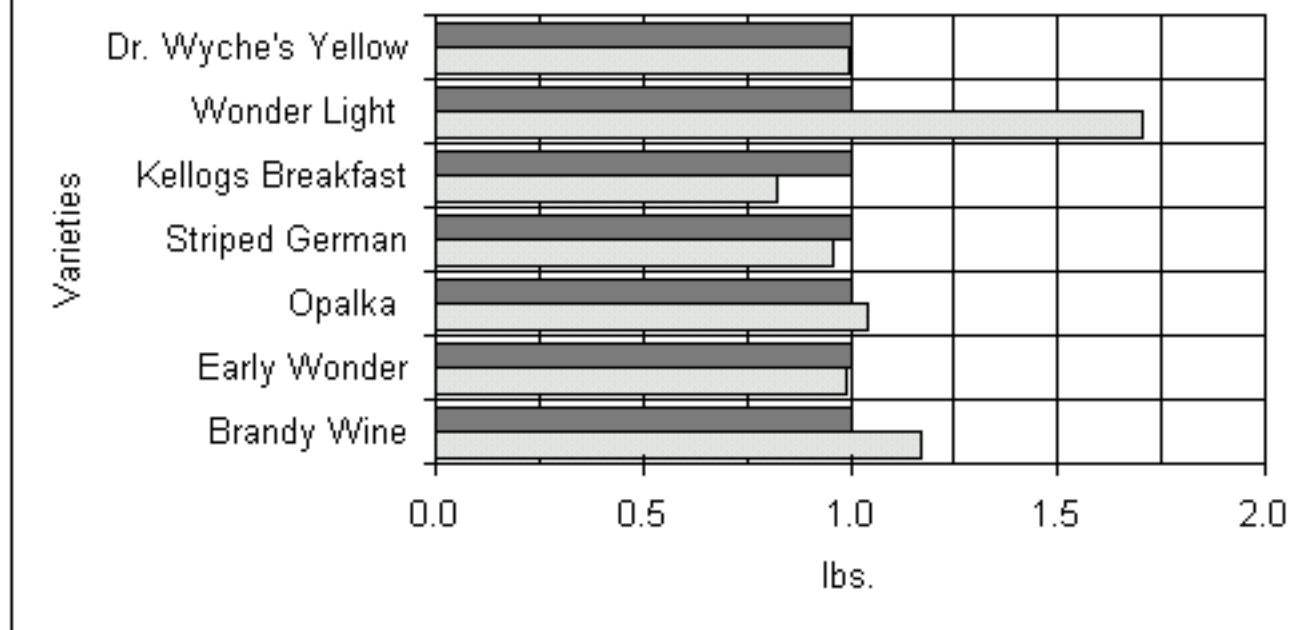
Fruit Weight Vrs. Plant Weight

Light = Fruit Wt. / Dark = Plant Wt.



Fruit Weight Vrs. Plant Weight

Light = Fruit Wt. / Dark = Plant Wt.



Variety	Sample Row	Number of fruit	Weight of Fruits (lbs.)	Weight of Plant (lbs.)	Health Scale (2 plants)
Keepsake	1	127	23.68	5.48	8,8
	2	112	20.58	5.10	8,8
	Combined Rows	239	44.26	10.58	avg. = 8
Banana Legs	1	322	15.04	4.24	8,8
	2	153	6.48	1.72	8,8
	Combined Rows	475	21.52	5.96	avg. = 8
Yellow Currant	1	398	2.00	2.98	8,8
	2	698	3.54	12.96	7,8
	Combined Rows	1096	5.54	15.94	avg. = 7.75
Dr. Neal	1	65	11.14	12.64	7,8

Dt. Neal	1	63	11.14	12.04	7,0
	2	54	5.38	8.58	7,6
	Combined Rows	119	16.52	21.22	avg. = 7
Gold Nugget	1	682	10.92	2.18	6,6
	2	517	6.14	3.52	7,6
	Combined Rows	1199	17.06	5.70	avg. = 6.25
Valencia	1	57	8.82	14.34	8,8
	2	60	9.34	12.46	8,8
	Combined Rows	117	18.16	26.80	avg. = 8
Verna Orange	1	40	14.18	5.82	7,7
	2	49	13.66	8.00	7,7
	Combined Rows	89	27.84	13.82	avg. = 7
Moskrich	1	12	2.96	3.68	9,9
	2	27	5.62	7.44	8,9
	Combined Rows	39	8.58	11.12	avg. = 8.75
Brandy Wine	1	44	9.40	9.66	7,7
	2	27	14.02	10.36	7,7
	Combined Rows	71	23.42	20.02	avg. = 7
Early Wonder	1	41	6.82	9.94	8,8
	2	55	10.68	7.68	8,8
	Combined Rows	96	17.50	17.62	avg. = 8
Opalka	1	273	13.76	11.04	7,8
	2	242	14.36	16.00	7,8
	Combined Rows	515	28.12	27.04	avg. = 7.5
Striped German	1	31	10.06	9.78	8,8
	2	32	9.82	10.92	8,8

	Combined Rows	63	19.88	20.70	avg. = 8
Kellogs Breakfast	1	55	9.66	12.12	7,7
	2	39	7.84	9.16	8,8
	Combined Rows	94	17.50	21.28	avg. = 7.5
Wonder Light	1	139	10.32	6.44	8,8
	2	135	9.36	5.12	7,8

