Variety Trials are published by the Alaska Agricultural and Forestry Experiment Station to provide information about ongoing or inconclusive applied research and experiments.

Vegetable Variety Trials 2020

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VT 2020-01

Vegetable cultivar trials were conducted in the summer of 2020 at the UAF Alaska Agricultural and Forestry Experiment Station (AFES) Fairbanks Farm (64° 51'N, 147° 52'W). The goal of the trials is to help gardeners and farmers choose varieties that perform well in the Tanana Valley and perhaps other locations in Interior Alaska. The soil at the farm is Minto silt-loam with a pH of 7.1. Plot sizes are small and different results are likely on a larger scale and in different soil types.

Vegetable trials co-director Heidi Rader and research technician Nicole Carter transplant winter squash.

Weather

Weather data were compiled from a U.S. Weather Service station, elevation 475 feet (145 m), located approximately 380 feet (115 m) north of the research plots. The growing season started strong in 2020 with warm May temperatures, followed by cooler temperatures and greater than average precipitation in June, July and August. The weather in 2020 presented challenges to warm-season crops, and wet conditions prevented some crops from thriving.

Table 1: 2020 Growing Season

Temperature (degrees F)	May	June	July	August	Sept.
Average daily maximum	64	70	69.7	70.7	56
Monthly high	82.5	79	80	80.6	67.7
Average daily minimum	39	48	49.5	47.5	37
Monthly low	25	41.8	36.7	40.9	30.2
Rainfall (inches)	0.07	3.65	3.13	2.93	1.48

Table 2: 2020 Frost

Last Frost	Frost-free days	First frost
5/18/20	118	9/11/20

Experimental Design

In 2020, beans, corn and carrots were grown in replicated trials in a randomized complete block design (RCBD). Beets, fennel, spinach and winter squash were grown in randomized unreplicated or preliminary trials.

Fertilizer and Soil Amendment

Prior to planting, plots were tilled with a tractor, and 20-10-10 slow-release fertilizer was applied at a rate of 4 pounds per 100 square feet based on the results of soil tests. Additionally, composted steer manure and fish meal was applied to research site based on soil test results indicating low levels of organic matter and nitrogen.

Planting and Growing

Fennel, corn and winter squash plants were started in the Arctic Health Research Greenhouse at the University of Alaska Fairbanks (UAF). See Tables 3 and 4 for seed starting dates. Germination rates were uniform for fennel and winter squash. Corn seeds were soaked prior to planting; however, Earlyvee, Spring Treat and Sugar Pearl had poor germination rates. All seedlings were hardened off using a high tunnel a week or more prior to planting outside.

Beets, beans, spinach and carrots were all direct seeded (see Tables 3 and 4 for planting dates) in twin rows. Bean seeds were soaked in water for eight hours and inoculated with mycorrhizae. Several bean varieties suffered poor germination rates, including Rocdor and Jumbo. Carrot varieties all had excellent to acceptable germination, except for Bolero and Nantes Half Long which experienced very low germination rates.

Crops were planted in 30-inch-wide beds with 18-inch aisles. Plot sizes were large enough to fit a minimum of 10 plants of each variety. Crops were irrigated using drip irrigation and hand weeded throughout the summer. Corn, fennel and winter squash were planted into infrared-transmitting (IRT) plastic mulch, which acted as a weed barrier and soil warmer. Corn plots were fertigated midway through the growing season with a 23-13-8 water-soluble fertilizer at an approximate rate of .25 pounds per 1,000 square feet.

Trial Evaluation

Harvest began July 6 with fennel varieties, and continued twice a week until September 10. Mature vegetables were harvested each week, or in the case of beans, biweekly. Diseased or very deformed vegetables that would be considered unmarketable at a farmers market were not included in the marketable yield upon which results are based. Data was collected in the field using an iPad and Google Forms, or using a paper data collection form when internet connectivity was poor.

Each cultivar was evaluated at least once in terms of plant vigor, bolting sensitivity (or susceptibility to bolt), uniformity, pest resistance and disease resistance. These traits were evaluated on a scale from 1 to 9, 1 being very poor and 9 being excellent. Blind taste tests were conducted at home by UAF Agriculture and Forestry Experiment Station staff in 2020 due to Covid-19 making in-person taste testing infeasible. As many varieties of each crop as possible were rated for flavor and texture on a scale of 1 to 5 (1 being very poor and 5 being excellent).

Results of Replicated Trials

Total marketable yields were evaluated in terms of both weight and units harvested. For replicated varieties yield per plot was statistically evaluated. Mean yield per plot, yield per row foot, average unit weight, as well as subjective ratings were collected (see Table 3) for all crops regardless of replication. For additional details about statistical methods used, please contact the author.

Beans

Beans performed similarly to previous years despite the amount of precipitation during the growing season. However, several varieties including Rocdor and Jumbo germinated poorly, likely due to soil drying. Bountiful, Contender and Rocdor significantly outperformed Jumbo. Yields of all varieties except Jumbo did not differ greatly; in descending order these were Bountiful, Contender, Rocdor and Provider. Across three seasons of data, Jumbo appears to mature later than other varieties. Rocdor continued to produce late into the season as other varieties' production slowed. Jumbo, Rocdor and Contender performed best in the taste test (n = 3)

Carrots

Overall, carrots did not perform well in 2020. This was believed to be due to exceptionally wet growing conditions, as well as the soil profile in the new variety trials location. Most varieties were very leggy or stunted, with nearly half of all carrots harvested (every variety) discarded as unmarketable at time of harvest. Yield data should therefore be considered with caution as this year may be an outlier for carrot production. By marketable yield, Hercules and Eskimo significantly outperformed all other varieties, and Napoli outperformed Romance and Bolero. All other varieties yielded similarly in 2020. Napoli, Romance and Bolero scored highest for taste (n = 5).

Corn

Historically, corn has been considered a marginal crop for Alaska due to the temperatures and the number

Variety trials co-director Glenna Gannon explains bush bean trials for a Youtube video.

Nectar carrots at harvest.

Leggy Napoli carrots reflect the quality of most carrots harvested in 2020.

Table 3: 2020 Replicated Trials

			Spacing															Quality: 1 = Poor 5 = Excellent	
Vegetable	**Cultivar**	**Source**	**Within Row**	**Between Rows**	**Plot Length**	**Date Seeded**	**Transplanted**	**Days to Maturity**	**Harvest Period**	**Avg. Yield (lbs.)/Plot**	**Yield (lbs.)/Row Foot**	**Avg. Unit Weight (oz.)**	**Plant Vigor**	**Bolting Sensitivity**	**Uniformity**	**Pest Resistance**	**Disease Resistance**	**Taste**	**Texture**
Beans																			
	Bountiful	Territorial	2"	15"	48"	5/27	—	55	8/11–9/3	1.8	0.5	N/A	9	9	8	9	9	2	3
	Contender	Burpee	2"	15"	48"	5/27	—	55	8/11–9/3	1.6	0.4	N/A	8	9	9	9	9	4	4
	Jumbo	Johnny's	2"	15"	48"	5/27	—	55	8/11–9/3	1.1	0.3	N/A	6	9	7	9	7	5	5
	Provider	Johnny's	2"	15"	48"	5/27	—	50	8/11–9/3	1.4	0.4	N/A	7	9	8	9	8	3	4
	Rocdor	Johnny's	2"	15"	48"	5/27	—	52	8/11–9/3	1.5	0.4	N/A	8	9	9	9	9	4	4
Carrot	*Only marketable carrots accounted for: many grew leggy and deformed in 2020																		
	Bolero	Johnny's	1"	12"	24"	5/27	—	75	8/6–8/16	0.5	0.3	1.9	7	9	1	9	9	4	4
	Eskimo (F1)	Territorial	1"	12"	24"	5/27	—	85	8/16	2.5	1.3	1.2	8	9	3	9	9	3	4
	Hercules (F1)	Johnny's	1"	12"	24"	5/27	—	65	8/6–8/16	3.1	1.6	1.2	8	9	5	9	9	3	4
	Nantes Half Long	Burpee	1"	12"	24"	5/27	—	70	8/6–8/16	0.7	0.4	1.0	7	9	2	8	9	3	3
	Napa (F1)	Territorial	1"	12"	24"	5/27	—	63	8/10–8/16	1.6	0.8	1.1	8	9	4	9	9	2	3
	Napoli (F1)	Johnny's	1"	12"	24"	5/27	—	58	8/6–8/16	2.0	1.0	1.0	8	9	4	9	9	5	4
	Nectar (F1)	Johnny's	1"	12"	24"	5/29	—	72	8/6–8/16	2.2	1.1	1.2	7	9	4	9	8	3	4
	Romance (F1)	Johnny's	1"	12"	24"	5/27	—	70	8/6–8/16	1.4	0.7	1.3	8	9	2	9	9	4	4
	Scarlet Nantes	Burpee	1"	12"	24"	5/27	—	65	8/6–8/16	1.6	0.8	0.8	8	9	4	9	9	3	3
	Touchon	Burpee	1"	12"	24"	5/27	—	65	8/6–8/16	1.5	0.8	0.9	8	9	3	9	9	4	3
	Yaya (F1)	Johnny's	1"	12"	24"	5/27	—	56	8/6–8/16	1.8	0.9	1.2	8	9	2	8	9	4	3
Corn																			
	Cafe (F1)	Territorial	12"	48"	144"	5/5	5/26	68	8/18–8/28	4.2	0.4	11.9	7	9	9	8	9	3	4
	Earlivee (F1)	West Coast Seeds	12"	48"	144"	5/5	5/26	71	8/11	5.3	0.4	9.1	7	9	8	9	9	2	2
	Early Sunglow	Burpee	12"	48"	144"	5/5	5/26	63	8/11	3.2	0.3	10.6	7	9	7	9	9	3	2
	Espresso (F1)	Territorial	12"	48"	144"	5/5	5/26	70	8/28	9.6	0.8	14.0	9	9	9	9	9	4	4
	Ruby Queen (F1)	Burpee	12"	48"	144"	5/5	5/26	75	8/29	7.4	0.6	13.6	9	9	9	9	8	4	4
	Spring Treat (F1)	Jung seed	12"	48"	144"	5/5	5/26	67	8/18	2.4	0.2	13.0	2	8	8	8	8	5	5
	Sugar Buns (F1)	Territorial	12"	48"	144"	5/5	5/26	75	8/28	4.5	0.4	10.3	7	9	9	9	7	4	5
	Sugar Pearl (F1)	Johnny's	12"	48"	144"	5/5	5/26	72	8/27	9.2	0.8	13.3	9	9	9	9	8	5	5
	Sweetness (F1)	Territorial	12"	48"	144"	5/5	5/26	68	8/28	6.6	0.6	12.0	9	9	9	9	9	4	4
	Trinity (F1)	Stokes	12"	48"	144"	5/5	5/26	60	8/18	4.9	0.4	11.8	6	9	9	9	8	5	5
	Temptress (F1)	Johnny's	12"	48"	144"	5/5	5/26	70	8/28/2020	8.7	0.7	13.9	8	9	9	9	8	4	5

Comments
Prolific.
Prolific.
Late to mature, produced very large beans. Excellent flavor.
Prolific, poor flavor.
Continues to produce beans late into the season. Excellent for canning.
Large carrot. Very sweet, good crunch. Good storage carrot.
Crisp, good storage carrot.
Grew well despite poor growing season for carrots. A little bland.
Poor germination in 2020.
Not great flavor.
Great flavor, did well despite poor growing season for carrots.
Very crispy, flavorful.
Good texture, firm and crunchy.
Okay flavor, not super crispy.
Nice flavor, decent storage carrot.
Sweet, a little soft. Maybe not a very good storage carrot.
Classic "corn" flavor, nice texture. Good producer.
Tough in texture, more starchy. Consistently matures early.
Starchy. Very early variety.
Pleasant "corn" flavor. Consistently produces well in Fairbanks.
Very pretty mottled red kernels. Matured latest out of all varieties.
Mild flavor but very sweet and juicy.
Very pleasant "corn" flavor, agreeably sweet.
Jucy and very sweet.
Very sweet.
Very sweet and crunchy texture.
Produced very well despite poor weather in 2020. Very nice eating.

of frost-free days required to produce mature ears. However, with 118 frost-free days recorded at the Fairbanks Experimental Station in 2020 (similar to the past three years), corn was able to produce mature ears when planted in IRT plastic mulch. In 2020 all of the corn varieties trialed produced mature ears of corn; however, due to the wet and cool summer conditions, maturity was reached at least one week behind the indicated days to maturity for each variety, and there was some loss due to mold in ears with poor husk coverage.

Sugar Pearl, Espresso, Temptress, Cafe, Sugar Buns, Ruby Queen and Sweetness all performed well and had no statistical difference between yields. Earlyvee and Trinity yielded significantly less than the former seven varieties, with Early Sunglow and Spring Treat yielding significantly less than all other varieties trialed.

With a compact growth habit, Early Sunglow and Earlivee are the earliest varieties to mature. Low taste test scores for those two varieties have been consistent since 2018, and may be due to the ears being harvested after their prime. However, Trinity, another very early variety (but not as compact growth habit) rated well for taste in 2020. Other varieties were harvested between

Multiple corn varieties harvested August 11, 2021.

Table 4: Unreplicated Trials

			Spacing										1=Very Poor 9=Excellent					Quality: 1= Poor 5=Excellent	
Vegetable	**Cultivar**	**Source**	**Within Row**	**Between Rows**	**Plot Length**	**Date Seeded**	**Transplanted**	**Days to Maturity**	**Harvest Period**	**Yield / Plot (lbs.)**	**Yield (lbs.) / Row Foot**	**Avg. Unit Weight**	**Uniformity**	**Plant Vigor**	**Pest Resistance**	**Disease Resistance**	**Bolting Sensitivity**	**Taste**	**Texture**
Beet																			
	Boro (F1)	Johnny's	3"	15"	48"	5/27	—	50	8/11–8/29	6.1	1.5	6.6	9	9	8	7	9	4	4
	Detroit Dark Red	High Mowing	3"	15"	48"	5/27	—	55	8/11–8/29	8.1	2.0	10.8	7	4	4	6	6	3	2
	Merlin (F1)	Territorial	3"	15"	48"	5/27	—	55	8/11–8/29	5.5	1.4	5.9	7	8	6	1	8	4	4
	Pablo (F1)	Territorial	3"	15"	48"	5/27	—	50–60	8/11–8/29	7.7	1.9	5.4	9	9	8	9	9	4	3
	Red Ace (F1)	Johnny's	3"	15"	48"	5/27	—	50	8/11–8/29	6.5	1.6	8.6	7	9	8	7	8	4	4
	Robin (F1)	Territorial	3"	15"	48"	5/27	—	50	8/11–8/29	10.5	2.6	13.0	9	9	9	8	9	4	5
	Subeto (F1)	Territorial	3"	15"	48"	5/27	—	55–60	8/11–8/29	7.8	2.0	8.3	5	9	9	9	9	4	5
	Zeppo (F1)	Johnny's	3"	15"	48"	5/27	—	50	8/11–8/29	7.1	1.8	8.1	9	9	9	7	9	4	5
Fennel																			
	Solaris (F1)	Johnny's	10"	48"	120"	3/27	6/3		7/14/20	6.2	1.0	0.8	8	9	9	9	9	4	4
	Fino (F1)	Territorial	10"	48"	120"	3/27	6/3		7/14/20	2.8	0.5	0.7	4	8	8	9	5	4	3
	Preludo (F1)	Territorial	10"	48"	120"	3/27	6/3		7/14/20	8.7	1.5	1.1	8	9	9	9	9	4	4
	Orion (F1)	Fedco Seeds	10"	48"	120"	3/27	6/3		7/14/20	2.8	0.5	0.9	1	2	4	8	9	3	4
	Orazio (F1)	Territorial	10"	48"	120"	3/27	6/3		7/14/20	6.6	1.1	0.8	8	9	9	9	9	3	3
	Finale	Harris Seeds	10"	48"	120"	3/27	6/3		7/14/20	5.4	0.9	1.1	1	3	2	5	8	3	4
Spinach	Bolting and taste study only, no yield data collected.					Planting: 1st	2nd												
	Bloomsdale Long Standing	Burpee	2"	12"	24"	6/5	7/23	30	7/12–9/12	N/A	N/A	N/A	7	7	7	8	8	4	4
	Seaside	Johnny's	2"	12"	24"	6/5	7/23	30	7/12–9/12	N/A	N/A	N/A	8	8	9	9	8	3	4
	Regiment (F1)	Territorial	2"	12"	24"	6/5	7/23	37	7/12–9/12	N/A	N/A	N/A	7	4	9	7	8	3	3
	Oceanside	Fedco Seeds	2"	12"	24"	6/5	7/23	25	7/12–9/12	N/A	N/A	N/A	7	8	8	8	4	5	4
	Flamingo	Johnny's	2"	12"	24"	6/5	7/23	27	7/12–9/12	N/A	N/A	N/A	3	4	7	6	1	3	3
	Acadia (F1)	Johnny's	2"	12"	24"	6/5	7/23	27	7/12–9/12	N/A	N/A	N/A	7	9	8	9	6	3	3
	Corviar	Territorial	2"	12"	24"	6/5	7/23	27	7/12–9/12	N/A	N/A	N/A	8	8	9	8	8	2	3
	Giant Winter	West Coast Seeds	2"	12"	24"	6/5	7/23	45	7/12–9/12	N/A	N/A	N/A	4	6	8	7	2	4	4
	Lizard (F1)	Johnny's	2"	12"	24"	6/5	7/23	28	7/12–9/12	N/A	N/A	N/A	8	8	9	8	7	4	4
	Renegade (F1)	High Mowing	2"	12"	24"	6/5	7/23	43	7/12–9/12	N/A	N/A	N/A	8	8	9	9	8	3	3
	Escalade (F1)	Territorial	2"	12"	24"	6/5	7/23	43	7/12–9/12	N/A	N/A	N/A	9	9	8	9	9	4	4
	Space	Johnny's	2"	12"	24"	6/5	7/23	25	7/12–9/12	N/A	N/A	N/A	8	9	9	9	9	4	5
	Persius Hybrid	Burpee	2"	12"	24"	6/5	7/23	28	7/12–9/12	N/A	N/A	N/A	5	2	6	8	1	3	3
	Lakeside	Territorial	2"	12"	24"	6/5	7/23	28	7/12–9/12	N/A	N/A	N/A	9	9	9	9	8	4	4
	Olympia	Territorial	2"	12"	24"	6/5	7/23	45	7/12–9/12	N/A	N/A	N/A	6	7	9	9	8	2	3
	Palco	Territorial	2"	12"	24"	6/5	7/23	38	7/12–9/12	N/A	N/A	N/A	7	9	9	9	9	3	3
Winter Squash	Data from 10 plants/variety																		
	Spaghetti	Johnny's	36"	48"	360"	5/5	5/26	88	8/18–9/11	853.0	N/A	4.7	8	9	9	9	9	3	4
	Gete-Okosomin	Baker Creek Heirloom Seeds	36"	48"	360"	5/5	5/26	90	8/18/20	457.5	N/A	10.0	7	9	9	8	9	5	5
	Bonbon	Territorial	36"	48"	360"	5/5	5/26	95	8/27/20	393.3	N/A	4.4	9	9	9	8	9	4	5
	Sunshine (F1)	Johnny's	36"	48"	360"	5/5	5/26	95	8/20/20	367.8	N/A	5.3	2	5	9	9	9	4	4
	Red Kuri	Johnny's	36"	48"	360"	5/5	5/26	92	8/20/20	278.6	N/A	5.4	8	9	9	9	9	5	5
	Uncle David's Dakota Desert	Fedco Seeds	36"	48"	360"	5/5	5/26	95	8/20/20	188.9	N/A	3.1	5	8	9	8	9	3	4
	Yuxi Jiang Bing Gua	Baker Creek Heirloom Seeds	36"	48"	360"	5/5	5/26	95	9/11/20	174.2	N/A	3.6	3	6	9	9	9	4	4
	Honey Boat	High Mowing	36"	48"	360"	5/5	5/26	98	9/11/20	25.1	N/A	1.1	1	3	9	8	9	4	4
	Sweet REBA	High Mowing	36"	48"	360"	5/5	5/26	90	9/3/20	17.2	N/A	1.4	3	7	9	8	9	2	3

Comments
Mild flavor
Not a great producer, had a tendency to bolt. Not good for storage.
Nice texture, fairly sweet.
Not a good storage beet.
Poor germination in 2020.
Produced huge, fairly uniform beets in 2020. Sweet and excellent texture.
Poor germination in 2020. Nice flavor and texture.
Good flavor and texture. Firm after storage.
Very early variety. Nice round white bulbs, sweet flavor.
More susceptible to bolting than other varieties, mild flavor.
Very large white uniform bulbs. Sweet flavor.
Lots of yellowed leaves and aphids present on leaves: possibly fertilizer sensitive. Crisp and juicy texture.
Fairly uniform round white/light green bulbs. Tougher in texture.
Highly un-uniform and all had aphids present. Mild in flavor.
Poor germination in warm weather. Classic "spinach" taste, mild with nice texture.
Larger leaves, not uniform though. Mild, slightly bitter.
Large leaves, good holding. Mild flavor.
Leaves become narrow (smaller) as plant ages. Great, nutty-sweet taste and good crunch.
Highly bolt susceptible.
Good "spinach" flavor. Thinner leaf.
Good holding. A little tangy.
Bolt susceptible. Sweet and mild tasting.
Holds okay. Nice "bright" flavor.
Very large leaves, however not uniform. Long standing.
Holding very well, large healthy leaves. Thick "meaty," flavorful leaves.
Very large leaves. Good holding. Nice texture.
Lots of variation in size, started bolting while small.
Medium to large leaves. Excellent holding. Good "spinach" flavor, nice texture.
Very large leaves. Slightly bitter.
Very large leaves, good holding. Thick "meaty" leaf, slightly bland.
Grew first to set fruit, plants grew VERY vigorously, with lots of fruit-set. Variety also seemed susceptible to water-logging. Discarded more than other varieties due to squishy fruit at time of harvest. Kept producing through to first frost. Matured earliest. Continued to produce until frost.
Highly prolific. Early, large fruit, did not continue to set fruit after initial harvest. By far best tasting, however may not be best for storage.
Vigorous early growth, good fruit set. Continued to set fruit after initial harvest. Good eating and storeability.
Mature fruit varied in size, getting smaller later in season. Vines sprawled greatly but were healthy throughout season. Very good flavor.
Grew nicely, mature fruit varied in size, kept setting fruit late into season, lots of immature squash still on vine at end of season. Stored very well.
Vigorous vine and blossoming, fruit set was not as successful as other varieties. Nice flavor.
Plants grew well; fruit set was late and did not mature on vine by end of season. Continued to ripen once harvested and stored well.
Late flowering and fruit-set. Did not mature well: at end of season over half of the set fruit was still under-mature for harvest.
Plants grew in a compact bush-like manner, very poor fruit set and maturation rates.

August 18 and August 28. Sugar Pearl, Sugar Buns, Trinity, Sweetness and Spring Treat scored well in the taste test (n = 3).

Several sample plots of direct-seeded corn under IRT plastic mulch and clear plastic were planted at the time the corn starts were transplanted in the field (May 26). The direct-seeded plants grew successfully, with Earlyvee, Spring Treat, Cafe, Trinity and Sweetness producing mature ears at the time the growing season was complete. Clear plastic mulch however does not suppress weed growth, and corn plants grown under clear plastic experienced heavy weed pressure. We anticipate conducting follow-up research on the viability of direct-seeded corn in the future.

Results of Unreplicated Trials

Unreplicated or screening trials are carried out to vet crops and varieties for future replicated trials and results should be interpreted cautiously.

Beets

Beets were not replicated in 2020, due to poor germination, therefore only one successfully germinated plot of each variety was selected for evaluation. The wet summer also seemed to affect the size of some varieties, resulting in extra large beet roots, with the largest beet harvested being 2.3 pounds (Robin). In descending order, Robin, Detroit Dark Red, Subeto, Pablo and Zeppo had the highest yields, and Merlin had the lowest (see Table 3). Robin, the highest-yielding variety in 2020, averaged nearly one pound beets and 2.6 pounds per row foot, compared to Merlin, which averaged 5.5 pounds per row foot. The higher-yielding varieties also had correspondingly high ratings in other areas, including plant vigor, bolting sensitivity, uniformity and pest and disease resistance. The lower-yielding varieties tended to be slightly less vigorous and had a much higher tendency to bolt. Taste tests were performed by farm staff (n = 4). Robin, Zeppo and Subeto were rated as having the best taste and texture, while Detroit Dark Red was rated lowest for taste and texture.

Glenna Gannon Harvests Subeto beets.

Fennel

Fennel was trialed for the first time in 2020. Six varieties were selected to test based on bolting resistance and short days-to-maturity. In descending order, Preludo, Orazio, Solaris and Finale yielded the highest. Varieties Fino and Orion performed poorly in 2020, showing signs of possible fertilizer burn (though fertilized at the same rate as all other varieties), and were heavily infested by aphids. Preludo and Solaris were rated highest in the taste test (n = 5).

Orazio fennel in IRT plastic mulch.

Spinach

Sixteen varieties of spinach were tested in 2020 as part of a bolting study to determine which bolt-hardy cultivars perform best during the long photoperiod (length of day) in Interior Alaska. Therefore, yield data was not collected for spinach; rather evaluation was focused on bolting susceptibility and the subjective ratings including plant vigor, pest and disease susceptibility, and taste. Spinach was planted three times throughout the summer (June 1, July 2 and July 30); however, the data in Table 4 represents a summary of each variety across all successive plantings. Most varieties performed similarly in 2020 despite the different planting dates; however, notable differences will be outlined below. More information about how varieties differed based on planting date can be obtained by contacting the author.

The varieties least susceptible to bolting were Escalade, Space and Palco. Other varieties that performed well include: Lakeside, Seaside and Renegade. Varieties that were rated high in the taste test (n = 3) were Space, Oceanside, Escalade, Giant Winter, Lizard and Bloomsdale Long Standing. There were significant differences between successive planting dates for Lakeside, Giant Winter and Bloomsdale Long Standing, which showed signs of being more bolt-resistant in fall (July 30) planting. Corvair performed better in early- and mid-summer plantings.

Research technicians Nicole Carter and Anja Maijala planting spinach.

Winter Squash

Nine varieties of winter squash were grown in IRT plastic mulch and trialed to screen different squash species (i.e., *Cucurbita maxima* and *Cucurbita moschata*) and types (i.e., Hubbard, Kabocha, Spaghetti, etc.) for success at reaching maturity and to test for storability. Despite the exceptionally wet and cool growing conditions, all varieties produced mature squash fruit, with some cultivars performing exceptionally well. In descending order the varieties that yielded the most mature squash were Spaghetti Squash, Gete-Okosomin (a Native American heirloom variety), Bonbon (a buttercup variety), Sunshine (a kabocha variety), Red Kuri (a mini-hubbard variety) and Uncle David's Dakota Desert (an heirloom buttercup variety). The Chinese heirloom variety, Yuxi Jiang Bing Gua, produced many immature squash and only a few mature fruit by the end of the growing season. However, the fruit of this variety is harvested when young and tender and used as both a summer squash as well as a winter squash when mature (the color and consistency of a butternut squash). The two varieties that did the poorest were the Honey Boat (a delicata variety) and Sweet REBA (an acorn variety). Both varieties produced healthy plants; however, pollination and fruit set seemed inconsistent and few mature fruit were produced.

Of note, the Spaghetti Squash was a prolific grower and continued fruit set until frost. Gete Okosomin grew prolifically and matured early. It produced large squash with an average unit weight of 10 pounds—the largest being 27.8 pounds—however, it did not store as well as other varieties. Red Kuri, Sunshine, Bon Bon and Honey Boat stored the best (>4 months), and Uncle David's Dakota Desert, Spaghetti, and Sweet REBA lasted two to three months in storage.

Winter squash varieties curing

Acknowledgements

Our thanks to Katie DiCristina, Georgeson Botanical Garden manager, and our two excellent research technicians, Nicole Carter and Anja Maijala.

Retail Sources of Plants/Seeds

Baker Creek Heirloom Seeds, www.rareseeds.com

Burpee & Co., www.burpee.com

Fedco Seeds, www.fedcoseeds.com

Harris Seeds, www.harrisseeds.com

High Mowing Organic Seeds, www.highmowingseeds.com

Johnny's Selected Seeds, www.johnnyseeds.com

Jung Seed, www.jungseed.com

Park Seed, www.parkseed.com

Stokes, www.stokeseeds.com

Territorial Seed Co., www.territorialseed.com

West Coast Seeds, www.westcoastseeds.com

Note: Companies, product or equipment trade names and seed sources are listed to clearly communicate what was used in the trials. It does not serve as an endorsement.

To Learn More About Variety Trials in Alaska

To see results from past trials, go to https://www.uaf.edu/afes/research/variety-trials/

To watch videos with additional information about AFES vegetable variety trials go to https://www.youtube.com/channel/UCh4ob5VmTNwSFtf1fm2fllQ and look for videos labeled with "variety trials" or "how to grow …" with either Glenna Gannon or Heidi Rader.

To learn more about research at the Alaska Forestry and Experiment Station, go to www.uaf.edu/afes

Connect with UAF Cooperative Extension Service

Connect with your local Cooperative Extension Service agent for information on workshops, volunteering and gardening questions in your community!

Go to www.uaf.edu/ces to find out more about UAF Cooperative Extension Service.

Gardeners and farmers can help document how different varieties perform in their own gardens and farms using the Grow&Tell mobile app, http://www.growandtell.us/

Winter squash vines mid-July.

www.uaf.edu/ces or 1-877-520-5211

This work was supported by the USDA National Institute of Food and Agriculture, Hatch Project # 1010090.

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