

CAULIFLOWER VARIETY TRIALS

Final Report

Partner Organization: Alaska Plant Materials Center, State of Alaska, Department of Natural Resources, Division of Agriculture

PROJECT SUMMARY

Specialty crop producers are continuing to expand production to meet the requests and demands of the food service industry. One product that is continually requested from both farmer market shoppers and chefs is cauliflower. Research and field trials on cauliflower have not been done in Alaska. This project will help identify yield, head uniformity, maturation dates, field holding capability and head size, shape and color of 34 cauliflower varieties.

Alaska has unique growing conditions that do not allow for direct fit of yield and performance criteria from other areas of the United States. Trialing cauliflower variety performance in Alaska will help demonstrate the qualities or lack of desired traits when observed in Alaska's climates. This planting will help identify those selections worthy of further evaluation.

This project is timely and important in addressing the needs of the specialty crop industry in Alaska due to the lack of any other cauliflower variety trial research being conducted.

PROJECT APPROACH

- Alaska is a large state with different climates located throughout. A survey was established on our website to find growers interested in participating throughout the state. A total of 20 growers with 21 locations were interested in participating. They were given the option of selecting the number of cultivars/varieties to grow with a minimum of 5 plants per variety. All the cultivars/varieties were grown at the Alaska Plant Materials Center (PMC) in Palmer, Alaska. The other locations were in Fairbanks, Glenallen, Copper Center, Homer, Nikiski, Nome, Gakona, Petersburg, Kenai, Ester, North Pole and Salcha.
- An adequate amount of seed was mailed to each grower with cultivation information and data collection sheets.
- Each grower was asked to share their cultivation techniques along with data collected; i.e. insect and disease issues, amount of leaf wrap and sun yellowing, harvest dates, and harvested diameter and weight.
- During the 2015 growing season, the plot at the PMC was tilled and amended with a 1616-16 fertilizer at the rate of 128 lb/A of nitrogen. Goal 2XL was used as a pre-emergent herbicide. The seeds were germinated in the greenhouse and watered and fertilized as needed. After 4 weeks in the greenhouse, the seedling transplants were moved outside to harden off for one week. On May 28, the cauliflower was transplanted into the field, 18"

O.C. and 42" between rows. Ten plants of each variety were planted. The rows were watered with drip irrigation as needed.

- The entire crop of cauliflower at the PMC was destroyed by moose during the 2015 growing season. It was also difficult to gather consistent data from the participating growers. Three of the growers had complete crop failure and only 10 of the remaining 18 returned their collected data. The data that was returned was extremely inconsistent. Due to these issues, the project was completed in a different manner for the 2016 and 2017 growing season. The cauliflower was only grown at the PMC by their staff for these two seasons to gather better results.
- One site visit was conducted in Homer. It was the only grower that requested many plants that had any success.
- During the 2016 and 2017 growing seasons at the PMC, the trial was conducted in the same manner as 2015 except that the location of the trial was moved into a fence enclosure.
- In 2016, all 34 cultivars/varieties were grown. The plants were transplanted on June 2 and the cauliflower was harvested from August 2 until September 6.
- In 2017, the same cultivars/varieties were grown except three due to seed failure; Baldo, BOS 92126 and Orbit. The plants were planted on June 1 and harvested from August 2 until September 12.
- The 2016 season was warmer and drier than the 2017 season. This can be observed in the graphs located in the additional information section.
- The plants were observed for insect damage, disease, amount of leaf wrap and signs of sun damage. At harvest the cauliflower heads were measured for size and weight.

GOALS & OUTCOMES ACHIEVED

- Determine if certain cultivars/varieties of cauliflower will perform well for producers or market growers throughout Alaska. Several white and some of the non-traditional, specialty, colored cauliflowers performed well during both seasons.
- An extremely early variety was Celeritas with some leaf wrap. Additional leaf wrapping would be needed to get a nice white head.
- None of the white open-pollinated varieties performed well. Some of the white hybrids also did not produce heads with tight curds. These varieties should not be grown; Snowball Self-Blanching, Snowball Y and Early White.
- Some of the top-performing white cauliflowers were Symphony, Synergy, Amazing, Titan, Denali, Casper, Cielo Blanco and Candid Charm, producing some leaf wrap and dense, white heads. Others to consider are Ravella, Minuteman, Bishop, Freedom and Skywalker. These are in no order. The top-performing yellow cauliflower was Cheddar.

Orange Burst and Sunset were inconsistent in size and shape. The best purple cultivar was Graffiti although the two other varieties produced nice, white with purple heads.

The best performing green cauliflowers were Vitaverde and Panther. All the Romanesca cultivars were unique and worth growing but Veronica performed the best.

- Since the project was continued for an additional growing season, a presentation will be given at the Alaska Sustainable Agriculture Research and Education Conference in 2018. The conference is attended by over 100 professionals and growers from around the state.
- During both successful growing seasons at the PMC, approximately 12 growers visited the plot throughout the season and during harvest.
- An article discussing the cauliflower trial and results will be published in The Alaska Division of Agriculture's Newsletter this winter. A final report will also be made available on the PMC website when finished.

BENEFICIARIES

- Over 500 farmers, market growers and home growers throughout the state will benefit from this evaluation trial.
- Over 70 restaurants and chefs, participating in the Alaska Grown® Restaurant Rewards program would be able to offer cauliflower on their menus. Tourism during the summer months creates a high demand on local restaurants offering locally grown food.
- Extension agents and master gardeners could benefit from this information for future recommendations and publications.

LESSONS LEARNED

- Alaska is a large state with remote areas. It is difficult to get resources to individuals easily. Many growers may not have the space for germinating seed nor the area to grow many plants.
- Many growers in Alaska have full-time jobs along with their farming jobs. They cannot easily complete many of the requirements needed to complete this trial at multiple locations.
- Cauliflower is not only a delicacy to humans but moose find it to be the best tasting crop. As soon as the heads begin to form, the moose will eat every one before it can be harvested. It is expensive to fence large areas of land needed to produce a substantial amount of cauliflower.
- Soil tests should be done when growing brassicas in Alaska. There is an increased chance of boron deficiency in Alaskan soils when nitrogen is increased. This causes hollow stems in brassicas.

- During the 2015 and 2016 seasons, there was no signs of insect problems with cauliflower. In 2017, there was a significant amount of root maggot infestation. The cauliflower plants were not affected by the insects and still produced marketable heads.

ADDITIONAL INFORMATION

- Varieties/Cultivars Trialed and Sources for Seed
 - White
 - Amazing (F1) – Johnny’s Selected Seed
 - Seed Attribute (F1) – Burpee Baldo
 - (F1) – Osborne Seed Co. Bishop (F1) – Johnny’s Selected Seed BOS 92126
 - (F1) – Osborne Seed Co.
 - Candid Charm (F1) – Osborne Seed Co.
 - Casper (F1) – Osborne Seed Co.
 - Celeritas (F1) – Osborne Seed Co.
 - Cielo Blanco (F1) – Osborne Seed Co.
 - Denali (F1) – Johnny’s Selected Seed
 - Early White (F1) – Burpee
 - Freedom (F1) – Veseys Seeds
 - Minuteman (F1) – Veseys Seeds
 - Ravella (F1) – Osborne Seed Co.
 - Skywalker (F1) – Johnny’s Selected Seed
 - Snow Crown (F1) – Johnny’s Selected Seed
 - Snowball Self-Blanching (OP) – Burpee
 - Snowball Y (OP) – Burpee Symphony
 - (F1) – Veseys Seeds
 - Synergy (F1) – Osborne Seed Co.
 - Titan (F1) – Osborne Seed Co.
 - Venus (F1) – Osborne Seed Co.
 - Yellow
 - Cheddar (F1) – Johnny’s Selected Seed
 - Orange Burst (F1) – Territorial Seed Co.
 - Sunset (F1) – West Coast Seeds
 - Purple
 - Graffiti (F1) – Johnny’s Selected Seed
 - Purple of Sicily (OP) – Baker Creek Heirloom Seeds
 - Violetta Italia (OP) – Baker Creek Heirloom Seeds
 - Green

Green Macerata (OP) – Baker Creek Heirloom Seeds Panther
(F1) – Territorial Seed Co.
Vitaverde (F1) – Johnny’s Selected Seed

- Romanesca
26-701 (F1) – Osborne Seed Co.
Orbit (F1) – Osborne Seed Co.
Veronica (F1) – Johnny’s Selected Seed



Bishop



Freedom



Denali



Minuteman



Candid Charm



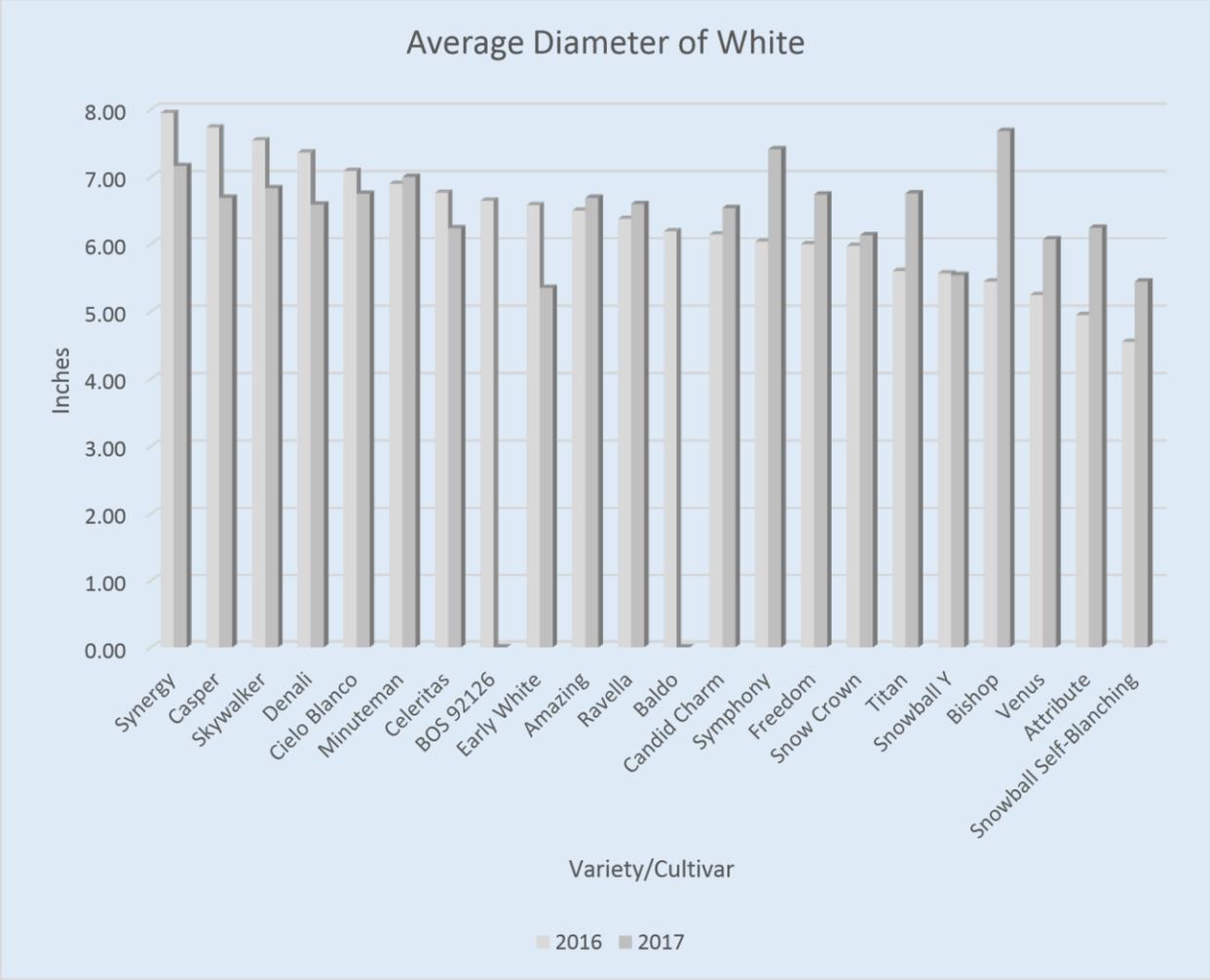
Casper



Cielo Blanco



Skywalker



Cheddar



Graffiti



Vitaverde



Veronica



