



Northwest Climate Hub

U.S. DEPARTMENT OF AGRICULTURE

Adaptation Resources for Agriculture

A Case Study: Bushes Bunches Produce Stand in Palmer, AK

Natural Resources Conservation Service - Alaska & USDA Northwest Climate Hub



Photo credit: Bushes Bunches

Alaska is already experiencing significant climate change impacts and warming faster than any other state in the US. Farmlands make up a small portion of the state, but provide an important and highly valued source of food. The growing season is expected to increase by 20-40 days by mid-century, posing challenges and providing opportunities to Alaska’s farmers to adapt and thrive. There is a growing awareness that adaptation strategies are imperative to sustaining current practices and planning for future conditions in Alaska. In an effort to facilitate peer-to-peer learning among farmers, the Natural Resources Conservation Service (NRCS) in Alaska and the Northwest Climate Hub partnered to showcase innovative adaptive farming practices and planning processes that are already underway. This case study provides an example of how producers in Alaska are utilizing a 5-step adaptation process to document management choices to address climate change impacts to their operations.

Bushes Bunches and Agriculture in Southcentral Alaska

Bushes Bunches Produce Stand is a family owned business that has been providing produce to Palmer and southcentral Alaska since 1954, when the state was still a territory. The 14-acre farm produces table and seed stock potatoes, along with other vegetable and nursery crops. The farm is widely regarded for its rhubarb, which was planted in the mid-1950s, and for its unique Bushes Peanut Potato cultivated by Bruce Bush. Bushes manages several farm-related businesses, including a retail shop for produce and dry goods sales, a winter produce market, online and wholesale produce sales, and a popular booth at the annual Alaska State Fair. The following steps detail the current approach to adaptive farming.



Photo credit: Bushes Bunches

1 DEFINE: The main management goal for Bushes Bunches is to expand production, particularly for potatoes and rhubarb. To reach this goal, they are seeking more land to increase production, planning for additional irrigation infrastructure in dry-soil areas, and they plan to build facilities to accommodate expanded yields. Bushes also plans to expand retail and continue to increase value added products.

2 ASSESS: Population growth is expected to expand existing markets and increase demand for produce. However, nearby development could decrease available land, increase land prices, and impact water quality and quantity. The growing season may extend due to climate change, resulting in shorter and warmer winters and earlier spring snowmelt, which is advantageous to overall production potential. This could increase potential plant growth and produce size, but also increase pest, pathogen and invasive species potential.

For more information on the USDA Northwest Climate Hub please visit:

www.climatehubs.usda.gov/hubs/northwest

Northwest Climate Hub

3 EVALUATE: Bushes Bunches developed management challenges and opportunities that address expected climate change impacts to their operation. Objectives, challenges, and opportunities for specific land units are listed below.

Step 3: Evaluate Management Objectives Given Projected Impacts and Vulnerabilities

| Land Unit | Objective | Challenges | Opportunities |
|-------------------|--|--|---|
| Entire Farm | Take advantage of longer growing season | Climate and population growth impacts on land and water availability | Less snow & shorter winters may contribute to increased output of vegetable production to expand related businesses |
| Vegetable Gardens | Increase potato and rhubarb production | Managing pests, pathogens, and invasive species | Increased production and improved quality of produce |
| Retail | Capitalize on increased production potential and increased demand for produce from population growth | Land shortages and water quality impacts from development | Open new retail locations and canning facilities to offer expanded variety of local produce and preserved goods |

4 IDENTIFY: Generating producer-specific tactics that can be implemented to enhance a farm's ability to adapt to climate change and meet management goals is a key step in the planning process. **Tactic 1)** maintain and improve soil health. **Approach:** fallow potato fields every three years and cover-crop with an Austrian winter pea and oat mixture for nutrient input. Incorporate on-farm potato waste back into the soil. **Tactic 2)** reduce impacts of pests and pathogens. **Approach:** protect row crops with fine netting cover to protect from pests. This has the added benefits of reduced spraying time and cost and slightly increases soil temperatures. **Tactic 3)** switch to commodities expected to be better suited to future conditions. **Approach:** add new high value crops like berries that grow well under warmer conditions. Carry out long-term plans to process and preserve more produce to prolong sale value and diversify revenue streams.

5 MONITOR: Bushes Bunches, in collaboration with Alaska Extension, is conducting trials to examine ideal varieties of potato and other vegetables under changing climate conditions in southcentral Alaska. Bushes Bunches will continue to monitor management decisions and changing conditions to maximize long-term success.



Photo credit: Bushes Bunches

The Take-Away

Farmers in southcentral Alaska face the challenge of rapid yet uncertain impacts from climate change. The predicted increases in the growing season signifies potential opportunity for farmers willing to plan and adapt around reduced water resources and the potential for increased pest, pathogen, and invasive species challenges. Bushes Bunches Produce Stand is working to harness the cost-savings and production potential of healthy soil and diverse crop varieties, and to manage for potential pest and disease risks. Management approaches like cover cropping come with costs, yet through careful planning and partnership the farm is expanding business and leading the way in showcasing how adaptation efforts can help other farmers in their area. The Natural Resources Conservation Service can be a valuable resource for any agricultural producer interested in identifying challenges and opportunities specific to their operation.

For more information:

USDA Northwest Climate Hub

Holly Prendeville, Coordinator

holly.prendeville@usda.gov

Special thanks to Joan Howard, NRCS

[Contact your local NRCS staff](#) for assistance

For more information on the Northwest Climate Hub please visit: www.climatehubs.usda.gov/hubs/northwest