**Improved technologies for plant food production in remote northern communities**

This project will develop sustainable methods to grow fresh fruits and vegetables in controlled environment facilities operating in remote northern communities. NRC is creating a research facility based on modified shipping containers to evaluate technologies to improve the operation of the facility through winter months including energy efficient HVAC systems. F1-hybrid strawberries and other conventional crops (e.g. tomatoes, leafy greens) will be evaluated for growth and productivity. Wild indigenous species such as *Fragaria vesca*, *Rubus arcticus*, and others identified through community engagement will be evaluated for economic viability. Plant phenomics technology, such as Raspberry Pi-based image capture with open-source software analysis, will be established for plant monitoring in the controlled environmental facilities. An undergraduate research student could join a team of researchers to complete a smaller project related to this work.

**Controlled environment agriculture (CEA) crop development**

This project will develop crop cultivars optimized for vertical farming-style controlled environment facilities to allow economically viable and sustainable growth of fresh fruits and vegetables in remote northern communities. This project will focus on developing cultivars with a number of desirable characteristics including short stature, rapid growth, and are high yielding with nutritious fruit/vegetable production. We are using gene-editing to accelerate the development of cultivars for berry producing species such as *Fragaria vesca and* *Rubus arcticus*. An undergraduate research student could join a team a researchers to complete a project that is a smaller component of this effort.