

Comparing soil amendments: City of Whitehorse compost is on par with synthetic and organic fertilizers after six years

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In partnership with the City of Whitehorse, the Government of Yukon's Agriculture Branch initiated a long term trial at the Yukon Government Research Farm in 2010 to test the effectiveness of soil amendments in northern soils.



Soil amendments are added to improve soil properties (such as nutrients, fauna/flora, or carbon) so that vegetables and other crops can produce more. Common soil amendments include fertilizers, manures and compost. Producers must decide which amendments to use and consider the transportation and application of products, the availability of local products, and the varying costs of shipping, using and buying amendments. Local soil amendments are limited; one of the products that is readily available is the compost from the City of Whitehorse.

The soil amendment trial being conducted at the research farm evaluates the city compost alongside synthetic fertilizer and organic fertilizer. Other amendments were added in combination with the main treatments including calcium, biochar and humic acid. Different vegetables are grown in rotation each year starting with beets in 2010, carrots in 2011, kale in 2012, and snap peas in 2013 repeating the rotation in 2014 with beets followed again by carrots in 2015.

Other Canadian research concluded that organic amended plots usually lag behind synthetic plots until the third year. Yukon growing conditions followed this trend. As expected, the synthetic fertilizer plots had the highest yields in the first two years and the organic fertilizer plots yielded similar results by

the third year. The compost plots yielded substantially less than the other treatments in the first few years of the trial.

In 2014, the fifth year of the research, the compost amended plots started to achieve production levels approximately 20% less than synthetic fertilizer treatments. In 2015, the compost treatment had equal yields to both the synthetic and organically amended plots indicating that the addition of city compost over time is a valuable soil amendment. This is the first year with results indicating that compost is on par with other amendments.

The trial will continue to evaluate compost and commercial soil amendments to add to our understanding of northern soil amendments. The addition of lime or humic acid or biochar does not have any impact on yields based on this research.

