

Rock Dust Mine Waste as Field Soil Amendment in Enhancing Growth and Quality of Vegetables in a Boreal Climate

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This research is an attempt to tackle two significant problems within the agriculture and mining industries, which is being undertaken by the school of science and the environment at the Grenfell Campus of Memorial University in Newfoundland and Labrador.

Poor soil quality in northern regions limits productivity, and rock dust waste represents both a financial and environmental burden for mines. By incorporating the latter into the former, there may be an opportunity to recycle or even profit from otherwise useless waste, while improving soil quality and agricultural productivity boreal regions.

This experiment was laid out in a random complete block design, incorporating rock dust into the upper layer of field soils at rates between 0 and 2 kg/m², with 4 replications of amaranth, lettuce and kale raised in each concentration of soil amendment over the growing seasons of 2019 and 2020. A similar product already on the market called Huplaso was also used as a positive control.

Analysis of the plants and soils is ongoing, and will contribute important data and may establish potential opportunities in the use of these kinds of materials, particularly in northern climates where potential improvements could represent significant gains in efficiency and productivity for both the agriculture and mining industries.

Key words

Rock Dust, Boreal, Agriculture, Mine Waste, Soil, Vegetables, Amaranth