

## Northern Canadian Gardening: Compost Piles as a Means of Extending the Growing Range of Northern Crops

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While conducting an investigation into domestic and commercial vegetable gardening in Dawson City, Yukon (McCracken and Revel, 1982), we visited the residence of one ardent Dawson gardener. Like many northern gardeners, this individual composts her kitchen and garden wastes as an organic matter source and soil top dressing — a common practice in the north where barnyard manure is scarce.

The compost pile (Fig. 1), approximately 1 × 1 × 2 m, was placed directly on the ground in a sunny location, and fenced with heavy-gauge wire mesh. Organic wastes were placed in this crib and interbedded with mineral soil.

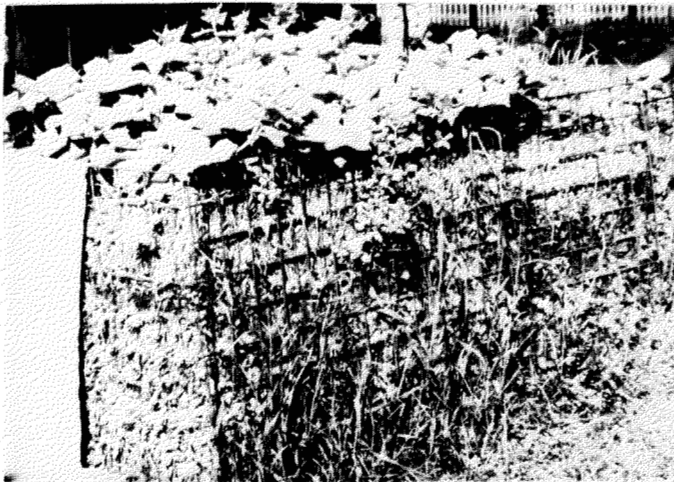


FIG. 1. Compost pile with volunteer cucumbers in Dawson City, Yukon Territory. Photograph taken on 23 August 1980.

In fall 1979, some cucumber wastes were placed in the compost and in spring 1980 some of the seeds sprouted and grew voluntarily. We visited the garden on 23 August 1980 and observed several well-formed cucumbers up to about 20 cm long. Many smaller fruits were present and the plants were still flowering profusely. The gardener was pleased with her discovery and indicated that she would continue this practice on a planned basis in the future.

Examination of this technique reveals that it has many attributes for growing frost-sensitive plants which require a longer frost-free period than that of the surrounding area.

The compost pile we examined had a high surface area-to-volume ratio (4:1) which allowed for relatively rapid spring thawing and subsequent warming. The above ratio calculation assumes flat surfaces on all sides; however, allowance for the roughness of the sides would increase this ratio considerably. The early warming of the compost is enhanced by the low albedo of the dark composted material, which provides a high solar gain. Though the high surface/volume ratio may result in earlier freeze-up in fall, it is short-duration early and late frosts that effectively kill sensitive crops and shorten the frost-free period, rather than the date of soil freeze-up, which occurs considerably later than the early frosts.

Attendant on the early warming of the composted material is the initiation of microbial activity once the critical temperature is reached. Once in progress, the decomposition process further warms the soil and liberates heat into the surrounding soil and air, providing plant shoots with some measure of protection from light frosts under still-air conditions. Under windy conditions frost damage could be mitigated by the use of plastic sheeting.

The use of compost piles for growing frost-sensitive crops with long growing seasons holds considerable promise as a technique for northern domestic gardening, incorporating the benefits of direct garden seeding with those of conventional hot beds. The owners of most of the 50 gardens examined in Dawson in 1980 (McCracken and Revel, 1982) composted organic wastes, though none of them used compost piles for crop production. The abundance of compost piles and the successful growth of the volunteer cucumbers we observed suggests that this technique could be widely used throughout the north by those who wish to grow warmer-climate crops without a greenhouse, and without the need for bedding-out plants.

### REFERENCES

- McCracken, C. and REVEL, R.D. 1982. Domestic and commercial vegetable gardening in Dawson City, Yukon Territory, 1980. *Arctic* 35(3): 395-402.

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