

Making Decomposition Work for

You:



Photo Credit: Mingchu Zhang, AFES-UAF



Turning that cold pile of goo into
something you can use on your
garden!

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Presentation Goals. . .

- Why compost in Alaska?
- Composting basics
- Methods of successful composting in Alaska
- Model vessel for home or small-scale composting



Why Compost in Alaska?

Organic
Waste is
Wasted!



Cardboard in Dillingham: 13.61 metric tons annually from one fish processor

Total seafood harvested in Alaska: > 2,000,000 metric tons annually
Total byproduct produced in Alaska: > 1,000,000 metric tons annually

(Bechtel and Johnson 2004)

Local Carbon Sources in Rural Alaska - wood chips in Haines

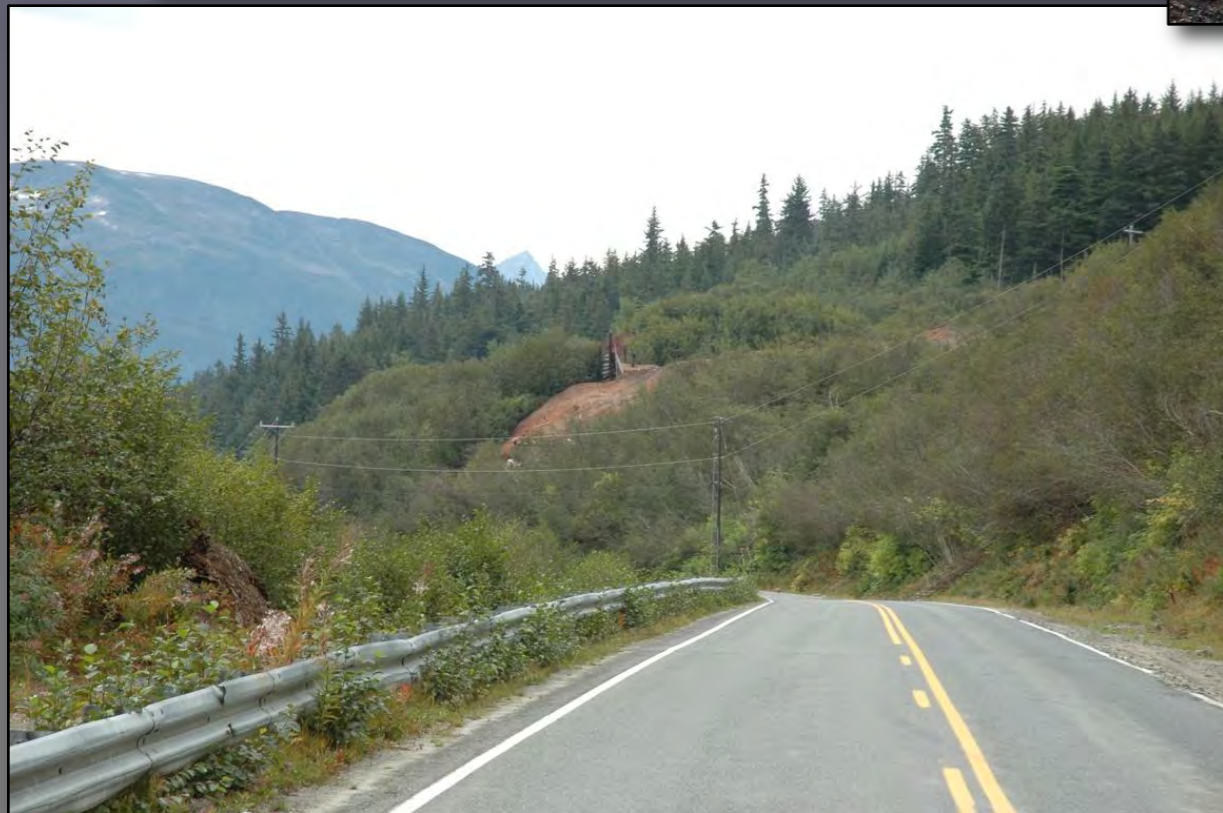
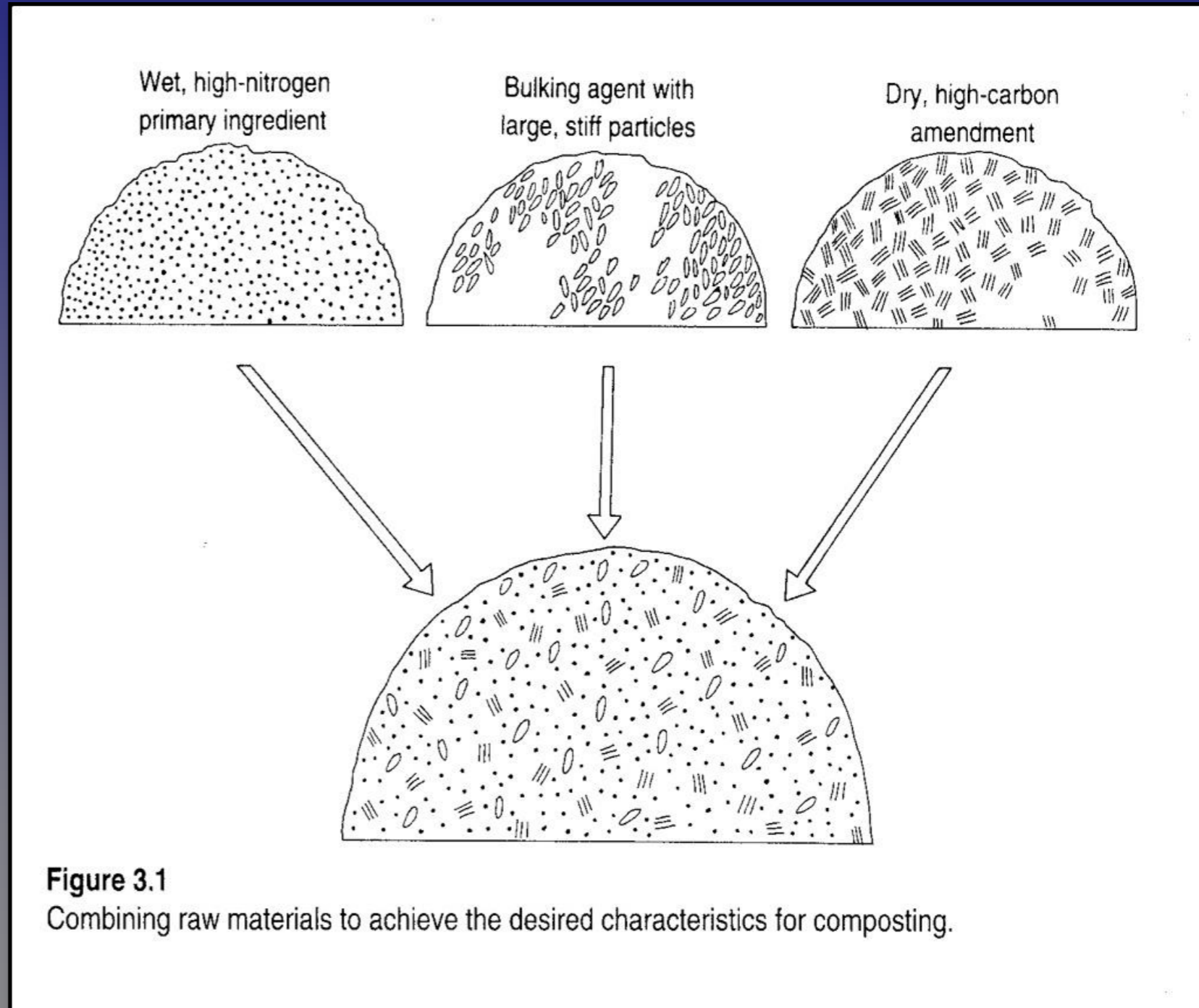


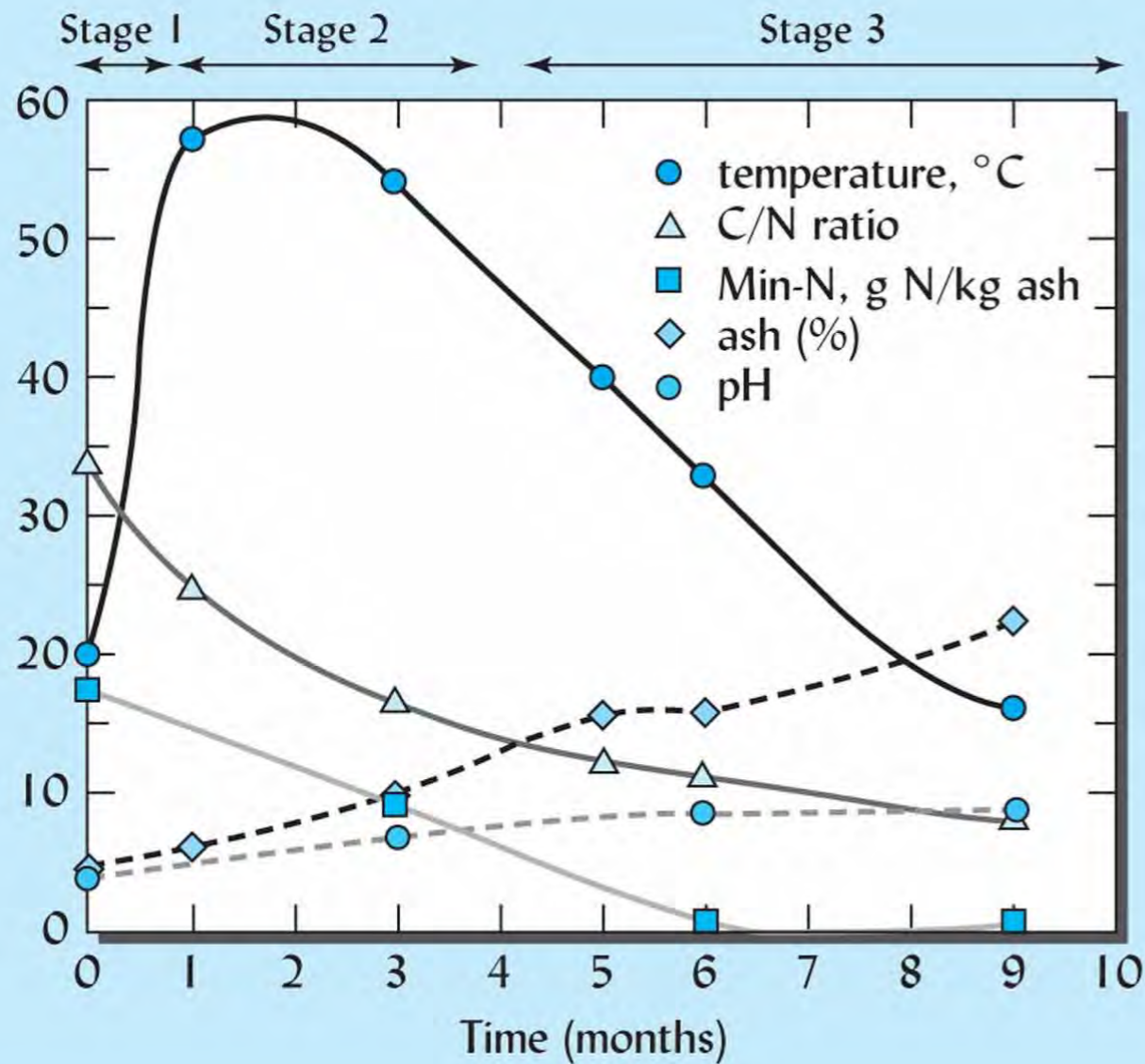
Photo Credit for All: Jeff Smeenck, Cooperative Extension Service

General Composting: Part One - The Components



Rynk, R., *et al.* 1992. On-Farm composting handbook. Natural Resource, Agriculture, and Engineering Service #54 Cornell Cooperative Extension. p14. Ithaca, New York.

General Composting: Part Two – The Process



Stage 1- Mesophilic

Available food sources metabolized quickly results in rapid temperature increase

Stage 2 - Thermophilic

Aerobic microbes take over and metabolize cellulose and more resistant starches - mixing required to increase oxygen levels

Stage 3 - Curing

Mesophilic organisms repopulate the pile as the temperature drops to ambient conditions - beneficial products form

FIGURE 12.33 Physical and chemical changes during the composting process.

Microbiological View of Composting: Microbial Succession During Composting

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Section 6 Soil Microorganisms and Environmental Quality

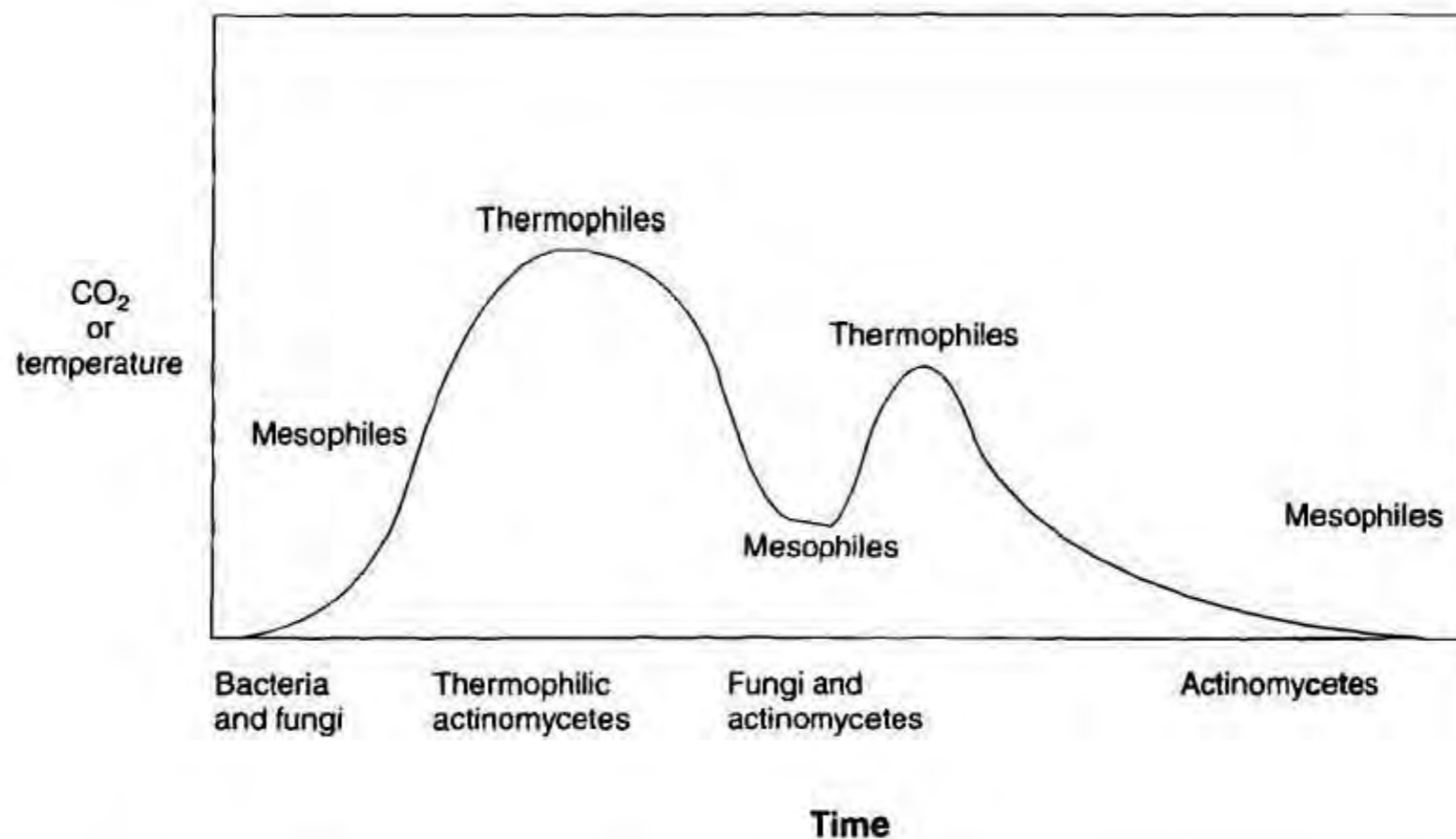


Figure 30-2 Succession of populations in a compost with time.

Coyne, M. 1999. Composting. *In Soil Microbiology: An Exploratory Approach*. Delmar Publishers, Albany, NY. pp 405-412.

Composting With a Twist:

Using Materials We Were Told NOT to Use

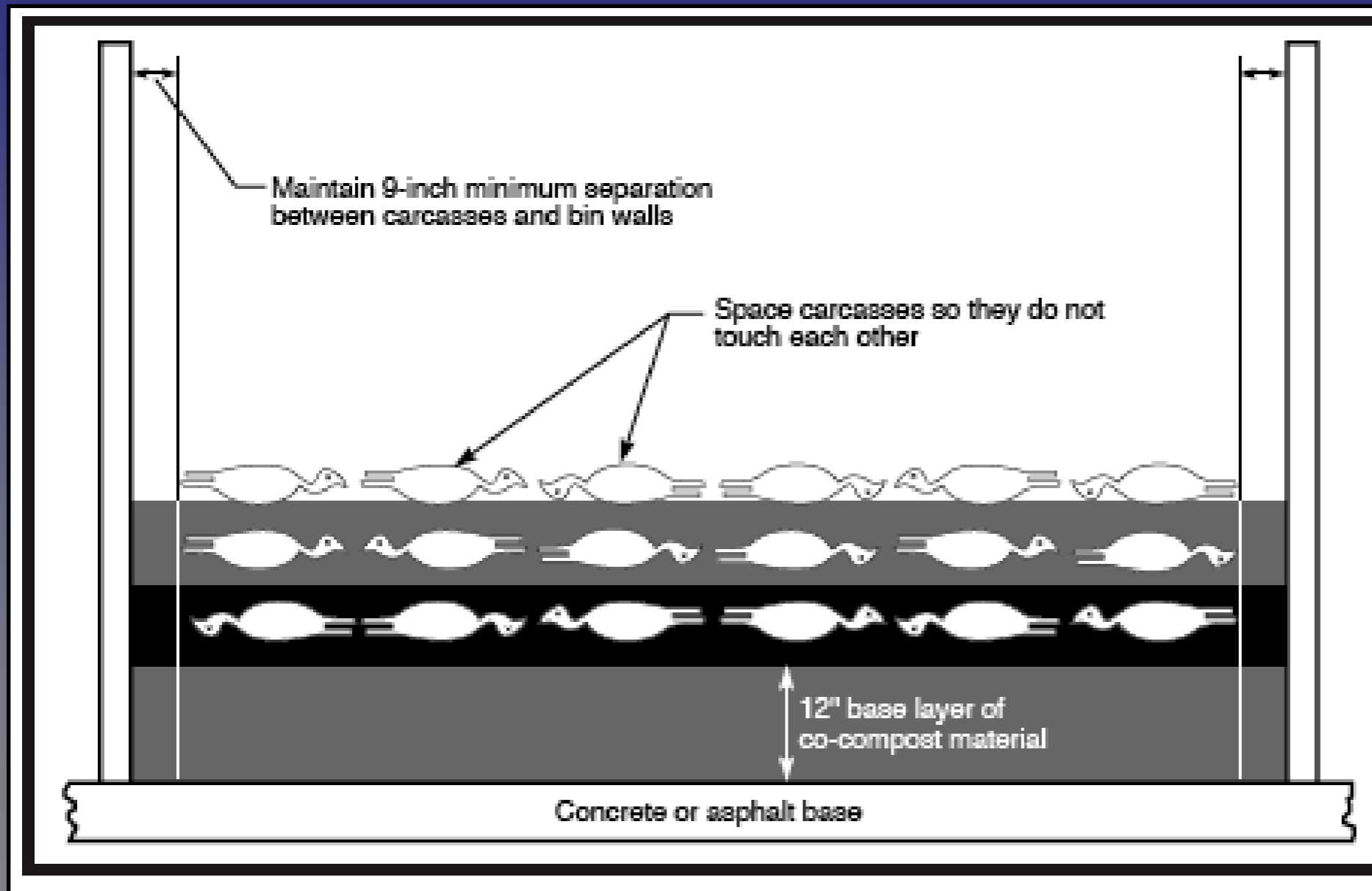


Figure 3.
Composting bins are loaded in layers; each carcass must be surrounded with co-compost materials.

Methods of Home Composting in Alaska



Galena compost of house garbage (anything organic), garden scraps, and chicken house cleaning turned the old fashioned way



Soldotna compost in an old plastic drum set on two sawhorses with casters for easy turning



Kasilof compost in a kiddie pool



Bethel compost of veggie scraps, fish, chicken manure, and house garbage turned with a small tractor

Methods of Community-Scale Composting in Alaska



Gustavus Community Compost

Collected organic waste and wood chips



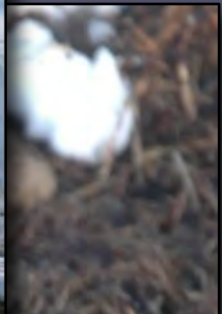
Low-tech Composting Works on the Farm



Pile developed 06 Nov 09



It isn't too cold to compost in Alaska!



Model Vessel for Home or Small-scale Composting



References

Brady, N. and Weil, R. 2008. The nature and properties of soils. (14th ed) Pearson/Prentice Hall, Upper Saddle River, New Jersey. p 536.

Cornell Waste Management Institute. 2002. Natural rendering: composting livestock mortality and butcher waste. Department of Crop & Soil Sciences Cornell University. 12pp. Ithaca, New York.

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Glanville, T. 1999. Composting dead livestock: a new solution to an old problem. Iowa State University - University Extension Sustainable Agriculture #8. 12pp. Ames, Iowa.

Rynk, R., van de Kamp, M., Willson, G., Singley, M., Richard, T., Kolega, J., Gouin, F., Laliberty, L., Kay, D., Murphy, D., Hoitink, H., and Brinton, W. 1992. On-Farm composting handbook. Natural Resource, Agriculture, and Engineering Service #54 Cornell Cooperative Extension. p14. Ithaca, New York.