

HOME COMPOSTING IN CONTEXT: NUTRIENT FLOWS AND USE EFFICIENCY IN AN AMERICAN RESIDENTIAL HOME ECOSYSTEM

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Home composting is more than a cost-effective method for reducing residential waste. Compost also enriches garden soil by adding nutrients that would otherwise be lost to the landfill. These nutrients, including fixed carbon in the form of organic matter and 'humus', nitrogen and phosphorus, are key factors in determining soil fertility and the productivity of natural and agricultural ecosystems. Analysis of nutrient cycles can reveal much about natural ecosystems, as shown by the work of Odom and others. In agricultural ecosystems, studies of nutrient use efficiency have helped demonstrate that routine applications of large amounts of fertilizer may not increase yields, but may well increase pollution.

What can these complementary approaches teach us about American homes and yards? Using modeling techniques from systems theory (especially those suggested by Waddington), ecology and agroecology, this poster presents a preliminary model for nutrient cycling within the boundaries of a suburban home and garden, focusing on the fate of nitrogen, phosphorus and fixed carbon. In contrast to a natural ecosystem, or even a farm, 'conventional' American patterns of suburban life lead to a very low level of nutrient use efficiency. The high level of nutrient 'throughput' and habitual patterns of handling 'garbage' combine to concentrate nutrient losses, generating 'bursts' of extremely high nutrient load that convert desirable nutrients into damaging pollutants. Using the model as a point of departure, this poster examines the effect various behaviors, including 'conventional' lawn and garden design, home composting and centralized composting, on nutrient use efficiency within the home system's boundaries. This approach raises questions about the sustainability of widespread and deeply entrenched behaviors in American culture.

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