The CENTURY model

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The CENTURY model simulates the dynamics of carbon (C), nitrogen (N), phosphorus (P), and sulfur (S) for different plant-soil systems. The model can simulate the dynamics of grassland systems, agricultural crop systems, forest systems, and savanna systems. The grassland/crop and forest systems have different plant production submodels which are linked to a common soil organic matter submodel. The soil organic matter submodel simulates the flow of C, N, P, and S through plant litter and the different inorganic and organic pools in the soil. The model runs using a monthly time step and the major input variables for the model include: (1) monthly average maximum and minimum air temperature, (2) monthly precipitation, (3) lignin N, P, and S content of plant material, (4) soil texture, and (5) atmospheric and soil N inputs.

Soil Organic Matter Submodel

The SOM submodel is based on multiple compartments for SOM and is similar to other models of SOM dynamics (Jenkinson and Rayner 1977, Jenkinson 1990, van Veen and Paul 1981). The pools and flows of SOM (C, N, P) are illustrated in Figure 1. The model includes three soil organic matter pools (active, slow and passive) with different potential

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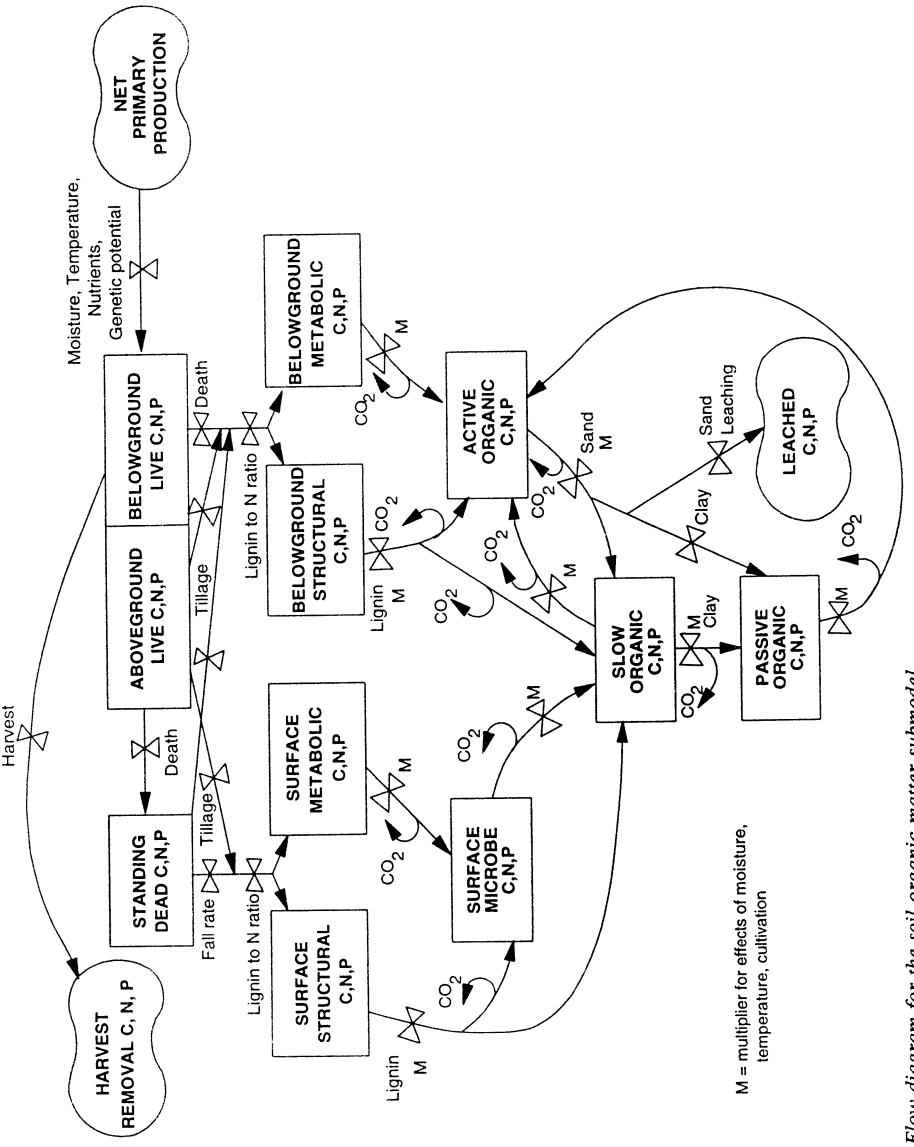

Figure 1 *Flow diagram for the soil organic matter submodel.*