INTRODUCTION

Proper management of crop residues is essential for protecting agricultural soils from wind and water erosion, maintaining soil productivity by recycling of plant nutrients, and improving soil physical properties. Some agricultural regions in the United States produce excessive amounts of residues, far more than is required for erosion control, while other regions produce insufficient amounts to effectively control runoff and erosion.

Residues produced in excessive amounts by such crops as wheat (*Triticum* spp.), corn (*Zea mays* L.), and sugarcane (*Saccharum officinarum* L.) can accumulate in soils because microbial decomposition is suppressed by increased loading rates as well as by soil and climatic conditions. This situation has led to periodic burning of residues to facilitate tillage, planting, and harvesting operations. The burning of crop residues is no longer environmentally acceptable as evidenced by certain legislative constraints imposed on this practice.

There is an increasing awareness that excess crop residues are potential resources that could be utilized as fuel, paper pulp, and livestock feed (Atchison, 1976). Research is needed to determine how much residue could be removed from soils under different tillage and cropping prac-