**Section 560.201 Nutrient Loading**

a) Livestock waste application should not exceed the agronomic nitrogen rate, which is defined as the annual application rate of nitrogen that can be expected to be required for a reasonable anticipated crop yield. It should be recognized that, in most cases, if the agronomic nitrogen rate is met, the phosphorus applied will exceed the crop requirements. Thus, in order to make the best use of phosphorus resources, it may be advisable to apply wastes at the agronomic phosphorus rate. It will be considered acceptable, however, to apply at the nitrogen rate. Appendix A contains some general information on agronomic fertilization rates for various Illinois crops.

b) The nutrient contents of livestock wastes are highly variable even on an individual farm. The best way to determine nutrient contents is to perform an actual chemical analysis. Table 1 and Table 2 are intended to serve only as an aid in estimating the nutrient value of various forms of livestock waste.

c) The values in Table 2 may be used to approximate the amount of nitrogen applied in the soil when application is by either of the following methods:

1) Soil injection

2) Surface application immediately followed by incorporation.

d) When livestock waste is surface applied and allowed to dry before incorporation, some ammonia nitrogen loss can be expected. This loss may be in the range of 25 to 50 percent of the total nitrogen applied. Greatest losses may be expected for wastes with high ammonia nitrogen contents, such as poultry manure or liquid swine manure. The nitrogen values in Table 2 may be reduced by 25 to 50 percent to approximate the amount of nitrogen actually reaching the soil when surface application is used.

e) Not all of the organic nitrogen applied in any one year becomes available for crop use during that year. After a series of approximately equal annual applications (perhaps five years), the nitrogen applied in a year is about equal to the amount of nitrogen available to the crop for that year. For example, if organic nitrogen is applied each year at a rate of 150 pounds per acre, the nitrogen annually available to the crop would reach a level of 150 pounds per acre after about five years. However, until this equilibrium is reached, greater annual application rates are needed in order to meet crop requirements.

f) Table 3 provides estimates of annual nitrogen production for various waste management systems and the corresponding number of animal units needed to provide 100 pounds of nitrogen per year. These values consider nitrogen losses during storage and handling, but do not take into account the availability of nitrogen to the crop after application is made. The values in Table 3 can be used as an aid in determining the adequacy of the land area for manure utilization for a given livestock enterprise.