

effect of heavy manure handling equipment on soil compaction, and the toxic nature of some of the gases that linger in manure pits. If it becomes necessary to enter enclosed manure pits, be sure they are well ventilated to remove hazardous gases. Some of the gases are very fast acting; they can numb your senses very quickly, resulting in paralysis and perhaps death. Some are explosive, so be careful with sparks, flames, etc. When hauling manure, attempt to select days when fields are dry enough to avoid excessive compaction. When possible, avoid spreading manure on frozen ground to avoid runoff. With runoff, you not only lose valuable plant nutrients, you also contribute to pollution problems. To retain as many nutrients, you also contribute to pollution problems. To retain as many nutrients as possible, incorporate manure as soon as possible after applications;


your neighbors will also love you for doing this, and its always more pleasant to be able to farm with their blessings rather than with their disapproval. Use It Wisely Apply manure at the recommended rates. By doing so, we can reduce the need for purchased fertilizer and avoid some of the yield-depressing effects of over application. Over application is a growing concern in areas of heavy livestock concentration. In addition to creating nutrient imbalances and toxic conditions in the soil, which depress crop growth, excess leaching from over-application also contributes to the contamination of our underground water supplies - and we need good, clean water for our families and herds. How do you know how much manure to apply? One way is to have the manure tested. Manure test kits are available through your local Extension Office. Will you get test results back before you are ready to apply manure? Chances are, you won't. But don't let that deter you from testing. Test results now can be a valuable guide for determining future application rates; at least you'll be much more knowledgeable about how to use it than if you haven't tested. For best results, manure samples should probably be collected as you are hauling it, after it has been agitated; you'll get a more representative sample in this manner. If you have open pits, if you switch to different bedding, or if your feed ration changes considerably from season to season, you may want to test manure at different seasons of the

year, as it is being hauled. This will help you monitor the effect of rations, bedding and precipitation on the nutrient content of manure. Then, use the appropriate test results for similar situations as they exist next year. Be sure to use soil test results in conjunction with the manure analysis results, and consider the needs of the crop to be grown as you determine application rates - just as you do when applying fertilizer. Then, use fertilizer to balance ou the nutrients which manure does not provide. When applying manure to corn fields, you may want to apply enough to meet the nitrogen needs. The use of a starter fertilizer is still a good idea in many cases. After a few years, you may discover those P and K levels in the soil are becoming excessive. That may be the time to switch to alfalfa; it's a heavy feeder on these nutrients, especially K. By rotating crops like this, you'll help prevent these nutrients from reaching toxic levels. If manure is to be used for alfalfa, the best way to apply it is to plow it down before making a new seeding. If you have plenty of corn ground, some small grain crops, or some grass fields, apply most of your manure there; it'll do you more good there than it will top dressing alfalfa. Top dressing alfalfa with manure can encourage weeds and shorten the life of the stand.

Nutrient Losses
How many nutrients are lost in storage, and after application? The figures below can give you an estimate, but values will vary considerably depending on farm conditiosn.

Type of Storage System	Percent of Nutrients Retained Through Collection and Storage		
	N	P	K
Dry Stack	60-80	80-95	80-95
Semi-Solid	60-95	80-95	80-95
Earthen Pit	60-80	80-95	80-95
Daily Haul	70-85	85-95	85-95
Tank	70-85	85-95	85-95

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Dairy Pipeline

By
Glenn A. Shirk

Extension
Dairy
Agent

Manure Friend and Foe
It is approaching that time of year when it will soon be time to "clean out" the box stalls and pens, and empty manure storage units. As we perform these tasks it is important that we consider manure both as a valuable resource and as a potential pollutant. We also need to consider the

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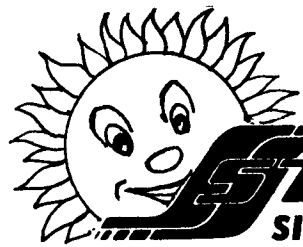
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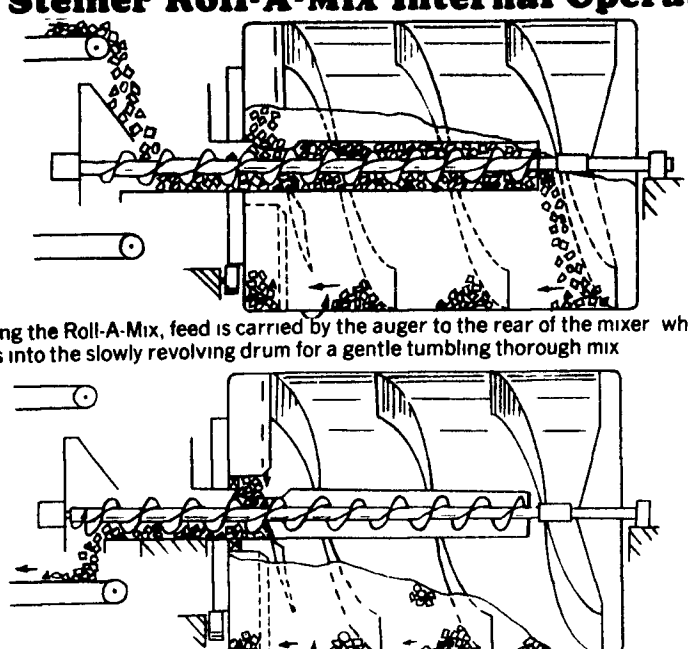


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