ANAEROBIC DIGESTION

PATHOGEN REMOVAL FROM MANURE

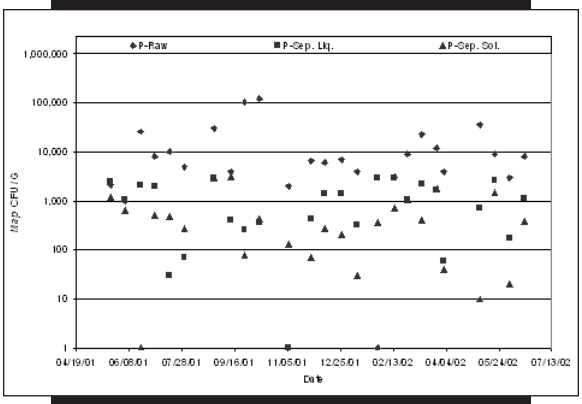

Chart 1. *Map* versus time at Farm 2.

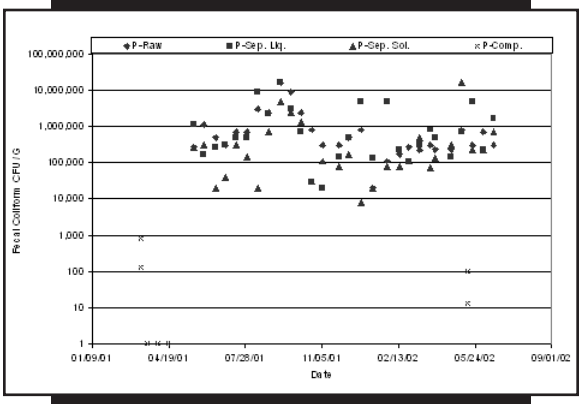

Chart 2. Fecal coliform versus time at Farm 2.

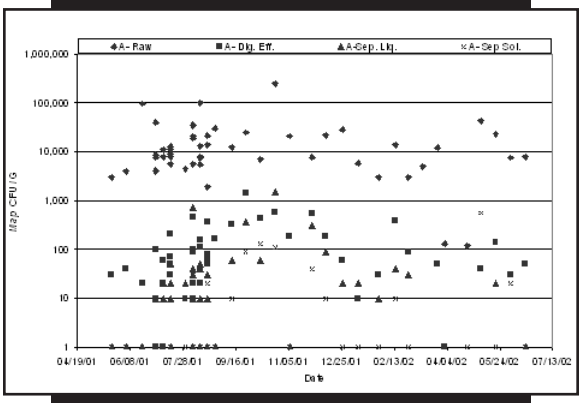

Chart 3. *Map* versus time at Farm 1.

PATHOGEN REDUCTION

Table 1 is a listing of the overall means from all testing results. As can be seen, there is a significant reduction in organisms as the manure goes through the systems. We have no explanation for the rise in fecal coliform from raw manure to separated liquid on Farm 2. The rise in fecal coliform from digested separated liquid to the storage on Farm 1 is likely from the addition of wastewater from the milking center that is introduced into the storage. The reduction in fecal coliform and *Mycobacterium avium subspecies paratuberculosis (Map)*. in this process is significant. This reduction can help justify using the effluent on growing crops, for bedding, and for sale. Because some organisms persist despite the reduction, care should be taken when using this material for bedding or when applying to crops during the growing season.

	Farm 1 with Digester		Farm 2 without DigesterP	
	Fecal Coliform CFU/Gram	*Map* CFU/Gram	Fecal Coliform CFU/Gram	*Map* CFU/Gram
Raw Manure	3,836,400	20,640	1,525,700	20,990
Digested Effluent	3,400	136	N/A	N/A
Separated Liquids	1,700	77	2,085,000	1,200
Storage	7,700	6	87,200	880
Separated Solids	620	20	1,126,400	670
Compost	130	0	12,100	0

Charts 1 and 2 show the variation in the levels of organisms from Farm 2 over time. The raw fecal coliform had a standard deviation of 3,300,000 CFU/gram. The raw manure for *Map* had a standard deviation of 21,000 CFU/gram. There is a large variation in the number of organisms from sample to sample.

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