

SHAC[®] Manure Digester

APPLICATION GUIDE



SHAC[®] Manure Digester

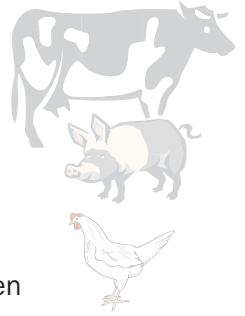
Decreases odors and aids manure management in livestock operations.

SHAC *Manure Digester (MD)* stimulates the resident microbes in the manure to balance and maximize the decomposition process of organic material, particularly manure and bedding.



SHAC *Manure Digester*:

- Decreases odors and gases for a safer, healthier and more pleasant environment for workers and livestock.
- Loosens, liquefies, and reduces organic solids for easier pumping.
- Aids in removing and preventing crusts for easier manure management.
- Increases available nutrients in manure for increased benefit to crops when land spreading and decreased fertilizer costs.
- Reduces overall volume to minimize hauling frequency, pumping and spreading - save time and money.



SHAC MANURE DIGESTER IS DESIGNED FOR THE FOLLOWING MANURE SYSTEMS:

- shallow and deep pit systems
- straw packs / dry mounds and bio-shelters
- shallow gutters with scrapers
- slurry stores and lagoons
- solid separation systems
- open fields and pens

Application Rates:

NOTE: These rates are to be used as a guideline.

Conditions in every barn, pit or lagoon will be different depending on system designs, rations, climate, local water quality, soil conditions, chemical use, and the volume of manure to be digested. Individual users are asked to adjust the application rates either up or down to allow for these inherent variations. For more information, see the information sheet in each shipping case, visit our website www.shac.ca or contact us Toll Free in North America at 1-888-533-4446.

Lagoon and Slurry Store Rates:

	Rate	Where to apply
Initial treatment	40 L MD per 375,000 L manure (10 US gal MD per 100,000 US gal manure)	Directly to the lagoon or slurry store beneath the crust in 2-3 locations.
Maintenance Treatments	20 L MD per 375,000 L manure (5 US gal MD per 100,000 US gal manure)	Directly through the barn flush or drainage system.

* Lagoon maintenance treatments are not necessary if barns are treated on a per head basis (see next page)

Hog Manure Application Rates:

Deep or Shallow Pits:

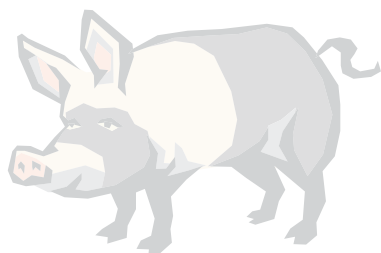
Apply SHAC *Manure Digester* directly into the pit in several locations 6-9 meters (20-30 feet) apart each time the pit is emptied or flushed. Under severe conditions, the treatment locations may have to be closer together. Calculate the dosage using the rates as indicated in the following tables.

Weaners & Finishers:

Number of hogs	First time MD Treatment (L)	Monthly MD rate (L)
100	2	1
200	4	2
300	6	3
400	8	4
500	10	5
600	12	6
700	14	7
800	16	8
900	18	9
1000	20	10



Sows:



These rates are listed on a per month basis, as this is the optimal frequency to apply product to the pits. However, for convenience, the product may be applied for a whole retention period all at once (earlier in the storage period the better).


Number of hogs	First time MD Treatment (L)	Monthly MD rate (L)
50	2	1
100	4	2
200	8	4
300	12	6
400	14	7.5
500	18	9
600	22	11
700	26	13
800	30	15
900	33	16.5
1000	36	18

Example: A producer has 300 weaner hogs in a barn with a pit that has a retention time of 6 months, and wants to use *Manure Digester (MD)* for the first time. How much *Manure Digester* should the producer use and how should it be applied?

Option #1: The producer may apply 6 litres *MD* (first time treatment dose) the first month, and 3 litres *MD* for the next 5 months (resulting in a total of 21L *MD*) until the pit is emptied.


Option #2: The producer may apply the whole 21L *MD* in the first month. Other options include splitting this amount in half, such as applying 10.5 L in the first month, and 10.5 in month 3, or into thirds and applying 7 L every two months.

Dairy / Beef Manure Management Systems Application Rates:

Application	Rate	How and where to apply
Barn Cleaning Systems	Mix 1 litre <i>MD</i> in 20 litres of water (1 US qt. <i>MD</i> per 5 US gal water).	Pour into the scraper pit or along barn gutters to achieve maximum mixing.
Composting Manure Bedding Piles: Before Piling	Mix 1 litre <i>MD</i> in 20 litres of water (1 US qt. <i>MD</i> per 5 US gal water) for every 75 cubic meters (100 cubic yards) of manure.	Spray onto manure. 
Composting Manure and Bedding Piles: After Piling	Mix 1 litre <i>MD</i> in 20 litres of water (1 US qt. <i>MD</i> per 5 US gal water) for every 75 cubic meters (100 cubic yards) of manure.	Spray onto surface of pile and/or inject into pile with spray wands and probes.

* Adding the treatment after piling will reduce effectiveness

Poultry Manure Management Systems Application Rates:

Application	Rate	How and where to apply
Dry Pits	Initial: 1 litre <i>MD</i> in 20 litres of water (1 US qt. <i>MD</i> per 5 US gal water) per 1000 birds per week for the first four weeks of treatment. Maintenance: 1 litre <i>MD</i> in 20 litres of water (1 US qt. <i>MD</i> per 5 US gal water) per 2000 birds per week.	<ul style="list-style-type: none"> Apply at multiple pit locations where you will get best distribution of treatment. 
Litter Packs	1 litre <i>MD</i> in 20 litres of water (1 US qt. <i>MD</i> per 5 US gal water) per 150 birds per turn.	<ul style="list-style-type: none"> Spray litter after it is spread before the birds come in. Follow the same procedure for each turn in deep litter packs. As required, spray areas around water or feed dispensers, as these areas receive the greatest moisture and compaction.

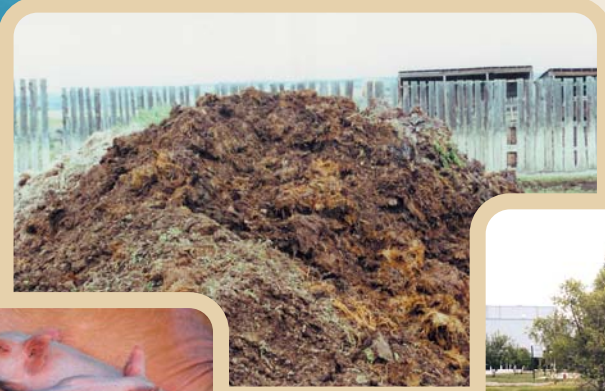




Troubleshooting Guide: SHAC Manure Digester:

Problem	Possible Cause	Solution
Odor is still present	<ul style="list-style-type: none"> • Overflow at top of multi-stage lagoon. 	<ul style="list-style-type: none"> • Lower pipe: liquid should be drawn from intake pipe located in the facultative zone (approx. 1/2 of the pit depth).
Not a lot of percolation and / or bubbling pit	<ul style="list-style-type: none"> • Extreme temperatures present: less than 10°C / 50°F or greater than 71°C / 160°F for a manure or compost pile. 	<ul style="list-style-type: none"> • Too cold: delay treatment until warmer season. • Too hot: may slow/kill some microbes - turn or open pile.
	<ul style="list-style-type: none"> • Presence of chemicals (antibiotics, bleach, copper sulfate, etc). 	<ul style="list-style-type: none"> • Clean out present material in pit / lagoon or dilute material. • Cease adding chemicals to lagoon; dispose elsewhere.
	<ul style="list-style-type: none"> • High salt levels in water and feed ration (check combined value). 	<ul style="list-style-type: none"> • Seek out alternative water sources or decrease the amount of salt in the feed.
	<ul style="list-style-type: none"> • Ensure that all manure is treated. 	<ul style="list-style-type: none"> • Treat & account for all new manure addition to pit/lagoon.
Crust conditions persist for more than 2 weeks and/or pit not working	<ul style="list-style-type: none"> • Manure and/or crust too dry (pit fans drying it out, lagoon pumping for irrigation removing too much moisture. 	<ul style="list-style-type: none"> • Direct fans elsewhere or slow them down. • Add water to pit to ensure at least 30% moisture in pit at all times. • With extensive irrigation, it may be necessary to add more product & water to make up what has been removed. • Persistent crust: try agitating crust surface before pumping and/or: • Spray crust with water and SHAC MD at a rate of: 1L MD / 375 L of water (1 US qt / 100 US gal).
	<ul style="list-style-type: none"> • Harmful substances leaching from new curing concrete (new pit) cause pit to stop working - microbes are harmed by chemicals. 	<ul style="list-style-type: none"> • Treatment is not recommended until pit has been filled to capacity and emptied once: • If treatment is necessary, fill pit with 6" water first and double the rate of MD recommended for that volume.
Sow barn is not working well and/or persistent solid masses present	<ul style="list-style-type: none"> • High fiber sow diets make manure drier and more dense. 	<ul style="list-style-type: none"> • Best results: in several locations furthest from pull plug, inject water into the solid mass where it is thick until it moves or water comes to surface. • If water rises immediately & mass doesn't move, plug drains & fill pit with as much fresh water as possible and apply another treatment of MD.
Stubborn build up	<ul style="list-style-type: none"> • Corners are dry and/or heavy solids. 	<ul style="list-style-type: none"> • Probe holes into solids as deep as possible & pour MD and water directly into holes. Note: consistent treatment and adequate agitation of entire pit should help to prevent this in the future.

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