

### **A ¥6 Million Septic Tank for as Little as ¥500 Thousand!**

One of the most troublesome aspects of any livestock operation is the treatment and disposal of the animal wastes that accumulate in the stock sheds. Small-scale operations normally deal with this by stacking the excrement, a mixture of solid and liquid manure, in some corner of the facility or in compost storage sheds where it is allowed to mature before being used as fertilizer on the fields. However, the solution is not as simple for larger operations handling herds of five or six thousand hogs. In such cases, some organized system of treatment and disposal usually exists which consists either of each hog farm building having its own compost-making facility, or of a group of hog farmers getting together to build a joint facility for the same purpose.

#### **Case history: Massive savings by building a do-it-yourself sewage tank!**

Name of operation:	Nakao Hog Farm
Location:	Kikuchi City, Kumamoto Prefecture
Type of business:	Hog rearing
Size/mix of herd:	Approximately 800 hogs

The function of a septic tank is to treat excrement by means of some form of purification system so that it can be recycled as clean water. But the volume and concentrated density of cattle and swine wastes (solid and liquid manure) makes their recycling a vastly different undertaking from that of human waste.

The biochemical oxygen demand (BOD) of the untreated water (waste water) from human sources entering a septic tank is 600-700 units ppm at the very most, sometimes less. In the case of cattle and hogs, however, BOD measurements are in the region of 20,000-25,000 units ppm. Accordingly, a very much larger septic tank is required to treat the highly concentrated waste matter of these domestic animals.

The estimate quoted for construction of a septic tank on the Nakao operation was ¥6 million (US\$50,000.) Nakao himself got to hear about EM just as he was about to go ahead with its construction, so he put the project on hold and straightaway consulted me. On going to view the proposed construction site, I found it to be occupied by a row of abandoned hog pens, a situation I decided could be turned to Nakao's advantage.

I calculated that if the existing storage tank and the unused hog pens could somehow be used together, it should provide storage for about one month. I suggested this to Nakao, who decided to put the plan into operation. He started at once mixing cement, piling up pre-formed concrete blocks and creating the partitions that would become the compartments in the tank. By the time he had fitted his construction with a blower, he had his own, homemade, do-it-yourself septic tank.

The solid and liquid manure stored in the tank was treated with EM. After a month, the last compartment of the tank was found to contain only dry material and no manure. Nakao and I were both astonished that for an outlay of no more than ¥500,000 (US\$4,167) he had managed to build himself a facility which according to the estimate he had been given would have cost him ¥6 million (US\$50,000) to have built professionally. Moreover, even at ¥6 million, the tank he had originally intended buying would still not have been capable of treating his manure to achieve the same degree of purification without the use of EM. Even now, Nakao is still getting hordes of visitors coming to study and investigate his super do-it-yourself septic tank.

#### **Case history: How a Mountain of manure was converted into a gold mine!**

Name of operation:	Hagiwara Hog Farms
Location:	Takajo-machi, Miyazaki Prefecture
Type of business:	Hog rearing
Size/mix of herd:	Approximately 6,000 hogs

Hagiwara Hog Farms is a group comprising six separate hog farms collected in one location. The group as a whole has received subsidies from both national and prefectural governments to build joint stock-rearing facilities as well as a joint compost production plant for the treatment and disposal of animal wastes. Construction of the compost plant alone cost several tens of millions of yen, but because it employed conventional methods of treating the waste, the terrible stench and huge swarms of flies that resulted whenever it was in operation became a major source of trouble and inconvenience to the entire area.

The original intention in building the plant had been to sell its output of barnyard manure to crop farmers in the area, but this did not work out as planned. Even after being treated, the manure continued to exude a distinctive and pungent odor, so that contrary to initial expectations, no one in the local farming community was interested in purchasing it, and the neatly packaged bags of manure lay around unsold.

When the group made the joint decision to switch over to EM, it was fortunate in having an arrangement whereby all the farms shared a central water supply, a fact that greatly simplified matters because it allowed EM to be introduced to all six operations simultaneously through the water distribution system. Water from the central tank was used both for the animals' drinking water as well as for cleaning out the hog pens. The underground water which sourced the operation's water supply was pumped up and stored in the central tank until required for use.

An EM program was instigated which began with introducing EM into the central water tank. This meant that the hogs began drinking water containing EM at the same time as the hog pens were being sluiced out with it. After several weeks, all the hog pens in the complex were odor-free. With the source of the odors eradicated, for the first time in several years, the Shinto shrine adjacent to the complex decided it would be able to start holding its annual summer festival once again. This case is a good example of how the intervention of EM made it possible to turn what had virtually become a wasteland back into a place fit to be used as a venue for a religious celebration.

There had also been a dramatic reduction in the number of flies swarming around the compost plant. In addition, the smell of barnyard manure had disappeared completely to be replaced by a rather pleasant fresh, earthy smell. When the new output of compost from the plant was offered for sale to local horticulturalists and operations involved in the businesses of growing ornamental shrubs, orders came pouring in and sales of the compost at ¥450 (US\$3.75) a bag went into overdrive. In the winter, during the time when their customers were busily involved in preparing the ground for the coming growing season, the compost plant was unable to keep up with customers' demand. What it did was repackage its compost, putting the EM compost in special bags and selling it under the brand name EM Hog Manure so that in future it would be easily distinguished from regular compost.