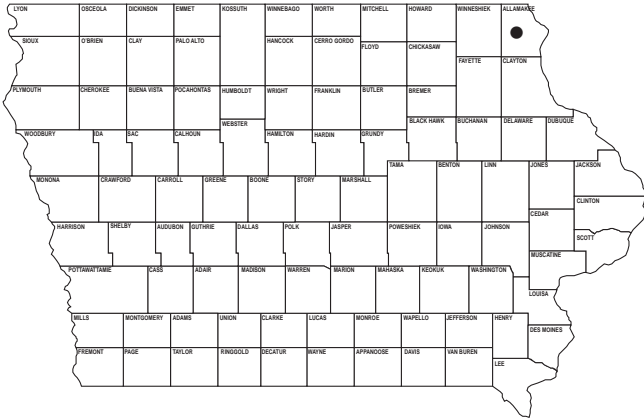


Feedlot Runoff Control

Demonstration Site: Dairy Lot



Location

Allamakee County

Operator

Greg Palmer
Rural Route 1
Waukon, IA 52172
Phone: (319) 568-3868

Please call for a viewing appointment.

The Palmers, Greg and son Eric, operate a crop and dairy farm on typical northeast Iowa soils—fairly steep, and close to high quality streams. To protect water quality, many dairy farms in the region have manure holding pits.

Directions

From the intersection of Highways 9 and 76 south of Waukon, go 1 mile south, then 1/2 mile east on gravel and 1/2 mile north. Take the lane on the right, across the road from a concrete silo.

Lot Description

This 100-head Holstein dairy facility consists of an 82-head tie stall barn, plus open concrete lots for additional animals. An ever-green windbreak bounds the north and west sides of the farmstead. A terrace on the west diverts runoff water from above.



The comma-shaped concrete pit is located at the lower right side of the barn and lots. At left, a diversion terrace next to the trees keeps away excess water.

Operator's Comments

"Liquid manure is easy to deal with if done right. The right kind of agitation pump is critical. Trying to deal with manure from this system was a nightmare until I got the right pump. Now it's a piece of cake. We haul out manure just like we harvest. I schedule it, and when it's time, it's our primary job until it's done. I do it right so I get full benefit from the nutrients."

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Runoff Control System

The Palmers' manure management system features a concrete, comma-shaped manure storage pit. It receives manure from the straw-bedded tie stall barn as well as settled solids from the adjacent open concrete lots. The pit provides about 10 months of storage.

A porous dam stops the solids but allows much of the runoff liquid from the south outdoor lot to bypass the pit after solids are settled out on the lot. Releasing some liquids reduces the manure volume that must be handled. A 20-inch-high concrete wall separating the lot from the pit directs runoff liquids to the porous dam. Solids left on the lot are scraped into the pit with a tractor and loader.

The Palmers remove manure from the pit by pumping over a vertical wall, or by driving down the access ramp. The pit holds approximately 450,000 gallons of manure when it is full. A nutrient test during a pumpout in 1993 showed 44 pounds of N, 21 pounds of P_2O_5 , and 36 pounds of K_2O per 1,000 gallons of manure. At 1993 prices (16¢, 26¢, and 14¢ respectively), that is nearly \$9,500 worth of fertilizer per year.

Written by Jeffery Lorimor, ISU Extension waste management specialist.

File: Engineering 1-1



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... and justice for all

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This south lot slopes toward a porous dam. The pit and tie stall barn are seen in the background.



Vertical 2-by-4's make a porous dam in a lot corner to retain solids. Liquids bypass the pit via an intake behind the dam, and a short drain line.



One leg of the comma-shaped pit is an access ramp allowing machinery to enter the pit.