

Tiling Mangers to Improve Dry Matter Intake and Clean Ability

Summer 2010

By Zen Miller

Introduction

Over the years concrete mangers deteriorate leaving rocks and gravel exposed. Cows tend to lick over the rough areas and a build up of feed tends to smooth out the feeding surface. This feed becomes rotten and the area becomes hard to clean, thus wasting expensive feed and reducing dry matter intake. Dairy producers have tried fixing this problem with concrete patches, plastic liners and laying tile on top of existing concrete. Patches tend to break up again, plastic liners get water and feed underneath them and then smell and become hard to clean because they are hard to seal to the concrete. Laying ceramic tile in a layer of sand mix concrete is a cost effective way to solve the problem and using recycled tile from the ReStore reduces the installation cost.

Cost

The cost of installation will vary but buying the ceramic tile at half price (12"x 12" tile = \$.50) at the ReStore the tile cost for a linear foot of manger two feet wide at \$1.00 and the Kwik Crete sand mix in 60 pound bags sells for about \$5.00. Depending on the pit and roughness of the existing concrete surface a bag of Kwik Crete will cover an area about 5' long x 2' wide, thus about \$2.00 per running foot of manger. I am not figuring labor as I think this is a do it yourself project. Currently the cost of tiles at the local ReStore is \$.50 for 12"x 12" or 13"x 13" and \$.20 for 8"x 8" tiles. The ReStore is part of Habitat for Humanity and allows people to recycle used or left over building materials in support of low income housing nationwide.

Procedure

The following is a step by step procedure to resurface a manger by using recycled tile purchased at the Restore.

- Measure the area and plan the tile size and amount needed, estimate Kwik Crete Sand mix needed.
- Clean surfaces to be tiled. I recommend a power washer and plenty of pressure.

- Remove any extra water settled in the depressed areas of the manger. I think a shop vac or a wet/dry vac is the best for this.
- Mix Kwik Crete sand mix in a wheel barrow. Keep the sand mix on the wet side which makes it easier to push the tile in and work with it.
- Set tile in wet mix and use a level to get a slight slope to drain water from the cow side.
- Run fan to help dry surface and keep cows off tile manger for 12-36 hours or 1-3 milkings or until surface has cured. Remember tile color and width of tile spacing effects the cow little, do a good job but forget perfection. Most of these mangers are not square or flat to start with and the new surface is an improvement over the old one.
- Clean the new surface before feeding on it. A light washing will clean off the film of concrete on the surface.

Experience

On June 4, 2010 I went to a farm by Clintonville, Wisconsin. We laid tile in a section of manger that was 2' wide and about 56' long. We did the south west part of the stanchion barn. There were 7 tiles left over so we did the first stall on the southeast side as well. I purchased six bags of Kwik Crete sand mix and we were a bag short of having enough. I purchased 56 tiles that were 12"x 12" and one tile was broken by a cow while in storage. There was a hole in the manger because the concrete had deteriorated. We mixed the sand mix in a wheel barrow and the water standing in the manger made it plenty wet. We trowled the concrete mix in and laid the tile imbedded in the mix. We used a level to try and keep the pitch to one direction and keep our new surface tiles somewhat level. 12"x 12" tiles cost \$.50 per tile at



the Restore in Appleton. Cows needed to stay off the tiles and manger for 2-3 milkings depending on depth of Kwik Crete laid in manger and how wet the mix was when used.

On July 6, 2010 I worked with a dairy producer to fix part of their manger. Again, it was the old southwest part of the manger in the stanchion barn. The manger was not a complete 24" wide so we had to go back to the ReStore and purchase 8" tile to go with the 12 " tile. We used a power

washer to clean the concrete bottom of the manger. This was faster and a better wash. There was a hole in the manger as well as having the concrete broken through under a water cup that had



leaked. We cleaned about 60 feet of manger about 16 stalls. I purchased eight bags of Kwik Crete sand mix and should have bought ten bags. These stalls were 45" wide. In the end we used a concrete patch mix that was left from another project and still needed more concrete so we left about 1.5 stalls undone. The water in the manger dips made the Kwik Crete to wet, so a shop vac was employed to suck the water out and left a wet surface with no standing water. We still used a level and only had a couple of dips and high spots when we were done.

In August a third dairy farm used left over tiles to cover a section of manger that was pitted and deteriorated. In this section of the barn the cows were head to head so tile were laid and sloped to the middle of the old manger to let the extra water from the drinking cups run away from the feed. Also the middle of the aisle / manger was not tiled but left with smooth concrete so the farmer would not slip as easily when feeding the cows. The

farmer used Tamms Speed Crete-Red Line that was made to set up quickly. The mix was \$15 per bag and the concrete was set up and hard before milking that night.



Conclusion and Comments

Fixing older mangers with tile is a cost effective way to improve manger management by providing a surface that is easy to clean and smooth for cows to eat from. The nice thing about tile laid in concrete is they stay down tight to the manger and do not allow any liquid to get under the tile and spoil. Tile can be purchased at half price at the ReStore which helps to reduce waste and recycle building materials. It also helps Habitat for Humanity to fund its building projects. Although I have little research that says dry matter intakes increase, I assume intakes are better on clean smooth surfaces with little spoiled feed left behind. Tile is able to withstand acids and water because of its hard finish. Tile can be put in to fix a manger, small sections at a time to fit your budget or time constraints.

If you have a pitted manger and are contemplating a new surface, you might consider the following comments from some area dairy producers. "I have had tile down for many years and have never had a tile come up yet." "If I knew it was this easy to do. I would have done it a long time ago." "It really makes cleaning the left over feed up so much easier." "I don't see any increase feed intake but the tile really makes my life easier." Take it from your fellow farmers don't put off improving your manger, your cows will like it and you will be happy with the improved cleaning ability of this surface.