

WHEN YOU CLEAN OUT A FEEDLOT PEN, DON'T SCRAPE TOO DEEP - Stephen Boyles, OSU Extension Beef Specialist

The surface of a feedlot is actually a series of layers due to density differences, including, from the surface down: Manure Layer, Manure Soil Layer, Compacted Soil. The density of the top manure layer is 40 pounds to 58 pounds per cubic foot. The compacted manure/soil layers immediately below has a density of 62 to 106 pounds per cubic foot. Compacted layers of manure and soil usually provide a seal to reduce water infiltration rates to less than 0.002 inches per hour. Leaching of nitrates to groundwater is effectively controlled when percolation rates are that low. Lower nitrate values in the compacted zone and below may also be due to anaerobic (no air) conditions that lead to denitrification.

In an active feedlot, disturbance of the 3 inch to 4-inch layer of compacted manure above the soil should be avoided. The compacted interface between manure and soil will function as a seal that prevents percolation and promotes anaerobic decomposition of nitrates. Therefore careful removal of the upper partially decomposed manure in unpaved lots is a critical step in groundwater protection.

Collection of manure should be designed to maintain a surface seal, to promote good drainage, and to collect a high quality product. A skilled front-end loader operator can remove the manure and leave the compacted manure/soil layer. However, it is not easy to do with a front-end loader. The operator normally has to shift gears four times per bucket load while traveling in a forward/reverse/forward/reverse motion. Simultaneously, the operator must control the vertical movement of the bucket.

Feedlot operators who have unpaved feedlots might consider this little trick to find the hardpan before scraping pens. Use a long screwdriver to determine location of the hard layer. Push the screwdriver into the pen surface until you feel resistance. Repeat the test at several locations throughout the pen and use the measurement as a guide for setting the scraping an inch or two above the hardpan.

The entire pen does not always have to be cleaned. Much of the manure falls within about 50 feet of the feedbunk. Remember to remove manure from below fences for this manure can work as a dam to impound water and can be a breeding ground for flies.