

# Worms and mudcats

*Right field has had a problem with "liquefaction" over the last year. Watering, aerification, topdressing, verticutting, and fertilization have been consistent through the entire field. In August we placed our infield rain tarp in the outfield from 7 PM until 8 the next morning. There were approximately 100 earthworms per square foot stuck to the underside of the tarp in the area that was covering the softest area of right field. Could the amount of earthworms be a factor in how soft that area is getting?*

John Packer Jr.

Director of Field Operations

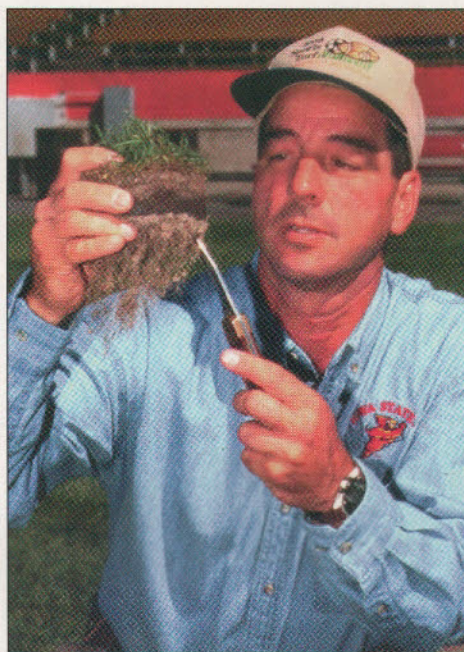
Carolina Mudcats/Florida Marlins Affiliate

John and I visited over the phone and I just received two core samples from his field today. We will run them for organic matter and particle size to determine how much water the rootzone will actually hold. The field was originally a "native soil" field with a high clay and silt content but through John's aerification and topdressing program it appears that he has incorporated at least an inch of sand into the top 3 inches by aerification.

John notes that sections of his field become very wet and lose stability. His description of "liquefaction" is very telling in that the field is soft to the point of making sunken footprints. The term "liquefaction" also makes me think of what earth contractors refer to as "pumping ground," that which moves up and down under foot or vehicle traffic. This type of "pumping ground" must often be left alone until it dries out and becomes solid enough to tread on.

High silt and clay contents hold large amounts of water and drain slowly leading to the "liquefaction and pumping" action of the ground. The aerification and sand topdressing is probably letting more water enter the surface three inches but the silt and clay subgrade keeps both the subgrade and the surface 3 inches excessively wet. The earthworms are prolific because they prefer the continually wet conditions but they probably are not contributing to the wet or unstable condition.

In this case I would not be concerned with the worms nor would I try to control them. Earthworms typically provide a turf growing benefits such as soil aeration, aggregation, mixing, and topdressing from worm casts. I don't have a good explanation why they came out of the ground during your August covering of the outfield. Worms typically come to the surface to get oxygen



when soil becomes waterlogged.

I believe the aerification and sand topdressing should continue. Additionally, deep tine aerification with a vertidrain would help break-up the subgrade that was probably compacted during construction. The solid tine can fracture the subsurface and a hollow tine with sand topdressing and core removal will speed the transition from clay to sand. This approach is worth the effort but a more substantial fix is to place trench drains in the outfield to regulate both the surface and sub-surface water problem.

Since the clay subgrade seems to be the biggest problem I would be sure that drains are placed deep enough and close enough to regulate the water table in the field so that the subsurface does not stay saturated and cause water to stay too near the surface. Additionally, narrow sand trenches that range from 1-3 inches wide can be placed on 1 foot to 10-foot centers to provide rapid removal of surface water before it has time to settle into the clay subsurface. At the same time you may want to compare the cost of this type of retrofit drainage vs. the cost of a completely installed sand carpet system.

Could the worms be contributing to part of the problem with the field "liquefaction"? I don't think so . . . but from that fateful August night and under cover from rain the worms whispered their Mudcat advice . . . "lose the mud and win the game."

ST

## Have Questions?

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