

When a prank goes bad



BY DR. GRADY MILLER

Professor, North Carolina State University

Questions?

Send them to
Grady Miller at

North Carolina State University,
Box 7620, Raleigh, NC 27695-
7620, or email
grady_miller@ncsu.edu

Or, send your
question to

David Minner at
Iowa State University, 106 Horti-
culture Hall, Ames, IA 50011
or email
dminner@iastate.edu.

Coach Beam and Principal Aaron Allen of Burns High School in Cleveland County, NC called me in late October with this situation. The week before someone had released goats into Ron Green Stadium. Within this stadium is the school's varsity football and soccer field. The prank came just a few weeks after nearly 100 people were sickened by E. coli (one 2-year-old died from the illness) at their county fair, believed to be caused by contact with animals in the petting zoo. The state Division of Public Health was consulted and made the recommendation to the Cleveland County Health Department that the athletic field be "off limits" for use for 6 months. The school's question was, "is there anything we can do to get the field opened earlier?"

This story was picked up by ABC News, putting it in a national spotlight. So, many of you may have first heard about this issue like I did, while watching the nightly news. When I first heard the story, I dismissed it as a prank. I figured a combination of science and common sense would prevail and the field would be re-opened in short order. After all, the goats used in the prank are owned by the school. They are used in their agriculture instruction programs and normally kept in an area adjacent to the stadium. So, why the big fuss, right?

A couple of days after hearing about it on the news, I got the call from Coach Beam. It was then that I realized I had underestimated the seriousness as a potential medical issue and the travesty for the athletics and school supporters from the social and political fallout that followed the prank. Before offering any help, I needed to learn more about *E. coli*. I had studied *E. coli* bacteria when I took microbiology in college many years ago but years had eroded my memory of the sub-

ject. I should note that the coach and principal wanted to have the field opened sooner than 6 months, but they also wanted assurance that the field was safe when it was opened.

E. coli, short for *Escherichia coli* are bacteria commonly found in the intestine of warm-blooded animals. Most strains are harmless, but some can cause serious food poisoning in humans. Sickness due to *E. coli*.

is most often associated with fecal contamination. The most virulent strains, such as strain O157:H7, can cause serious illness or even death to those with weaker immune systems. From what I learned, a healthy high school athlete would generally not be considered "at risk" for significant sickness from exposure to the bacteria.

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During my research, I talked with colleagues and a representative with the state health department. No one I spoke with, including the scientist with the state health department that recommended the 6-month closure, had any idea how long *E. coli* could remain viable in a natural grass athletic field. The representative indicated that some studies and a literature review following a petting zoo incidence at a past NC state fair suggested the bacteria could live about 5 months after animals are removed from the holding pens. So the rationale in this

case was to use this knowledge as a worst-case scenario and then apply it to the closing of the athletic field for a 6-month period. The extra month was for added safety.

I did some of my own searching in microbiology journals for evidence that it may not last as long in a turf environment. There seems to be very little research this specific, but I did find two pertinent references. One study reported that when fecal material infected with a general *E. coli* and *E. coli* O157 (one of the bad ones) was applied to grass plots that O157 could only be detected on the grass for the first week after application. The general *E. coli* numbers steadily declined to less than 1 percent of those applied by day 29. It also reported that heavy rainfall reduces *E. coli*. The other study was less specific and just evaluated infected soil and plant roots. Their findings indicated that *E. coli* O157 could persist on some plant roots up to 96 days. So even in these worst case scenarios, the *E. coli* was gone from the grass within a month and may be detectable in a soil out to about 3 months. That would cut the suspension of field use by half.

I sent these references to the State Department of Health and they indicated they would review these findings as well as other information they had solicited from their colleagues in other states. I am no microbiologist, so I cannot definitively say that the two Health Departments overreacted or not. There seems little doubt that their decisions were influenced by previous cases (and litigation) involving sickness from petting zoos. But was the worst-case scenario reaction to close the field for 6 months reasonable? So far this remains an unanswered question, since there has been no change in the closure. Last I heard the field will be re-opened for use April 19. ■