

## **Breckenridge ISD demonstrates Dairy Manure Compost on Football Field**

The Buckaroos of Breckenridge High School, 500 West Lindsey, Breckenridge, had been practicing football on a field with compacted soil and poor grass cover and density on many sections.

Phillip Bales, Stephens County Extension Agent - Agriculture, Texas Cooperative Extension, offered to work with the school district to address these problems. With inputs from Dr. Jim McAfee, Extension Turfgrass Specialist in Dallas, Bales formulated plans for a turf management demonstration that included mechanical aeration of the field, fertilization with dairy manure compost supplemented with inorganic nitrogen, and other practices such as timely irrigation.

The demonstration was initiated in May 2004, and turf response ratings were taken through September 2004. This trial compared dairy manure compost applied alone, dairy manure compost amended with inorganic fertilizer, and inorganic nitrogen fertilizer alone. The treatments were (a) 40 tons/acre dairy manure compost, (b) 40 tons/acre dairy manure compost followed by 20 pounds/acre inorganic nitrogen and (c) 60 pounds/acre inorganic nitrogen.

Through a program funded by the Texas Commission on Environmental Quality and designed to assist public entities with utilization of composted dairy manure, Bales was able to provide the dairy manure compost utilized in the demonstration.

Visual assessments were made of turf stand, density, color, and weed presence. Overall health of the practice field vegetation improved across all treatments. Specifically, turf density improved providing coverage on many previously bare areas. Bales reported that the improvement was sustained even after athletic activity resumed in 2005.

PREPARED IN COOPERATION WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND U.S. ENVIRONMENTAL PROTECTION AGENCY

The preparation of this report was financed through grants from the U.S. Environmental Protection Agency through the Texas Commission on Environmental Quality.

Tommy Wolfe, Director of Maintenance and Transportation, Breckenridge Independent School District, said that \$200 was spent annually to purchase and apply inorganic fertilizer to the football field before the demonstration. Because dairy manure compost provides plant essential nutrients in organic form, the school purchased less inorganic fertilizer following the compost demonstration. The benefit of utilizing less inorganic fertilizer has the potential to last 2 to 3 years as the phosphorus and potash provided by dairy manure compost can persist beyond one year. Wolfe indicated that irrigation costs (estimated at \$150/year) were not affected by treatments.

Unfortunately the dairy compost used in the trial was not of top-dress quality, which resulted in some unintended consequences. This "general use" grade material contained small rock (limestone or caliche) fragments, which had to be removed by hand. Also, the appearance of some weeds in the turf suggested that the product was not fully composted, e.g. proper temperatures were not maintained. When composted correctly, dairy manure compost should not contain any viable weed seeds. While use of this product could be effective in other situations, such as cases where it would be incorporated into the soil, its use as a top-dress would not be recommended.

Dairy manure is transformed into compost by several commercial businesses located in the North Bosque and Leon River watersheds. Different grades of compost are available for a variety of applications, including top dressing, soil amendment and erosion control. Top-dress quality products are available and typically are made from selected feed stocks that are rock free and screened to insure product uniformity.

----