



Harvesting sprigs from the Blue Valley School District Agronomy Center. Courtesy: Jody Gill

Growing Bermudagrass in Kansas

by Jody Gill and Sam Ferro

One school district's turfgrass solution

Blue Valley School District comprises 91 square miles in the Johnson County suburbs of Kansas City. In early 1995, the school district embarked on an ambitious upgrade of its District Activity Center (DAC). Improvements included new baseball and softball fields.

That same year, the Midwest experienced "100-year flood rain levels." These intense rains brought light to some field problems at the DAC. The school district brought in Turf Diagnostics and Design (TD&D) to evaluate the problems and suggest improvements.

TD&D made several recommendations, including improving the grades, adding sub-surface drainage, and changing the warning tracks. However, company President Chuck Dixon had something more radical in mind. He suggested the school district switch from the traditional cool-season grasses that were in use (rye, fescue, and bluegrass), to warm-season bermudagrass.

School Board members, parents, and district boosters expressed many doubts about the plan. Bermudagrass simply wasn't used in

Kansas, and many felt it would never survive the occasionally harsh winter weather.

However, a newer strain of common-type bermuda, Quickstand, had the potential to withstand Kansas winters, which generally experience low temperatures of -10 degrees F, and occasionally -20 degrees F. The particular strain featured winter hardiness, quick spring green-up, and the safety of bermuda compared to the rough and clumpy tall fescue fields that were common in the area. Bermudagrass also offered significant heat tolerance advantages over bluegrass fields, and Kansas summers often experience long stretches of 90- to 105-degree F weather.

First summer

When the school board finally agreed to the proposal, we solicited several local turf farms to grow the Quickstand. No one was interested in the project, so the district set out to develop a turf farm of its own. The school board set aside a 10-acre site, and the Blue Valley School District Agronomy Center was born.



(A) Practice field one day after sprigging. Courtesy: Jody Gill

had brought complete turf coverage with a thick layer of stolons over the surface and primary roots more than six inches deep.

(B) Same practice field five weeks after sprigging. Courtesy: Jody Gill



Contractors tilled the farm and applied a 10-20-20 fertilizer in June 1996. They applied agricultural lime to all areas that would be sprigged to increase the soil pH to between 6.0 and 7.0. Sprigging at a rate of 750-bushels per acre began late in the month.

A cropduster applied ammonium nitrate during the first and second weeks of sprigging due to saturated soil conditions. Fertilization in the third week consisted of a 10-20-20 fertilizer, plus liquid chelated iron and root development mix applications. Combined with heavy irrigation the first two weeks and mowing heights of less than one inch, this routine allowed sprigs to grow and spread rapidly.

Over the next several weeks, weekly fertilizer kept the bermuda-grass growing aggressively. Irrigation was scaled back as the sprigs rooted and started to grow laterally. By the time the farm was turned over to the Blue Valley grounds team at the end of August 1996, the nearly fully established Quickstand exhibited excellent color and vigor.

Temporary setback

Rain delayed a planned fall 1996 harvest. The school district chose to forgo a risky November harvest in favor of cool-season sod installation. A rescheduled summer 1997 harvest would benefit other sites.

In late August, nitrogen fertilization was stopped at the farm to discourage top growth. Increased phosphate and potassium fertilization would prepare the turf for winter.

As dormancy approached in mid-October, the farm experienced vertical growth of 0.5 inches per week and rhizome elongation of 1.5 inches per week. Rooting had increased three inches in one month.

The final mowing height was set at 2.5 inches. The turf went fully dormant in mid-November. Five months



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Improved District Activity Center
ready for play. Courtesy: Jody Gill

Harvesting and planting

The winter of 1996-97 brought no snow cover, and the lowest recorded temperature measured -17 degrees F. The bermudagrass survived with no winterkill, and the stolons and rhizomes remained thick all winter. The turf was fully green by mid-May.

Summer 1997 gave the Blue Valley crew its first opportunity to harvest and plant sod and sprigs from the turf farm. They chose four of the school district's athletic fields for renovation.

One month before the harvest, the crew sprayed each field with Roundup, raked to remove vegetation, and resprayed. They performed fertility tests, and made final preparations for sprigging and sodding.

In early June, the crew harvested and planted sprigs at a district high school football field. They moved on to two middle school game fields in late June/early July. Each field was sprigged at 900 bushels per acre.

Fully established by mid-July, the sprigged high school field performed well by August. The middle schools were fully established by early September.

Large-roll sod harvested from the farm also provided a new surface for the DAC football field in early July.

Sod and sprig harvest areas at the farm fully re-established within six weeks. The turf survived the following winter without winterkill once again, despite a recorded low temperature of -11 degrees F.

The 1998 harvest proved even more successful than the previous one.

Operational changes based on lessons learned allowed reductions in both costs and establishment time.

Harvested sprigs were planted at two high school football practice fields at the beginning of June, and at two middle school football fields early in July. A doubled sprigging rate of 1800 bushels per acre resulted in full turf establishment within five weeks.

Large-roll sod installed at a new middle school football field September 15 hosted games in early October. As before, all harvest areas re-established within six weeks.

Experimentation

To more efficiently convert fields to Quickstand, the Blue Valley grounds crew began experimenting with simple oversprigging into existing cool-season turf. To prevent competition from the existing turf, the crew killed the fields with Roundup 10 days before sprigging. Two days before sprigging, they saturated the fields with water to allow maximum penetration of sprig planter presswheels.

The procedure cut labor and equipment costs by 50 percent compared to the first bermuda conversion in 1997. However, the new, preferred method applied only to fields where grading was not necessary to re-establish the crown.

Performance

Though it's still dormant in early spring, the bermuda is thick and dense enough on most fields to support heavy play without overseeding. Even when

damage occurs in the spring, the bermuda rapidly recovers on its own during the heat of summer.

The school district closes and fences off all of its bermuda fields in early November to maintain the thick, dense blanket of turf and stolons achieved by raising mowing heights in September and October. This provides insulation to protect the rhizomes from extreme winter temperatures and possible winterkill. Fields are irrigated as needed during the winter to prevent plant desiccation.

Blue Valley has received many positive comments on its Quickstand bermudagrass fields from coaches, players, and patrons. While some fields are not candidates for Quickstand conversion due to winter use requirements, there are still many fields eligible and waiting for conversion.



Jody Gill has served as grounds manager for Blue Valley School District since July 1996. In addition to the turf farm, he manages more than 600 acres of athletic fields and grounds.

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