

hours from harvest, the big rolls of sod arrive at Busch Stadium, home of the St. Louis Cardinals Major League Baseball team. There they are unloaded and installed as the stadium's new playing field surface. For 3 days straight, trucks make the drive from Colorado to the Midwest, and the process is repeated again.

Two days after the field is completed, St. Louis gets its first hard freeze of the winter. The fragile new sod will stay frozen until nearly March. In April, the Cardinals play their 2014 home opener against the Cincinnati Reds winning 5-3, and the grass doesn't miss a beat, performing as well as the players.

There are about a half-dozen sod farms within 30 miles of Busch Stadium. So why did Billy Findley, head groundskeeper for the Cardinals since 1998, ship sod from a farm some 800 miles away?

"The main reasons we work with Graff's Turf Farms are they're easy to work with and their growing medium is the closest to the sand here at the stadium that we can find. They grow on a very sandy soil and you need that so you don't have a layering effect or interface issue. They have a very sandy soil, they have a great product, they grow great turf," Findley says. "We'd have to truck it in from somewhere. It's hard to find the sandy soil that you need here in St. Louis."

Graff's Turf Farms also grows a new blend of bluegrass, called HGT (short for Healthy Grass Technology) that Findley was eager to have on his field. HGT Bluegrass is a bluegrass blend developed by Barenbrug USA, a turfgrass seed producer based in Oregon. The grass is licensed for sod production through Sod Solutions, out of Mount Pleasant, SC. Findley says that after he did his research, he was interested in grassing his field with HGT because of its reported resistance to summer patch disease and for its wear tolerance.

In tests conducted by the National Turfgrass Evaluation Program between 2005 and 2010, HGT was found to have the lowest incidence of summer patch and fastest coverage rates—in total earning better ratings in 16 key indicator categories—over all other bluegrass varieties tested.

"Summer patch is a disease we struggle with in St. Louis because of the warm, humid months. It's tough to find a cultivar that fights summer patch. Once you have it, you never get rid of it. You tolerate it because it's a soil-borne disease. You can't control it, but you can keep it at bay so it doesn't take over your field. The fact that the HGT was a summer patch tolerant variety was very enticing to us. Having the HGT not as susceptible to the summer patch, we still have to apply fungicides against it, but in the back of your head you know you've got something that's a little more disease tolerant," Findley says.

The grass was also rated to have increased heat tolerance and a quicker recovery from wear. The combination of those two strengths made a big difference to Findley.

"The heat tolerance in bluegrasses is fairly low. One person I heard deem HGT as a 'tropical bluegrass,' so I thought, 'That should be able to grow great in St. Louis!' Heat tolerance is very important. July and August are pretty miserable here. The nighttime temps never cool off and bluegrasses generally stay stressed. HGT's ability to stand up to the heat was great," Findley says.



▲ The back of the 4-foot harvester with two harvested rolls on the back of the machine.

"That's another benefit. You can seed right into it and not worry about any weird consolidation where it will have different patches of color," Findley says. "That's very beneficial."

Prolonged heat can also take its toll on wear recovery.

"During the hotter months, I've found that bluegrasses wouldn't recover as well. Recovery was supposed to be one of the benefits of the HGT. So in the hotter months, late June, July, and August, nighttime temps don't get that cool. Bluegrass usually uses those nighttime temps to recover from the heat of the day but they don't recover as well because we don't cool off. The HGT was supposed to recover on those warmer nighttime temps, and it's done that for us," Findley says.

With all of its benefits, Findley says the decision to plant the field with HGT was easy. Sodding, rather than seeding the field, however, was a matter of timing. Findley says it would not have been practical to try to seed his field. There just wasn't enough time at the end of the season to allow seed to germinate before winter.

"We had a late soccer match in November here after the playoffs. We'd have never had time to get the seed to come up," Findley says, "so sodding was the only way to go."

Marty Thiel is co-owner of Graff's Turf Farms. He says that the story was similar for the Detroit Tigers when they sodded their field with HGT Bluegrass last March. Thiel says Tiger's head groundskeeper Heather Nabozny, (who was unavailable for comment after having knee surgery for an injury sustained while pulling a tarp during a rain delay), had about a 10-day window in which to re-grass her field at Comerica Park following the Winter Classic hockey event held in the stadium. While the sod for the Cardinals was cut at ¾-inch thick, the sod for the Tigers was cut even thicker, at 1.5-inches, Thiel says, "for instant stability."

"The Tigers had no time to produce roots before playing time. We had to ship them a ready-to-play surface," Thiel says. "Sod cut at 1.5-inches thick added weight to hold the grass in place, and provided a stronger horizontal root structure to help with stability."

Sodding a grass that is also available as seed offered Findley unexpected benefits. In weak areas, or areas needing repair, Findley says the same grass seed can be sown into the existing turf without fear of contaminating a pristine monoculture of grass.

"Down the right side of the field, in first base foul territory, there is this half moon shade line problem during the winter months. For

4 ½ months of the year during winter, this area stays shaded and stays pretty frozen until middle of March. The first week of April is the first home stand," Findley says. Because of the shade and cold in that area, the sod struggled to establish roots. To help this one section of turf along, Findley let the turf grow up slightly longer than the rest of the field, aerated a few times, and overseeded the weak spot with more HGT Bluegrass seed.

"That's another benefit. You can seed right into it and not worry about any weird consolidation where it will have different patches of color," Findley says. "That's very beneficial."

In the areas that got enough sun over the winter and established some roots, "the left side outfield did great. Our left side position spot usually gets beat up, we have a very aggressive left fielder, and it handled it really well. We didn't have to replace left field like we normally we do," Findley says. "I absolutely would recommend HGT. I think it definitely has a place in the sports turf industry. I can't wait to see how it's going to do next year once it's had time to mature." ■

Stacie Zinn Roberts is an award-winning writer and president of What's Your Avocado?, a writing and marketing firm based in Mount Vernon, WA

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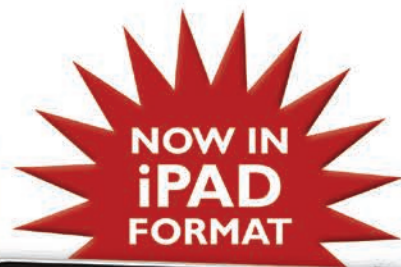
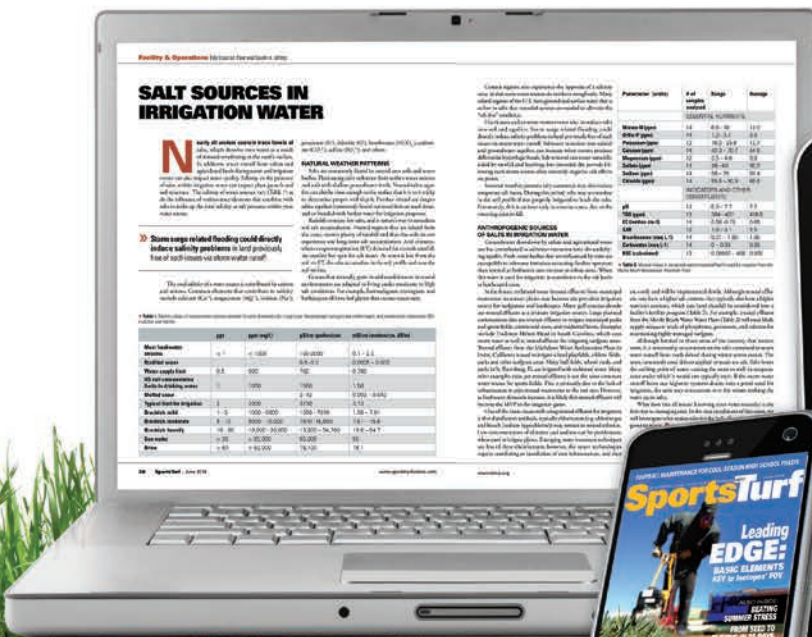
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PLANNING FOR DRAINAGE

means deciding between native soil and sand-based systems



One thing you can count on in construction of all types of fields: there will be no shortage of decisions to make. And for those who thought it would get easier after they made the big decision of natural grass vs. synthetic field—well, they've only scratched the surface, so to speak.

If you've decided upon a natural grass field, the next big decision awaiting you will be the following: should you go with a native soil field or a sand-based system?

If this is all new, here's a quick recap: If you are building a natural grass field, there are two basic types: native soil and sand-based:

A native soil field may be a *true native field*, which uses only the soil found at the site, a *modified native soil field*, which includes the introduction of amendments such as sand, peat, compost or porous

ceramics to provide a better growing medium and/or a more stable base or a *sand cap field*, in which the top 2-6 inches (typically 2-4 inches) of soil is replaced with sand, either during construction or over time.

A sand-based system, in which the native soil is completely removed and replaced with an under drain system, a drainage media layer, principally stone and rootzone material, principally sand.

Why is this so important? In one word: drainage. Of all the decisions you will make with regard to your field, the drainage will be the most essential. The field's ability to absorb water and move it off the playing surface is what will allow it to remain healthy and usable. Nice seating, a cool scoreboard, great concessions and locker rooms, even a fully-equipped press box and facility-wide Wi-Fi are not going to mean anything if the field is wet and muddy when game time rolls around.

"Sand-based fields, whether native or non-native, are usually always advantageous," notes Mark Wrona of URS in Grand Rapids, MI.

The type of field chosen, native or sand-based, will depend on several factors; these include:

- The soil conditions that exist at the site
- The weather during the playing season
- How often the field will see use

While it is less expensive to go with the soil on-site, the professionals warn against making that the primary factor in determining what type of field to have.

“The first big difference between natural soil fields and sand-based fields is cost,” says Dan Wright of Sports Turf Co., Inc., in Whitesburg, GA. “Drainage is the biggest issue with natural soil fields. Since there are no under-drains on a natural field, all drainage is surface drained.”

This, he notes, calls for specific grading of the field.

“The goal is to get the water off the field the shortest and quickest way possible. Once the water is off the field, it must be captured and moved into some drainage swale and ultimately into a storm drain. The crown on a soccer and football field usually is at least 1.5 – 2 percent. For a baseball field, the infield should be sloped at least one percent and sloped toward the foul lines in order to get water off the infield, and the outfield should be sloped from the infield arc to the outfield fence at least 1.5% but no less than 1.25%.”

The need to move water off the field, he notes, can create a maintenance nightmare, since many fields wind up being graded from the

outfield fence to the home plate drain. The long path for water to travel usually results in an unplayable field following a rain.

“Sand-based fields, whether native or non-native, are usually always advantageous,” notes Mark Wrona of URS in Grand Rapids, MI. “Natural grass multi-purpose athletic fields, even those with a well-drained sand base systems and regular maintenance, should not be expected to remain in excellent condition if the number of game/events exceeds 30 per year.”

Professionals will perform soil tests at the site where the field is to be constructed, and will make recommendations based on the soil content and on its ability to allow water to percolate down from the surface in a given amount of time.

Just remember, says Wrona, the professionals know what they’re talking about. Two starkly contrasting scenarios come to mind as cautionary tales.

“At one school facility, a multi-field complex was built over a gravel pit, so in their wisdom, school officials allowed clay soil from the adjacent region to be dumped over their native gravel site with the thought of saving on watering costs. With a new thick clay layer spread over the native gravel, less water was required to water the field complex, but after only several events during our normally wet spring season here in Michigan, the fields would turn to mud. The situation was remedied decades later by stripping off much of the clay and mixing the remaining clay with underlying native sand and then reseeded.

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“We also worked on another project, a proposed new high school on an 80-acre open farm site with heavy clay almost everywhere. Soil borings in a depressed area of the site identified sand of various grain size diameters, perfect as a field drainage material as well as support below concrete slabs. The design team took advantage of this depressed area by removing its clay layer and excavating the sand for use creating a building pad and for use below all proposed concrete walks on this sticky clay site. This sand was also blended into the existing topsoil for all the PE/athletic fields. A separate machine was brought to the site to accomplish the blending process. The depressed area that remained was perfect as a sunken stadium with spectator seating built into the side slopes.”

And if at the crux of the problem is the cost, says Wrona, there are usually various ways to address it. Narrow pipe trenching can help move water off clay fields. Generally, professionals in a specific geographical area have experience with workarounds and can let field owners know if other possibilities exist.

Balancing the needs of the owner, the needs of the athletes and the need to bring the project in on budget can be a challenge. At the same time, however, be sure to factor in maintenance costs.

“Naturally, a sand-based field, if maintained properly, will drain a lot quicker than a natural soil field and will allow play quickly after a rain event,” says Dan Wright. “With a sand-based field it is imperative to maintain the field properly to ensure playability and drainage is main-

tained. A maintenance budget for a sand-based field will be more than for a natural soil field.”

In addition to being less expensive to build, many native soil fields offer good water retention and can hold soil nutrients, minimizing the need for fertilization and irrigation, as compared to a sand-based field. However, as previously mentioned, they do absorb water more slowly, and can become muddy, worn and unplayable. And one day of rain can lead to more than one day’s worth of delay when it comes to scheduling games, something that ultimately may wind up in costs to rent alternate field space.

So what’s the answer? Listen to the professionals, get all the information you can and take every aspect into consideration when planning. There is no “perfect” field, but there is a field that is right for any given situation. ■

Mary Helen Sprecher is a free lance writer who wrote this article on behalf of the American Sports Builders Association. ASBA is a non-profit association helping designers, builders, owners, operators and users understand quality athletic field construction. ASBA offers the publication, “Sports Fields: A Construction and Maintenance Manual,” which discusses, among other topics, sustainability in the construction and maintenance of synthetic fields, as well as synthetic turf recycling. For information, visit www.sportsbuilders.org.

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New flare-wing trip-edge V-plows

The new VF series flare-wing trip-edge V-plows from Hiniker feature deep-curl flared wings, providing the break-through capacity to cast deep snow farther and higher than other plow designs. Double-acting hydraulic cylinders provide positive hydraulic control of moldboard positioning, whether plowing forward or backdragging. Super-bright quad halogen headlights have up to twice the power of typical sealed beam lamps. Also available in a conventional level-top configuration, the new VF series is available in 8.5- and 9.5-foot widths. Independent high-clearance trip-edge design provides smooth operation and enhanced protection. The pinch-free pivot point is located 9 inches above ground level, for improved protection from higher obstacles such as curbs and parking barriers.

Hiniker



Macro-Sorb Technologies introduces SMS Additive Solutions

Macro-Sorb Technologies LLC has introduced its sister company, SMS Additive Solutions LLC, offering a wide variety of soil surfactants, spray adjuvants and tank-mix additives. Macro-Sorb and SMS Additive Solutions will be increasingly involved in working together to offer comprehensive product offerings to the turf industry. Backed by extensive research, SMS surfactants offer increased irrigation efficiency, less runoff, fewer localized dry spots, and resilient, playable turf. Both Macro-Sorb and SMS Additive Solutions products are available through established independent distribution channels. In addition, Seeton is expanding distribution channels for both companies throughout the country. Further product research is currently underway and new turf solutions now in the pipeline will be available in the near future.

SMS Additive Solutions



Board systems and netting

Athletica Sport Systems is the world leader in the design and manufacture of dasher board systems for indoor turf sports such as soccer and lacrosse. To support these installations we also supply and install protective netting systems, including simple vertical spectator-protection netting, motorized or walk-draw curtain systems, and horizontal netting to protect lights and ceiling fixtures. White or black nylon, monofilament, even Kevlar, all fire-rated for your peace of mind and safety. We also do UV protected, retractable outdoor baseball netting systems too.

Athletica Sport Systems



New Deere TerrainCut front mowers

John Deere increases its front mount mower models with the new 1500 Series TerrainCut Front Mowers. The series adds five new Final Tier 4 compliant models. The 1550 TerrainCut boasts a 24.2 hp engine, and the other models are equipped with 37.4 hp engines. All 1500 TerrainCut models can be equipped with a 60"/72" 7-Iron PRO side discharge deck, or 62"/72" FASTBACK rear discharge deck options. These decks come standard with flat free semi-pneumatic caster tires that increase uptime to finish the job. The 1550 and 1570 TerrainCut models are available with either two-wheel or four-wheel drive. The on-demand four-wheel drive automatically engages and disengages as needed to keep operators productive. The 1580 and 1585 TerrainCut models come standard with four-wheel drive and 2-speed transmission to provide faster transport speeds and slower operating speeds when using implements.

John Deere



Flo-Pro injection system for turf products

With an efficient, time-saving design and patented, fluid-flow technology, Flo-Pro uses a park or sports field irrigation system to apply liquid or water soluble wetting agents, fertilizers and soil amendments. Flo-Pro can also apply acid to help lower pH levels. Flo-Pro connects to the irrigation mainline and monitors precise delivery of turf care products. The unit has no moving parts and does not require electricity, which can mean less maintenance and down time. Feed rates are adjustable for various mixing ratios, and pre-mixing or pre-blending is not required. The user sets the dial to the desired injection rate from 1 to 20 gallons per hour. He then pours the wetting agent or other soluble product into the tank. The irrigation system evenly applies the solution and completes the job.

Underhill



PortaPump Junior

The PortaPump Junior is a new pump that turns your stick edger or brush cutter into a one-person pumping station. The PortaPump Junior is a centrifugal pump head with a cast metal impeller that attaches to most any shaft and can pump up 30 GPM (depending on engine size). The pump head is standard with a universal size square receptacle and can be fitted with a star receptacle if needed. The PortaPump Junior comes with a 1 1/4" discharge outlet and it can pump through 60' of hose without losing any pressure. This machine is portable and powerful and easy to interchange with other heads on any new or existing machine.

Seago International, Inc.



Bobcat Celebrates Production of ONE MILLIONTH LOADER

Producing one million Bobcat loaders is not only an unparalleled industry achievement that has impacted the livelihood of compact equipment users worldwide; it has also touched the lives of thousands more who have designed, built and backed generations of Bobcat loaders for nearly 60 years.

Bobcat Company marked this tremendous milestone with a formal ceremony on July 12, sharing the occasion with its valued employees and the community of Gwinner, N.D., home to Bobcat's primary production facility. The company also celebrated with family members of those who invented



▲ Bobcat Company and Doosan North America President Rich Goldsbury addresses the crowd at the Bobcat Company Millionth Loader Celebration.



▲ Above Left: The millionth Bobcat skid-steer loader rolls off the line and out of the Gwinner factory. Above Right: Two loaders rolled off the line during the Millionth Loader ceremony: loader number one-million, a skid-steer loader; and loader number one-million-one, a compact track loader version.



▲ Above Left: North Dakota Lt. Gov. Drew Wrigley addresses the crowd. Above Right: North Dakota U.S. Senator John Hoeven.

ALL PHOTOS PROVIDED BY BOBCAT COMPANY

the original loader, perfected the design, brought it to market and created the brand five decades ago. Past organizational leaders and hundreds of others who have been part of the Bobcat success story were also present at the event.

The ceremony was held at the Gwinner factory, and featured remarks from Rich Goldsbury, president of Bobcat and Doosan (parent company of Bobcat) for North America; Gwinner Mayor Dan McKeever; North Dakota Lt. Gov. Drew Wrigley; North Dakota Sen. John Hoeven; and North Dakota Congressman Kevin Cramer. Sylvan Melroe, one of the organization's first marketing managers, talked about the perseverance of the Melroe family, who owned Melroe Manufacturing, and built the first Bobcat loaders. He reflected upon the early days of the loader — as it transitioned from the original three-wheeled version to the skid-steer loader we know today — and how Melroe Manufacturing improved the design that became increasingly tested by challenging jobs the more the machine grew in popularity.

Cyril Keller, one of the brothers who invented the original three-wheeled loader and soon after partnered with Melroe Manufacturing, was on-hand as well.

The ceremony culminated with a product line roll-off of a Special Edition One-Millionth Bobcat Loader, which Bobcat is selling in limited quantities through authorized dealers.

“This entire celebration is about much more than a single loader, the actual millionth machine,” said Goldsbury. “It represents everything Bobcat has accomplished as an organization over six decades, and it signifies our vision for the future. We embrace and honor our history, so it was particularly special to have some of the company's pioneers and early leaders here. But we wanted to bring them together with those who are moving us forward into the new era — those who will help us build the next million loaders.”

A DAY FILLED WITH EVENTS

The general public was invited to an assortment of Bobcat-sponsored events, including a 5K run/walk in Gwinner, Bobcat factory tours, carnival-type festivities in the Gwinner Park and a “Bobcat square dance” loader performance by four brothers who have 130 years of combined service at Bobcat Company. The Association of Equipment Manufacturers (AEM) also made the Gwinner event a stop on its “I Make America” nationwide tour, which advocates for pro-manufacturing policies to create more jobs in the United States and keep the economy competitive with other countries. Attendees over the age of 18 could enter to win a 2014 Harley-Davidson Road King featuring a custom “I Make America” paint job.

“It was particularly special to host the ‘I Make America’ tour,” said Goldsbury. “Bobcat is a great manufacturing success story for

Timeline

1960 — Invented the first true skid-steer loader.



1962 — The name “Bobcat” is used for the first time on the new and improved model M-440.

1970 — The exclusive Bob-Tach mounting system is introduced, allowing fast and easy attachment changes for Bobcat loaders.

1981 — The 743 loader is introduced.



1999 — Introduced the first compact track loader with a solid-mounted undercarriage manufactured in the United States.

2009 — Launched M-Series compact loader line.



2011 — The M-Series loader models S850 and T870 became the largest and most powerful in the Bobcat lineup.



2013 — The M-Series 500 frame-size loaders replaced the popular S185 and T190. This loader size is the most popular in the world and has been for two decades.



2014 — Produced the millionth Bobcat loader.



— Information and photos provided by Bobcat Company.

so many reasons — from the generations that have been employed to the products they've produced. Thousands of Bobcat employees have given many global customers the tools they use to make a living."

Bobcat Company also helped Gwinner city officials dedicate three welcome signs at different entrances to town signifying "Home of Bobcat, one million loaders and counting."

The company celebrated the production of 500,000 loaders in 2001 and 750,000 units in conjunction with its 50th anniversary in 2008. The million loaders built by Bobcat represent the largest production of this equipment by any manufacturer globally.

AN "UNSTOPPABLE" FORCE

To commemorate the year-long celebration, Bobcat developed the "Unstoppable" campaign, which recognizes the company's rich history and heritage, yet illustrates its plans to continue to set the pace in the compact equipment markets it serves.

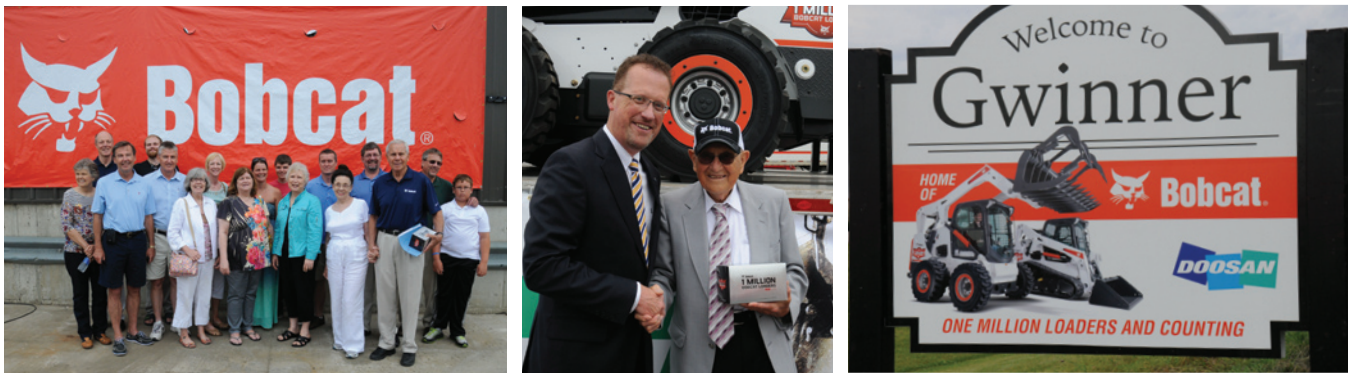
The celebration started in January, as Bobcat Company launched a contest that ran through June, asking participants to answer the

question, "How does Bobcat make you unstoppable?" The grand prize winner will receive a Special Edition One-Millionth Bobcat Loader. Bobcat unveiled its Special Edition One-Millionth Bobcat Loaders at the CONEXPO-CON/AGG trade show in Las Vegas in March.

Bobcat Company social media channels — Facebook, Twitter, LinkedIn, Google Plus, Flickr and YouTube — feature various elements of the celebration and Unstoppable content and promotions. Fans and followers can participate in merchandise giveaways and trivia contests, show pride by selecting a "pride badge," share stories and read about how others are joining in the celebration. A special app enables customers to upload photos, and apply a custom "One Million Strong" treatment. Several celebration-focused videos are available as well.

"The ceremony in Gwinner is a great centerpiece to what we are doing to celebrate all year," Goldsbury said. "But it doesn't start or end with this. 'Unstoppable' is a theme that started in January, and we still have a lot of celebration time left in 2014 and beyond." ■

Information provided by Bobcat Company.



▲ **Left:** Pictured are descendants of the Melroe and Dahl families. The Melroe and Dahl families helped the original Melroe Manufacturing Company produce, market and brand the original Bobcat loader. Sylvan Melroe (pictured in the blue shirt, far right, first row) was one of the company's original advertising managers. **Middle:** Bobcat Company and Doosan North America President Rich Goldsbury and Cy Keller, one of the inventors of the original loader. **Right:** Bobcat Company and the City of Gwinner, North Dakota dedicated three signs at entrances to town; they signify that Gwinner is "Home of Bobcat, one million loaders and counting."

The loader that launched an industry

The Million Loader celebration honors the revolutionary three-wheeled loader engineered by brothers Cyril and Louis Keller of Rothsay, Minn., designed to clean turkey manure out of barns. Second-generation Melroe Manufacturing Company leaders — sons of founder Edward Gideon "E.G." Melroe — Clifford, Lester, Roger and Irving Melroe; and their brother-in-law Eugene Dahl saw strong potential for the machine to meet the needs of any livestock farmer.

In 1958, the Gwinner-based manufacturer bought the rights to this innovative three-

wheeled loader, and Louis and Cyril Keller became employees of the Melroe Manufacturing Company, assigned to put the loader into production.

The Keller Loader, as the original machine was called, was improved with a larger 9-horsepower engine, and a new product line for the Melroe Company was born — the M-60, a three-wheeled Melroe self-propelled loader. It was the forerunner of what became the Bobcat skid-steer loader, and ultimately launched the compact equipment industry.

Then, in 1960, the company built the first

true skid-steer loader with four-wheel drive. In 1962, the loaders were branded "Bobcat" after the "tough, quick and agile" prairie animal.

Today, the Bobcat name still matches the performance qualities of the enduring international brand. Bobcat Company has become North Dakota's largest manufacturer with more than 2,000 employees in the state. Bobcat products have representation through more than 900 dealers in more than 100 countries with production facilities in Gwinner, Bismarck and Wahpeton, N.D.; Litchfield, Minn.; France and the Czech Republic.