



Football and soccer share the same lighted fields during the summer.

IRRIGATION ALLOWS SASKATOON TO CELEBRATE SUMMER

There is a misconception in the turf and landscape industry that irrigation is important only to communities in the Sun Belt and desert Southwest. In reality, few U.S. or Canadian communities can provide durable recreational turf for their citizens without it.

For example, take Calgary, Alberta. Few people appreciate the fact that without snowmaking equipment, this Canadian city would not have been able to host the Winter Olympics. There just isn't enough natural precipitation in the area during the year to support ski resorts, much less keep high-use recreational turf growing between April and September.

Henry Lesser, president of Eljay Irrigation Ltd., supplies Alberta and neighboring provinces with the components to make golf courses and sports turf exist. One of his favorite examples of the difference irrigation has made in his area is the city of Saskatoon, 400 miles to the east in the province of Saskatchewan. In the past ten years, the city has become a shining example of the growing appreciation of automatic irrigation. Eljay had to open a branch in the city to meet the exploding demand for irrigation.

Saskatoon is a city of 200,000 situated in the middle of the flat Canadian prairie. With less than eight inches of rainfall in an average year, only dryland grasses such as Russian wild rye and crested wheatgrass can survive. The soil is a patchy mixture of minerals left behind by glaciers and silt from the Saskatchewan River.

The city started out as a railhead for the cattle industry. Ranchers rounded up their

herds of cattle grazing on the prairie bordering the river in July to be loaded on trains in Saskatoon. Discovery of vast deposits of potash in the '50s gave the city a new industry to feed its growth. Millions of tons of the mineral are shipped each year by rail from Saskatoon across the continent to be processed into fertilizer for the farm and landscape industries. With the advent of center pivot irrigation, ranchers in the area became farmers as well.

As a result, the population boomed in 30 years from less than 50,000 to more than 200,000. The demand for parks, golf courses and ball fields has grown at the same rate.

Phil Kabatoff, general foreman of construction and project manager for the city, has witnessed the changes in both growth and irrigation during the period. When Kabatoff started out in his father's landscaping business more than 35 years ago, he could not have imagined the role he would eventually play in the improvement of irrigation in the city. His twin brother, Peter has served an equally important role in Prince Albert, 90 miles north of Saskatoon.

Kabatoff has pioneered the improvement of the city's irrigation, taking it from portable sprinklers to automatic control. "When I started out with the Parks and Recreation Department as a laborer, we used aluminum surface pipes like they do in farming to get water from hydrants to the fields," he recalls. "We'd connect portable sprinklers to the pipes with hoses and move them every few hours.

"It was a full-time job for one man at each

park just to handle irrigation. Every day the sprinklers and hoses had to be brought out and put away. Beginning in August, we had to break down all the pipes and store them until the following spring."

When Kabatoff was promoted to assistant foreman, irrigation became his responsibility. He learned quickly that not only was the labor involved with portable irrigation extensive for a growing park system, but the pipes and sprinklers were also prone to damage by park users. Repair costs added to the labor burden.

"The city has traditionally restricted water use," he adds. "Until four months ago, half of each park had to remain as unirrigated prairie grass. It took us ten years to prove that with automatic controls and low volume sprinklers we could double the amount of irrigated acreage without doubling the amount of water we use. The city has grown so much that we need every acre we've got for recreation during the summer."

Understanding the benefits of automatic irrigation was a learning process for Kabatoff as well. After seven years with the parks department, he rejoined his father's growing company, Kabatoff Landscape Contractors, Ltd. He travelled over three provinces building parks, golf courses, and commercial developments.

"Irrigation technology was changing rapidly," he recalls. "We'd install automatic irrigation with pop-up heads on a golf course one month and a manual quick-coupler system in a park the next. How up-to-date the system was depended upon the budget for the project and the architect on the job. But irrigation was coming on strong and we had more work than we could handle."

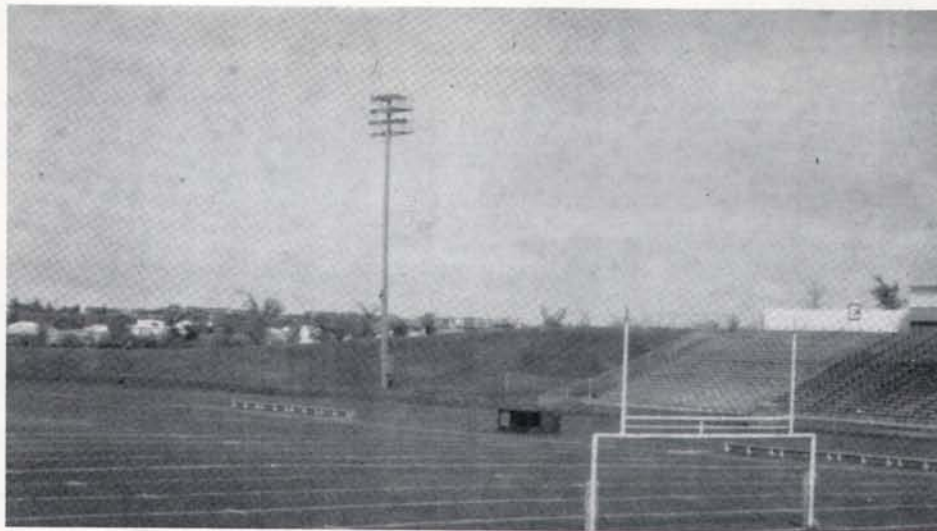
After eight years, the pace became unbearable — and Kabatoff didn't like being away from his family for weeks at a time. When Saskatoon offered him the general foreman position in 1977, he said yes.

The city's irrigation system had changed only slightly since he left. The revenues from the city's golf courses were separate from the parks budget, but a tax levy to support park development had been passed two years before. City council mandated that one 20-acre park had to be built for each 1,000 new homes. To pay for these parks, each home builder was assessed roughly \$4 per foot of frontage. During the first two years of the program, quick-coupler systems had been installed in a portion of the parks.

"Irrigation technology changed considerably between the time I left in 1969 and when I returned," he recalls. "The park system had grown to almost 2,600 acres. Our old method of irrigation just wasn't practical anymore."

Kabatoff put together a proposal to retrofit 300 acres per year. That's the equivalent of two 18-hole golf courses each year. "We had to do in ten years what other communities had done in over 30 years." Instead of using park staff to install the irrigation, all

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Without irrigation, this Saskatoon park would be native prairie grasses.

Irrigation Allows Saskatoon

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work was to be contracted out.

The first step was to get the mains and laterals in the ground with impact heads on a 40-foot triangular spacing. The first group of systems were controlled manually. Kabatoff required each contractor to provide accurate as-built drawings, because he planned to add electric valves and controllers as his budget allowed.

Since these systems were connected to municipal water lines, pressure varied across the city. "One park would have 95 psi, while another had 28 psi," says Kabatoff. "It's worse when we don't get rainfall. Water pressure city-wide can drop to as low as 25 psi." Since the sprinkler heads are designed to operate at a certain pressure, booster pumps had to be installed in some of the parks.

Technology continued to change. Each year Kabatoff had new options to consider. When Toro introduced its 600 series of low-gallonage heads, he saw an alternative to high-pressure heads for the parks. These smaller, gear-driven heads require less pressure to operate, yet still cover the same amount of area as impacts.

But Kabatoff was most interested in the rate at which these heads apply water. "Our silty soil can take water in only so fast," he adds. "Since there is little to no moisture in the subsoil, we need to water deeply with at least one inch per week. Low-gallonage heads more closely match the soil's infiltration rate. One year alone we purchased 15,000 heads."

Dave Desmond, Eljay's branch manager in Saskatoon, convinced Kabatoff to try out Hunter gear drive heads when they were introduced. "Ed Hunter designed the Toro head before going out on his own," explained Desmond. "Since all Hunter makes is sprinkler heads, it has developed some features which make the grounds manager's job easier." Desmond had more than 12 years' experience in irrigation in the

prairie country, so he has been able to provide some helpful advice to Kabatoff.

"We currently have about 200 baseball fields, both slow pitch and fastball, and 80 football/soccer fields," Kabatoff explains. He estimates 500 acres of new park land have been added in the past ten years, for a total of 3,100 acres. But that has still not been enough. To get the most use out of each field, lights were installed in some of the parks. During the summer, the lighted fields are used from sunrise to late at night. As a result, soccer and football fields can wear out and become compacted in a matter of weeks.

Sod is used to repair the worst spots, while a program of aerification and topdressing addresses compaction on the remainder of the turf. The fields are aerified to a depth of more than six inches deep with a Verti-Drain aerifier imported from Holland and topdressed with a mixture of sand, topsoil and composted sewage sludge once in the spring and again in the fall. "We have to make all our own topdressing using a soil shredder," Kabatoff adds.

The parks department tries to rotate use of football/soccer fields when possible during the summer to grab two to three weeks for renovation. The center and goal mouths are resodded, while the rest of the field is reseeded with a mixture of Kentucky bluegrass, turf-type tall fescue, creeping fescue and perennial ryegrass.

If major renovation is required, the field is fertilized after a soil test and rested for up to three months. Soil tests normally indicate a need for a high rate of phosphorus and 11-51-0 is applied. "The soil is rich in potassium so we rarely need to apply it," Kabatoff explains.

The height of cut changes with the sport. During soccer season the fields are mowed at 1¾ inch with riding outfront rotary mowers. The height is raised to 2½ inches for football.

The parks department is experimenting with sand to counteract compaction. Four

high-sand fields (60 percent sand, 30 percent topsoil, 10 percent sewage sludge) were built and another group of six fields receives a topdressing of sand every six to eight weeks.

The four high-sand fields were constructed in the fall of 1987. The soil on these fields is tested every six weeks followed by an application of fertilizer as recommended by the test results. "At present, we do not know what the wear tolerance will be on these fields," says Kabatoff, "as they are only starting to be used."

Two of the fields are irrigated with high-pressure Rain Bird heads supplemented by a pumping system, while the other two fields have Hunter low-gallonage, low-pressure sprinklers. Kabatoff hopes that this will provide the parks department with information to help it plan irrigation design and maintenance in the future.

"Now that we can irrigate 100 percent of each park, the number of fields could double in the next three to five years. I'll have to find new ways to keep the fields and parks in shape and in play." That's why Kabatoff attends as many park and turf conferences in the winter as he can. He wouldn't think of starting the busy season without attending the annual short course at the University of Saskatchewan every spring.

The city's capital expenditure budget for parks has grown in 12 years from \$63,000 to \$3.7 million. His annual equipment budget alone is \$500,000. "The support from the city has been remarkable," says Kabatoff. "They want a greenbelt that they can be proud of, so that's what we're trying to give them."

One major factor lately in the park budget is that Saskatoon will host the 1989 Canada Summer Games in August. "We have upgraded many of our sports facilities and also constructed some new ones to accommodate these games," he states. A new field hockey facility and five-field baseball complex are being installed this fall for the games next summer. The field hockey facility will also be an irrigation test site. Hunter and Eljay have donated the irrigation system to see how it performs under the rigors of the cold, dry climate in Saskatoon.

In late August, when irrigation systems down South are in full operation, Kabatoff and his crew begin the two-week-long process of blowing out the water from all the park irrigation systems. By mid-September, the Saskatoon Park Department is nearly prepared for the long winter. The growing season draws to a close until the following May.

"We've learned to make the most of our short summers here," concludes Kabatoff. "Automatic irrigation has made a big difference to the residents of Saskatoon for that very reason. Without it, summer wouldn't be the celebration it is here. We've come a long way in 20 years and plan to go even further the next 20. Keeping up with technology has certainly improved the quality of life in Saskatoon." ☺