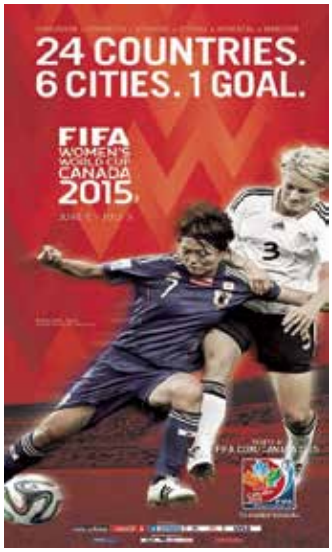
Southwood Golf & Country Club Provides Assistance With The Women's World Cup Field

By Jeff Scott CCM CCE General Manager & COO



It's not every day that you get a call from one of the largest sports governing bodies in the world.

On June 3, 2015, the Club received a call from representatives of FIFA requesting assistance with preparing the field for the competition featuring teams from the USA, Germany, Australia, New Zealand, China, Nigeria, and Thailand. Golf Course Superintendent, Dustin How, 2nd Assistant, Neal Wagar and GM & COO, Jeff Scott, all met the challenge of delivering equipment and providing manpower to water and prepare the field each day.

The W omen's World Cup was held in Canada from June 6 to July 5, 2015 – a four-week, 52-match competition that features 24 countries from six confederations. The competition was played in six Official Host Cities from coast to coast across the country: Vancouver, British Columbia; Edmonton, Alberta; Winnipeg, Manitoba; Ottawa, Ontario; Montréal, Québec; and Moncton, New Brunswick. As an Official Host City, Winnipeg played host for seven matches at Investors Group Field on on June 8, 12, 15 and 16.

The Investor's Group Field surface is composed of monofilament polyethylene blend fibers tufted into a polypropylene backing. The infill is composed of a bottom layer of silica sand, a middle layer which is a mixture of sand and cryogenic rubber, and a top layer of only rubber. The fibers are meant to replicate blades of grass, while the infill acts as a cushion. This cushion improves safety when compared to earlier artificial surfaces and allows players to plant and pivot as if they were playing on a grass field. Each square foot of turf contains approximately seven pounds of sand and three pounds of cryogenic rubber.

The field has to be watered to reduce injuries and skin abrasions during play. Water also allows the ball to roll freely and keeps it from bouncing too high. In addition, it helps bring down the temperature of the field, as synthetic fields absorb more heat than grass. Cooling the surface helps players minimize 'turf burn'.

The Club provided several pieces of equipment and expetise over the course of two weeks. The most vital being it's "Water Wheel". The Water Wheel is a portable irrigation sprinkler system. Originally used during the grow-in period of the golf course 5 years ago, the unit is completely water powered using a turbine drive system which utilizes the flow and pressure from the water source to retract the reel as it waters. Altough it had not been used in several years, Superintendent Dustin How was able to make it operational within minutes.



The first issue encountered was providing the equipment with sufficicent pressure and quantities of water. This was quickly resolved by on-site plumbers who installed two new 4' pipes with couplers from the stadium's water system. The couplers attached to approximately 300 yards of 1½" lay flat hose that were then run to the two Water Wheels located on the field. Once water was up and running, measurements to determine coverage were untilized to make adjustments to the irrigation heads and ensure proper rates were distributed.



Each morning at approximately 5:00 a.m., the Wheels were put in place using the Stadium's Kubota RTV X1100 utility vehicle, which proved useful in moving hoses and equipment each day. Neal Wagar oversaw the operation each morning. The entire process took approximately 5 hours to complete each morning including set up, full coverage of the fields, and tear down.

The Club's Toro MultiPro 5800 Sprayer was also delivered and used before games and practices, as well as at half time of games, to provide a quick, interim watering of the field.

Special mention should go to Assistant Superintendent, Rick Pannu, who oversaw the golf course's daily operations while Dustin and Neal were away providing assistance to FIFA. The whole experience was very rewarding and provided an interesting break from the daily activilites of providing the Club's Members with a championship conditioned golf course.



Southwood was honoured to be asked to assist in providing world-class field conditions and it was very gratifying to receive many compliments, including the head of FIFA's field preparation who stated that "the field was fabulous and looked great on international TV. This was due to your team's assistance with the pitch."





What if someone had told John B. Steele 50 years ago that in 2015 the standard height of cut on greens would be .125 or lower? Or that we would be spraying greens to stop them from growing and driving a machine sideways everyday just so the average hack could three putt or more every green. Would he have believed it? Probably. Golf courses have always been judged by the quality and speed of their greens and I'm sure Mr. Steele was spending a great deal of time and effort ensuring his patrons speedy greens. Some 20 years have passed since I wrote this article, and greens rolling has become an industry standard to help achieve faster greens. From Major Tournament preparations, right on down to the daily green fee golf course Superintendents are rolling greens with greater frequency. Here at Bridges we roll everyday and double rolled this past season during the Manitoba Amateur. I'm actually not sure how I would even maintain a green anymore if I didn't have the use of a roller. In my opinion greens rolling has become an essential tool in a Superintendents toolbox.

Tony Feheregyhazi - *Superintendent*
Bridges Golf Course

Greens Rolling: Effects to Speed & Compaction

By: Tony Feheregyazi
Conducted at Niakwa Golf & Country Club

The word "fast" has become synonymous with success in this day and age. Within the golf industry it seems that successfully managed putting greens are always associated with speed. Over the years turf managers have felt considerable pressure to increase greens speeds while neglecting turf health and quality. This need for speed has once again brought greens rolling into the limelight as a putting management practice. Rolling is a practice by which minor disruptions on the turf surface are corrected. (1) During the 1900's rollers were an essential part of a superintendents cultural program for greens but over the years research proved the harmful effects of compaction to the soil from rolling and traditional rolling practices were abandoned. As the 1990's arrived rolling has been rediscovered out of necessity for increasing green speeds. In 1987 the first light weight greens rollers arrived on the market from the lawn bowling industry. These new light weight rollers are a shorter version of a lawn bowling roller to accommodate putting surface contours. Many questions surrounding these new rollers exist. What consistent results to speed can one expect? How much compaction to the rootzone will occur? How long will the effects of a rolling last? Can they be overused? This paper will attempt to answer these questions with the data and research that I collected during my summer practicum.

Introduction

Upon my return to Niakwa Country Club from Fairview College in the spring of 1994, I brought to the attention of course superintendent James Barr of my impending practical research project to be done that summer. Having purchased a new greens roller towards the end of the previous year and with the intent of more actively implementing it to the greens management program, my practicum project became focused in the direction of greens rolling. What consistent increases in green speed could be expected? How much compaction would the roller cause? How long would the effects to speed last after a rolling? These were the questions that sparked our interest and led me to my practicum. Once the decision had been made to centre my greens rolling parameters had decided that research around and its effects,. to be set. It was data would be gathered on: how much the roller increased greens speed; how long the affects lasted; and any notice-able affects rolling had to rootzone compaction. Data was to be collected as best and as accurately as possible with the use of acknowledged instruments within the turf industry.

DISCUSSION

Greens Rolling Years ago greens rolling was a common practice within the cultural maintenance practices of grass putting greens. Back then greens speed was not an issue and rolling occurred primarily to eliminate surface distortion, and in the spring to correct frost heaving. Over the years the realization that rolling was causing compaction to the upper part of the rootzone mix brought this practice out of favor for most golf course superintendents. Compaction is a physical condition of soil resulting from the compression of soil constituents into a relatively dense mass. (2) Even with todays light weight speed rollers, compaction in the first inch of a green is the primary Concern. Older, soil based greens that are getting rolled are of the most concern for todays turf manager. Why is there such a concern for compaction when talks tum to these new light weight rollers? Primarily because compaction to a putting green rootzone is probably the most detrimental problem to a green which leads to many other problems. Compaction occurs when soil particles are pressed together resulting in an increase to bulk density of the soil. Increases in bulk density results from the reduction in soil volume following compaction. This change in volume is attributed to a loss in total porosity with the large pores being most susceptible to compaction forces. Increases in compaction to putting green soils cause a vast degree of turfgrass stress and damages. Steps should be taken to avoid compaction as much as possible. (See Appendix A)

The Need For Speed

Over the last 15-20 years putting greens have continually been pushed to the edge of management practices to increase green speed. Turf managers are now having to implement such cultural practices as; lower height of cuts; reduce the amount of nitrogen applied; extensive grooming to control grain; verticutting; topdressing; reduction in irrigation; and now the use of light weight rollers are all common practices to increase the speed of greens. Though these new rollers were originally used to smooth lawnbowling surfaces, the golf industry over the last 5-7 years has embraced this practice as a method to increase green speed.

The tool that is needed to measure the speed of greens is called the stimpmeter. It is a 36 inch long, extruded aluminum bar with a V -shaped groove extending along its entire length. A notch is located 30 inches from the tapered end in which the ball sits. This ball release notch is designed so that the ball will begin to roll at precisely 20 degrees from the horizontal. This ensures that the ball is at a constant velocity when it reaches the end and meets with the green. This instrument is a device made available for use in 1977 by the USGA Greens Section. Back in 1977 it had three distinct purposes.

1) To establish a guide to green speed for tournament play.
2) To establish a guide to green speed for regular club play.
3) To establish a means of measurement for green speed consistency from one green to the next.

The idea first projected by the USGA for the stimpmeter was device that was to be used as a benchmark for greens consistency. Therefore if a green was putting at a different speed than the other greens on a golf course, appropriate cultural adjustments could be made to bring that green up to par with the other greens on the course. The USGA then saw a need to define what speed were fast/slow for tournament play and what speeds were fast/slow for regular club play. see appendix 8(3). Why? Probably because of weekly televised tournaments that field the demand for fast greens as well as the turf managers urge to equal those tournament stimpmeter readings. Thusly the stimpmeter sincerely purposes a tool for greens uniformity quickly became a tool to measure a green's maximum speed. It is interesting to note that when the first stimpmeter readings were tested any reading over 7'6 was considered excitingly fast by the USGA Green Section agronomists. Today it is expected for tournament ready greens to stimp-out in the double digits.

Factors That Effect Green Speed

Many factor affect how fast a putting green will play. Important elements of a good putting surface are uniformity, smoothness, firmness, height of cut, mowing frequency and resilience. Uniformity, smoothness, height of cut, mowing frequency and firmness are associated with green speed while resiliency is important in a green's ability to hold shots. (3) Of these factors smoothness is most

critical to ball speed. The smoother the surface, the less resistance to ball roll. Any "bounce" caused by surface distortion will cause a dramatic effect to speed and line.

This brings us to greens rolling. What is the primary use of the roller? Though manufacturers claim an abundance of benefits to both golfer and golf course., The primary use is to increase speed. It was developed to eliminate surface unevenness and therefore providing uniform ball roll without causing undue compaction. This smoothness to the putting surface brought about greater speeds without lowering the height of cut below damage causing effects. Achieving green speed by continually lowering height of cut is very detrimental to the grass plant and leaves the plant weak and the green subject to Poa annua invasion. Other concerns with very close mowing include: root growth reduction; reduction in root diameter; reduction in plant vigor; decreased tolerance to environmental stress; and a reduction in turfgrass wear tolerance.

What Damages May Occur From Rolling?

damages that can immediately occur are more of the aesthetic nature. Scuffmg and bruising of leaf tissue may occur if the drive roller is allowed to break traction and spin. This usually occurs on the outside edges of the green and is completely avoidable with operator care. Also, rubber covered rollers will increase traction and decrease the chances of skidding and scuffing. The main concern is overuse of the greens roller causing undue compaction, especially on older soil based greens.

Implementation

The first greens rolling of the season began on May 31, 1994 with the height of cut at .180 on the accuguage or just under 3/16 of an inch. An average increase in green speed was registered at 13" above the control average. Six greens that were represented of all the greens were stimped once again in the afternoon and averages of greens speed were consistent with morning speeds taken after rolling. The next morning the greens were stimped once again to see if he effects of rolling lasted to the next day. Though the effects of one rolling lasted throughout the day our data indicated to us that one greens rolling had little or no effect to speed over a 24 hour period. This was performed a total of eight times throughout the next two months and data was recorded. (See Appendix C)

Compaction results were determined via an infiltrometer. It was determined that a loss in infiltration would signify a greater bulk density therefore a loss in pore space and an increase in soil compaction. Two readings were taken per green, one before rolling and one after rolling. Each green took approximately thirty minutes to test and we were only able to complete the entire course once due to time restrictions. The effects one rolling had to infiltration rates immediately after rolling ranged in a reduction anywhere from 3 to 7%.

Conclusion & Recommendations

The research at Niakwa Country Club indicated an immediate increase in greens speed on average between 12 to 15% without lowering height of cut. When the height of cut was lowered to .140 on the accuguage, (See Appendix C, Trials 7 & 8) greens immediately stimped out near or above the double digit range. These results were achieved without any additional maintenance practices on the greens to increase greens speed. The research also indicated that after a single rolling, greens speed held up through out the day but had little effect to the speed the following morning., This evidence is also supported by Superintendent Doug Kendziorski at Grand Traverse Resort in Michigan. Mr. Kendziorski worked with the James B. beard when the International Sports Turf Institute did research on his course in respect to greens rolling. Mr. kendziorski statesr rolling once a day had no long term effect to speed over a 24 hour period. Inconclusive data and time restraints did not allow for any conclusion data as to the effects that rolling has to reducing infiltration rates and hence increasing soil compaction. Of the data that was collected only educated guesses can be made when analyzing the results. The very slight reduction in infiltration rates leads me to believe that sparse use of the roller (one to two times per week) will not lead to any significant compaction problems as long as the green is not rolled when excessively wet. Subsequent testing is needed over a more lengthy period of time to determine the effects to infiltration rates and compaction caused by rolling.

To the extent of which Niakwa Country Club intends on rolling greens I recommend the continued use of the roller for men's day and tournaments to quickly enhance greens speed. In accordance with rolling it is also suggested that compaction alleiving maintenance practices are increased such as spiking and hydrojetting to alleviate any compaction caused by rolling greens. It is also recommended that rolling should not take place after a heavy irrigation or rain to combat any unnecessary compaction problems.

Rolling is regaining acceptance within the turf industry but many questions need to be answered. Areas that have not been looked into scientifically such as the possible bruising and crushing of the crown tissue are legitimate concerns. Light weight frequent Rolling needs continual research into effects of compaction on different rootzone mixes to enable a turf manager to know as to what extent greens can be rolled. On Niakwa's greens, rolling on specific days to increase greens speed should not cause any undue concern to compaction as long as other compaction alleviating practices are implemented.

Appendix A
Turfgrass Stresses to Compaction

* Compaction causes an increase in bulk density.
* Reduction in turf root growth.
* Impedes the movement of air and water through soil profile.
* Increases environmental stresses.
* Increases pathogen and disease incidence.
* Turf becomes subject to weed infestation (Poa annua).
* Reduces shoot growth.
* Decreases in nutrient intake and water absorption.
* Reduction in heat tolerance and other drought stresses.
* Increased susceptibility to scold and direct low temperature injury.
* Decrease in soil infiltration rates.
* Increased hydrophobic conditions inhibiting penetration of water.
* Reduced recoverability of turf.

Appendix C -Trial Averages

Trial#	Before	After	Mid-Day	24 Hours	% Increase
1	7'4"	8'5"	8'4"	7'3"	15%
2	7'8"	8'7"	8'6"	7'5"	12%
3	8'0"	9'1"	9'0"	7'11"	14%
4	8'4"	9'4"	9'3"	8'1"	12%
5	8'4"	9'5"	9'5"	8'2"	13%
6	8'4"	9'5"	9'5"	8'1"	13%
7	8'8"	10'0"	9'11"	8'7"	15%
8	9'1"	10'4"	Rained	7'6"	14%

Appendix B
USGA Green Speed
Comparison Table

Regular Membership Play	
Medium Fast	8"6"
Medium	7"6"
Medium Slow	6'6"
Slow	5'6"
	4'6"
Tournament Conditions	
Fast	10'6"
Medium Fast	9'6"
Medium	8'6"
Medium Slow	7'6"
Slow	6'6"

From USGA Green Section,
September, 1977

List of References

1. A.J. Turgeon, Turfgrass Management, 3rd Edn. (Englewood Cliffs: Regents/Prentice Hall, New Jersey, 07632), p. 214.

2. A.J. Turgeon, Turfgrass Management, 3rd Edn., Englewood Cliffs: Regents/Prentice Hall, New Jersey, 07632), p.l42.

3. David A. Oatis, "It's Time We Put The Green Back in Green Speed", USGA Greens Section, Nov./Dec. 1990, p. 3