pockets of soil in the Canadian Shield, but the majority of soils in southwestern and south-central Ontario are calcareous.

### Fertilizer Company Claims

Based on this role of calcium in the plant and in soils, fertilizer suppliers make the claim that it makes plants stronger and more resistant to wear, neutralizes soil acidity, improves activity of favourable soil bacteria, promotes root development, improves soil structure, improves the efficiency and availability of fertilizer, reduces phosphate fixation and increases water penetration and water holding capacity. Some of these statements are true, but only in very specific situations or circumstances, and they should not be used as generalizations for the benefits of calcium.

### Calcium Fertilization Research

Researchers at the University of Iowa, Nick Christians and Rodney St. John, conducted trials on calcareous-based sand greens. Their research was to determine the benefits or detriments of applying supplemental calcium to turfgrass established on calcareous sand. They wanted to know whether additional calcium increases the amount of calcium absorbed by the grass plant, whether it increases clipping yield and quality and if it affects the availability of other nutrients to the plant.

A greenhouse study looked at adding additional calcium to Kentucky bluegrass and creeping bentgrass grown in calcareous sand. The additional calcium treatments consisted of calcium sulphate, calcium carbonate, calcium nitrate and a chelated calcium. The calcium, regardless of the source, was incorporated into the growing medium at a rate of 4.7 lbs of calcium per 1,000 sq. ft.

A two-year field study on creeping bentgrass established on a calcareous sand putting green also received 4.7 lbs. of calcium per 1,000 sq. ft. applied as five separate monthly applications.

In both the greenhouse and field studies, the additional calcium did not increase the growth, colour or leaf calcium content of the grasses established on the calcareous sands. In the greenhouse study, the additional calcium reduced the leaf magnesium content by 15% and by 11% in the field trial. In the field studies, the calcium carbonate and calcium nitrate treatments reduced the soil extractable potash levels and the calcium sulphate, calcium nitrate and calcium chelate reduced the amount of soil extractable magnesium. Over time, with continuous additions of calcium, both magnesium and potash could become deficient in the soil leading to deficiencies in the turfgrass plant. The greenhouse study did show that creeping bentgrass had nearly twice the amount of calcium in the leaf tissue as did Kentucky bluegrass and none of the treatments increased the tissue calcium levels in either species.

So the claims that additional calcium increases resistance to wear can only be true if the added calcium is taken up by the turfgrass plant. This research demonstrates that it is not. As far as the addition of calcium increasing the availability and efficiency of fertilizers, the calcium actually made the magnesium and potash less available.

The take home message from this research is that supplemental applications of calcium did not increase clipping yield, leaf calcium content or turf quality and that the addition of calcium could limit the availability of magnesium and potash to the plant when applied to calcareous sand. ♦

### Literature Cited


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— *Green is Beautiful,* October, 2004

## COMING EVENTS

**January 6 -11**
*56th Annual Canadian International Turfgrass Conference & Trade Show*
Toronto, ON, Info: (905) 602-8873
www.golfsupers.com

**January 11-13**
*Landscape Ontario Congress 2005 featuring Fencecraft 2005*
Toronto, ON, Info: 1-800-265-5656
www.locongress.com

**January 19-23**
*Sports Turf Managers Association (USA) Annual Conference & Exhibition*, Phoenix, AZ
Info: (712) 322-7862
www.sportsturfmanager.com

**January 31 – February 25**
*Guelph Turfgrass Institute Turf Managers' Short Course*
Guelph, ON
Info: (519) 767-5000

**February 2-4**
*Turfgrass Producers International Midwinter Conference*
Cancun, Mexico
Info: (847) 705-9898
www.TurfGrassSod.org

**February 21 & 22**
*Ontario Turfgrass Symposium*
University of Guelph
Guelph, ON, Info: (519) 767-5000
www.open.uoguelph.ca/ots

**February 22 (at the OTS)**
*Sports Turf Association Social & Annual General Meeting*
Information: (519) 763-9431

**February 27 & 28, March 1 & 2**
*Western Canada Turfgrass Association 42nd Annual Conference & Show*
Penticton, BC, Info: (604) 467-2564
www.wctaturf.com

**March 23 & 24**
*Ontario Parks Association 49th Annual Educational Seminar & Explorations Trade Show*
Hamilton, ON
Information: (905) 864-6182
www.opasoc.on.ca