Stop 3. Athletic Field Lightweight Rolling Moisture Sensor Research

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Lightweight rolling research performed from 1995-2000 on putting greens at Michigan State University changed the way golf courses are managed in the USA. Groundbreaking results from that study include rolling putting greens 3 times per week decreased several turfgrass diseases, insect pests, weeds, and localized dry spot along with increasing turfgrass rooting and green speed (maximizing customer satisfaction and/or playability).

Results from that study of particular interest to soccer pitch managers and athletes include increased rooting, decreased weeds, and maximized playing conditions. Increased rooting is of particular interest because it indicates the possibility of less tearing during play and therefore increased balance when planting a foot and possibly less injury. Decreased weed growth indicates increased turfgrass density which should increase shear vain which implies less tearing, better footing, and decreased pesticides. Increased customer satisfaction indicates that rolling has potential to create a smoother surface making for better playing conditions favoring athletes with the best ball control.

Soil moisture also plays a critical role in turfgrass health and playability of a soccer pitch. This study will be the first to examine the interaction of the mechanical practice of rolling and its relationship on soil moisture and playability by utilizing Toro Turf Guard soil moisture sensors.

Treatments will include:

1. A non rolled soccer pitch plot.
2. Soccer pitch plots rolled 3 x per week.
3. Soccer pitch plots rolled 5 x per week

This study takes place at two locations: the MSU soccer complex and at the Hancock Turfgrass Research Center. At the MSU soccer complex treatments were initiated June 25, 2012 and is being performed on a native soil based, Kentucky bluegrass field mowed at 1.25”, while the HTRC treatments were initiated August 6, 2012 and is being performed on a native soil based, Kentucky bluegrass field mowed at 1.5”. The fields also receive irrigation, fertilization, and a sand topdressing regimen consistent with a competition athletic field.

Data collection will include:

1. Soil moisture measurements in correlations with
    a. surface hardness measurements
    b. shear vein
    c. ball roll
    d. soccer player traction surveys
2. Turfgrass rooting taken annually
3. Bulk density (soil compaction) measurements
3. Pest infestations if and when applicable