



# Olympic Turfgrass Project: China National Stadium

A.R. Kowalewski, J.R. Crum, J.N. Rogers, III, and W. Zhao.



## Abstract:

The China National Stadium (the Bird's Nest) was designed and built specifically for the 2008 Olympic Games. This stadium was host to the opening ceremony, track and field events, the international football finals, the closing ceremony, and the Paralympics Games. To facilitate this wide variety of activities, which would otherwise be destructive to a natural turfgrass system, Chinese officials selected a modular, or portable. Michigan State University, experts have developed and served as consultants for a number of modular field projects including the first ever modular field used for the 1994 FIFA World Cup. This made MSU the natural choice as an external consultant for this project. The MSU turfgrass team were issued the task of seeding and establishing the turfgrass in September 2007, and the collaborative maintenance of the turfgrass throughout the following summer, May – August, 2008. The team also assisted in the module move into the stadium following the opening ceremony on August 8, 2008, and prepping the field for the start of Olympic competition on August 15, 2008.

## MSU Turf Team Members:

Dr. John N. Rogers, III, Crop and Soil Science, MSU.  
Dr. James R. Crum, Crop and Soil Science, MSU.  
Alexander R. Kowalewski, Crop and Soil Science, MSU.  
Dr. Weijun Zhao, Office of China Programs, MSU.



## Chinese Counterpart:

The MSU turf team worked in tandem with the China Sports Industry Group Co. (CSI), the Beijing based company responsible for the construction of the field and ultimately its long term care.

## Modular System:

GreenTech® ITM system™, Roswell, GA. An individual GreenTech module is 4.0 ft x 4.0 ft wide and weighs approximately 1,100 lbs when filled with 8 in of a sand-based root zone.



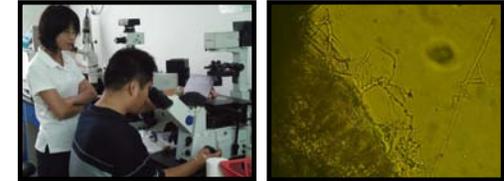
## Turfgrass:

Kentucky bluegrass (*Poa pratensis* L.) mixture ('Freedom III', 'Midnight II' and 'Barrister') was seeded September 5, 2007. Kentucky bluegrass, a cool-season grass, was chosen for this project because Beijing, while being very hot during the summer (reaching temperatures over 100 °F), is subject to cold and windy winter conditions, which is not conducive to warm-season grass survival.



## Maintenance:

Mowing was maintained at a height of 3.5 cm then reduced to 3.0 cm prior to Olympic competition. Light and frequent fertilization and irrigation was made throughout the summer to provide the sand-based system with a constant supply of nutrients and water. Every day a handful of field laborers would walk the field and hand pick weeds as they emerged.



## Opening Ceremony and Move in Process

On August 8, 2008 at 8:00 pm the entire city of Beijing halted to watch the opening ceremony in person at the National Stadium or on television. Shortly after the ceremony was completed, the modular field began its 6 mile journey from its construction site on the outskirts of the city to the stadium located within the Beijing Olympic park. The first modules arrived at the National Stadium after the opening ceremony on the morning of August 10, 2008, and were placed at 8:00 am. The final modules were laid by hand August 12, 2008, at 4:00 am.



The MSU turf team left China after the modular field was installed and groomed in preparation for the Olympic Games on August 15, 2008, and CSI assumed sole responsibility for its care. Track and field competition took place from August 15 – 23, 2008, at the stadium on the modular field. The men's football finals between Argentina and Nigeria concluded the 2008 Olympic competition on August 23, 2008. All reports stated that the field provided a stable, uniform, and aesthetically pleasing playing surface. Overall, this project was viewed as a tremendous success by all parties – Olympic Committee, National Stadium, CSI, and MSU.



In July and August, due to hot and humid conditions, disease control became the major concern leading up to the Games. Dr. Joseph Vargas, MSU Department of Plant Pathology, and Dr. Brandon Horvath, Virginia Tech University; College of Agriculture and Life Sciences, were very instrumental in disease diagnosis via email, and provided the necessary curative procedures for the specific situations as they developed. The major disease that was battled throughout the summer months was brown patch (*Rhizoctonia* spp.).

