# Wisconsin Golf Industry
## *Best Management Practices*

Wisconsin Golf Course Superintendents Association

GCSAA Golf Course Superintendents Association of America
Wisconsin Chapter

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# Wisconsin Sustainability Planning

Sustainability is integrated throughout our BMPs in order to help guide golf courses in balancing performance and economic impact with environmental stewardship and community engagement. Our golf courses have adopted recommendations and BMPs encouraged by the Wisconsin Department of Natural Resources and the Wisconsin Department of Agriculture Office of Sustainability and Clean Energy for greening businesses statewide. Cities, regions, and communities have varying levels of sustainability planning; courses are encouraged to collaborate within their communities for continuous environmental improvement to make a positive impact today and in the future.

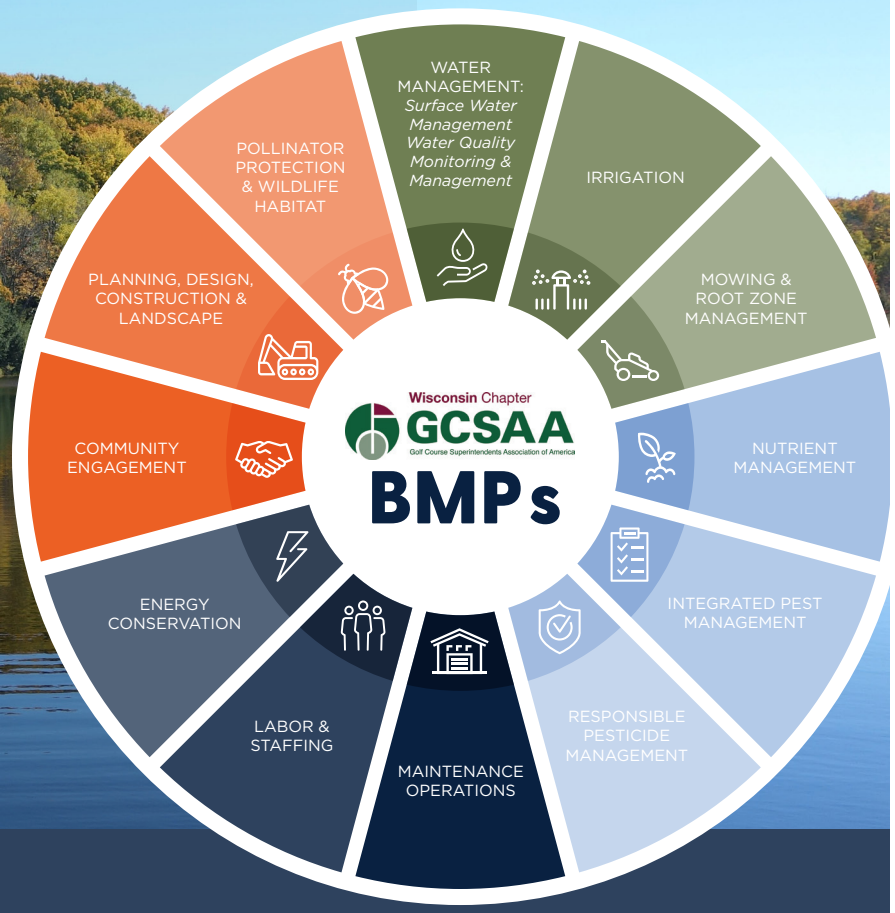
# Wisconsin Golf Industry Best Management Practices

## *Responsibility to Our Communities & Environment*

Wisconsin golf course superintendents are dedicated to a quality golfing experience and committed to preserving natural resources through using science-based practices. We share strong midwestern values and a commitment to our families and communities.

Through caring for thousands of acres of greenspace, we continuously seek ways to contribute to our local ecosystems. This ranges from developing pollinator and wildlife habitats to water conservation and water quality initiatives for the benefit of our communities.

Sharing knowledge and resources is critical for sustainable operations and environmental stewardship. Our BMP Guide serve as operating standards for superintendents to strive toward and an educational resource for all stakeholders.




## Energy Conservation

Achieve energy reductions through behaviors and processes, product efficiencies, design, and education.

- Audit energy/lighting & irrigation to identify efficiency opportunities
- Prioritize energy consumption as part of decision-making for product selection

## Pollinator Protection, Wildlife Habitat, Landscape

Wisconsin golf courses provide 50,000+ total acres of greenspace and bluespace including streams, lakes, and ponds which supply wildlife habitats, an important ecosystem service. Pollinator protection is critical for sustainable agriculture, including pollination of apples, cherries, cranberries, cucumbers, and green beans. Golf course landscape also provides enhanced aesthetics, noise abatement, and natural cooling.

- Plant flowers & native species within landscape areas to encourage habitat with varying color, shape, scent, growth habits
- Construct & place birdhouses, bat houses, butterfly gardens, nesting sites in natural areas
- Consider manual removal of weeds or spot treatment

## Irrigation

Optimize playing conditions, while conserving and protecting water resources.

- Develop annual water budget & drought contingency plan
- Monitor water quantity & quality; monitor soil moisture, set acceptable thresholds
- Design system to maximize water efficiency, reduce operational cost, conserve supply, protect water resources
- Use drought tolerant turfgrass varieties; consider reducing manicured turf & converting to native areas

## Nutrient Management

Proper nutrient management plays a key role in reducing environmental risk and improving golf course economic sustainability.

- Objective of nutrient applications is plant uptake & corresponding desirable response; remember 4R's: right source, right rate, right time, right place
- Comply with Federal requirements, Wisconsin NR-151, the DNR Turf Nutrient Management Technical Standard (1100), and local regulations
- Conduct a site analysis; undergo soil tests, understand pH levels, conduct plant tissue sampling; conduct a water analysis annually
- Establish a written Nutrient Management Plan (NMP) incorporating five key components (site characteristics, site map, fertilizer application rates/restrictions, soil testing results/methods, spill-response plan)

## Water Management: Surface Water Management Water Quality Monitoring & Management

Responsible water management and operations to promote water quality and conservation.

- Wetlands are protected areas; maintain wetlands as preserves & separate from managed turf with native vegetation or structural buffers; consult with the DNR & federal agencies before altering natural aquatic areas
- Capture stormwater to conserve potable water, maintain hydrologic balance, improve water treatment
- Establish an Aquatic Plant Management Strategy
- Locate and protect wellheads

## Integrated Pest Management

IPM is a science-based systems approach to optimal plant, animal, and human health; it reduces pest management expenses and conserves energy.

- Incorporate five key IPM steps: Scouting/ Identification/Monitoring; Setting "Action Level" or Thresholds; Making Decisions - control method(s)/timing; Evaluation; Education
- Use proper cultural, mechanical, physical methods to prevent problems (i.e., prepare site, choose correct turfgrass for Wisconsin, select resistant cultivars), reduce pest habitat (i.e., good sanitation, dethatching), turf stress, weed encroachment
- Pesticides should be evaluated on effectiveness against the pest, mode of action, life stage of the pest, personnel hazards, non-target effects, potential off-site movement, cost, EIQ, and reduced risk & biopesticide options
- Minimize exposure to non-target pollinators in play & non-play areas

## Community Engagement

Enhance collaboration, communications, and involvement with the community, city, state, and golf course stakeholders.

- Identify community values and principles
- Establish engagement targets, goals, desired outcomes

## Maintenance Operations

A well-designed and constructed facility supports optimal health and safety, water quality, and energy efficiencies.

- Store pesticides in a lockable concrete or metal building that does not experience freezing temperatures or extremely hot conditions
- Develop emergency response plan & educate staff regarding procedures regularly
- Maintain clean, safe work environment with clearly designated storage, signage, labeling, instructions

## Planning, Design, and Construction

Considerate use of BMPs should result in an environmentally sustainable golf course that operates efficiently with minimal effect on the environment.

- Incorporate topography, access to water, energy, labor, materials into plan; integrate sustainable maintenance practices
- Identify & preserve protected, endangered, threatened plant/wildlife species; preserve migration corridors
- Promote habitat for plants/wildlife; retain natural site characteristics; use native vegetation to reduce irrigation & lower inputs
- Design greens, bunkers, cart paths & other areas to maximize play; minimize negative environmental/economic impacts

## Labor & Staffing

Enriching the livelihoods of individuals and driving economic impact through workforce development and job creation.

- Provide ongoing OSHA and safety training, post required signage
- Understand current golf maintenance labor data, including expenses, retention, turnover rate
- Develop relationships within the community through a variety of school & government-based programs to diversify workforce
- Lean on multiple recruiting pipelines to integrate diversity & inclusion into hiring practices

## Responsible Pesticide Management

Pesticide storage, handling, and disposal should be part of an IPM strategy that promotes safety, human, plant, and animal health.

- Follow directions on label; the label is the law
- Properly calibrate application equipment
- Utilize PPE & train on proper handling procedures
- Create & maintain records of pesticides used; keep backup records, inventory, Safety Data Sheets in separate storage area

## Mowing & Root Zone Management

Cultural practices impact health, playability, and efficiencies of the golf course.

- Utilize appropriate mower & height-of-cut for playing surface, grass, location
- Dispose of clippings properly, compost or distribute in natural areas away from ponds & streams to decompose naturally
- Aerification, vertical mowing, slicing, spiking, topdressing are essential for extended life of the course

Visit **www.wisconsingolfbmp.org** or **www.wgcsa.com** to view the complete Wisconsin Golf Industry Best Management Practices Guide

*It is recommended with all BMPs to always comply with Federal and Wisconsin State laws and regulations.*