Parks and Recreation Department
Golf Operations Division

Turfgrass Agronomy 101

An Introduction to the Science and Management of Turfgrass Systems

Wayne Carpenter
Senior Golf Superintendent
Municipal Golf Committee
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The City of SAN DIEGO

What Is Turfgrass Agronomy?

- Agronomy: The science of soil management and crop production
- Turfgrass agronomy focuses on grasses used in lawns, sports fields, and golf courses
- Interdisciplinary: Includes soil science, plant physiology, pest management, and irrigation

Types of Turfgrasses

Cool-Season Grasses:

- Perennial Ryegrass
- Poa annua
- Bentgrass

Warm-Season Grasses:

- Bermuda Grass
- Kikuyu Grass

Growth and Physiology

- Growth stages: germination, establishment, active growth, dormancy
- Rhizomes and stolons help turf spread
- Photosynthesis powers turf growth
- Affected by temperature and light

Soil Fundamentals

- Soil texture: sand, silt, clay
- Structure and compaction affect root growth
- Ideal pH: 6.0–7.0
- Importance of soil testing

Mowing and Cultural Practices

- Proper mowing height depends on grass type
- Frequency and pattern affect turf health
- Keep mower blades sharp
- Core aeration, dethatching, and topdressing are key practices

Water Management

- Understand evapotranspiration and water needs
- Water deeply and infrequently
- Irrigate in early morning to reduce disease
- Use smart irrigation systems for efficiency

Fertility and Nutrient Management

- Macronutrients: Nitrogen (N), Phosphorus (P), Potassium (K)
- Micronutrients are also important
- Slow-release vs. quick-release fertilizers
- Adjust fertilization by season

Pest, Weed, and Disease Control

- Integrated Pest Management (IPM) approach
- Common pests: grubs, chinch bugs
- Common diseases: dollar spot, brown patch
- Weed control: pre- and post-emergent strategies

Trends and Sustainable Practices

- Organic turf management gaining interest
- Use of drought-tolerant and native grasses
- Robotic mowing and GPS-guided maintenance
- Focus on reducing chemical inputs and improving sustainability

Questions?