Fertilizer Applicator Training Seminar

Sponsors: SKY72, KGCSA, AGIF

Instructor: Dr. Choi Jon-Soo, Professor, Dankook University

[Application will be made for GCSAA education credits toward CGCS and State of California licensing continuing education credit.]

Description: This seminar is designed to prepare golf course maintenance personnel to gain a greater knowledge of plant and turfgrass nutrition and to be better trained and skilled in the proper and effective use of fertilizer applications in golf course management.

Syllabus

REVIEW OF CHEMISTRY ESSENTIALS:

- Review of periodic chart
- Understanding simple chemical formulas
- Review of basic mathematics of chemistry
- Review of what is pH?
  - Acidity versus alkalinity
  - What is buffer pH
  - Impact of pH on plant nutrient
- Methods of correcting pH imbalances:
  - Lime, gypsum, acids, fertilizers
- Salts
  - Impacts of various salts on physical and chemical properties of soils
  - What is water EC and its impacts on soils / SAR

REVIEW OF SOIL SCIENCE:

- Understanding various soil texture types and physical characteristics of soils
  - What is soil? Native soil profile. Glacial, alluvial, Aeolian transport of soil.
- Measuring organic matter (OM) impacts and OM content of soils
  - Measuring methods
  - Why is pore space and removing excess OM critical in fine turfgrass management
- Review understanding water movement and water holding capacity of soils
  - Saturation
  - Field capacity
  - What is wilting point (WP)? What is evapotranspiration (EVTo)
  - Understanding infiltration capacity rates and percolation
- Review of irrigation water management
  - Moisture sensor tools: TDRs
  - Remote sensing: UgMOs, ProTurf, Turf Guard
- Review essential plant nutrients
  - What are the essential nutrient elements
  - What 'available' forms can be used by plants
  - Turf impacts of various fertilizer compounds
  - pH impacts on availability
  - Movement of specific nutrient elements in soils and plant
  - Review of visible symptoms of deficiencies of each essential nutrient
  - Solubility of fertilizers
  - Irrigation water methods
  - Fertilizer and dry methods
  - Environmental fates of fertilizers (i.e. phosphorus, nitrogen)

FERTILIZERS:

- Review of all basic agricultural fertilizers
  - Chemical formulations and raw materials
  - Properties and impacts
  - Basic and acidic impacts
  - Complete fertilizer and blending

        - Controlled release fertilizers (CRF) – form, properties, mode of release
            - Isobutylidene diurea (IBDU)
            - Ureaformaldehyde (UF)
            - Methylene urea (MU)
            - Sulfur coated urea (SCU)
            - Polymer coated (+MU)
    - Review of soluble versus granular
        - Efficacy and cost impacts
        - Controlling labor costs with mechanized applications (bulk handling, boom sprayers, fertigation)
    - Review of organic fertilizers
        - Blood meal, bone meal, fish scraps, composts, crop waste, manures (swine, poultry), seaweed, sewage sludges.
    - Costing of fertilizers (both basic and complex fertilizers)
    - Understanding soil analysis:
        - Proper sampling and handling
        - Typical laboratory analysis procedures
        - Typical analysis reports and interpretation
        - Calculations for correcting deficiencies / imbalances

WRITTEN EXAMINATIONS --

- Examinations for Certification as a SKY72, *Qualified Pest Control / Chemical Applicator*

  (must pass the General Applicator exam plus at least one other category)

    - *General Applicator Knowledge (Equipment, safety, handling, labels)*

      PLUS AT LEAST ONE:

    - Weeds Pest Management / Herbicides
    - Insect Pest Management / Insecticides
    - Plant Diseases
    - Plant Growth Regulators
    - Fertilizers