

Student Name _____

Turfgrass Culture, ORH3222C Section 7982
and Grad. – Res. And Develop. in Turfgrass Sci. HOS6523 Section
5819

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November 9, 2009

Hour Test 1- repeat- ANSWERS

(Multiple choice - circle the right answers, 3 points each)

1. Grasses are:
 - a) **flowering plants <<<<<<<<**
 - b) nonflowering plants
 - c) in the family Cyperaceae
 - d) All of the above
 - e) None of the above
2. Horizontal aboveground runners:
 - a) culms
 - b) inflorescences
 - c) racemes
 - d) rhizomes
 - e) **stolons <<<<<<<**
3. The scientific name for Kentucky bluegrass is:
 - a) Poa annua
 - b) Festuca arundinacea
 - c) **Poa pratensis <<<<<<<**
 - d) Cynodon dactylon
 - e) Stenotaphrum secundatum

4. According to Dr. Phil Busey, the main reason to water in the early morning is to:
- a) reduce disease
 - b) reduce irrigation distortion by wind <<<<<<<<**
 - c) reduce percolation
 - d) reduce water pressure
 - e) reduce wind drift
5. The lawn mower was invented:
- a) by the WPA to stimulate employment during the Great Depression
 - b) by Thomas Jefferson
 - c) by Wall Street to provide employment for investment bankers
 - d) in Great Britain as a derivative of the textile industry <<<<<<<<**
 - e) in Japan to take care of tea gardens
6. The common name of Paspalum notatum is:
- a) bahiagrass <<<<<<<<**
 - b) bentgrass
 - c) bermudagrass
 - d) blue grama
 - e) buffalograss
7. The two types of water conducting elements in a turfgrass vascular system are:
- a) capillary and gravity
 - b) evaporation and transpiration
 - c) infiltration and percolation
 - d) micropores and macropores
 - e) xylem and phloem <<<<<<<<**
8. The main advantage of using a sprig vs. a plug is that:
- a) sprigs are less likely to go to seed
 - b) less fertilizer is required
 - c) plugs are not available
 - d) there will be less internal competition and higher growth rate <<<<<<**
 - e) there will be less problem from mole crickets

9. Which soil particle size component has the strongest overall effect on soil characteristics:
- a) **clay <<<<<<<<**
 - b) gravel
 - c) sand
 - d) silt
 - e) None of the above
10. Turfgrass density refers to:
- a) grain
 - b) growth habit
 - c) leaf width
 - d) **shoot density <<<<<<<**
 - e) uniformity
11. Compared with most other higher plants, grasses:
- a) are insect pollinated
 - b) have showy flowers
 - c) do not tolerate close grazing
 - d) **have intercalary meristems <<<<<<<**
 - e) are ornamental rather than utilitarian
12. A part of the grass leaf that defines a line of separation of the blade from the sheath:
- a) auricle
 - b) bract
 - c) **collar <<<<<<<**
 - d) culm
 - e) spikelet
13. The two goals of irrigation layout design are:
- a) To meet net irrigation requirement
 - b) To conserve water and maintain water quality
 - c) To reduce energy and reduce water use
 - d) To saturate the area with as much water as possible
 - e) **Uniformity and control <<<<<<<**

14. A type of mower which uses flat or slightly tilted blades that rotate around a vertical spindle and that shatters grass leaves rather than cutting them:
- a) flail
 - b) fly
 - c) reel
 - d) rotary <<<<<<<<**
 - e) string trimmer
15. The first of seven steps in turf establishment is
- a) install irrigation system
 - b) kill existing vegetation
 - c) plan
 - d) plant the grass
 - e) prepare the seedbed
16. What is the strongest explanation that some reported measurements of turfgrass evapotranspiration have shown unverifiable large differences among turfgrasses:
- a) measurements in small containers are distorted by location factors <**
 - b) the world's rising CO₂ concentration has blurred the effects of physiology
 - c) the effect of grasses is confounded by differences in mowing height
 - d) people insist on overwatering
 - e) studies fail to consider other effects like traffic, mowing, and shade
17. Which is an important cultivar of bermudagrass:
- a) Argentine
 - b) Floratam
 - c) K-31
 - d) Seville
 - e) Tifway <<<<<<<<**
18. If any nutrients are added to the soil before planting turfgrass, then types that are most justifiable are:
- a) natural nitrogen sources such as cow manure
 - b) nutrients used in small quantities such as Fe (iron) and Mn (manganese)
 - c) quick available N (nitrogen) sources as ammonium nitrate
 - d) quick available organic N (nitrogen) such as urea
 - e) slowly mobile nutrients such as P (phosphorus) and Ca (Calcium) <<**

19. Which turfgrass is a low maintenance bunch grass and considered a lower water use alternative to Kentucky bluegrass?
- a) *Agrostis palustris*
 - b) *Cynodon dactylon*
 - c) *Festuca arundinacea* <<<<<<<<**
 - d) *Poa pratensis*
 - e) *Poa trivialis*
20. C₄ grasses:
- a) are generally propagated sexually
 - b) are grown infrequently in Florida
 - c) are well adapted to low light levels
 - d) thrive best in warm climates <<<<<<<<**
 - e) would be strongly enhanced by increased atmospheric CO₂ concentration
21. What are the most essential facts to know in deciding whether to water?
- a) recent runoff, percolation, and number of minutes watered
 - b) root available water capacity and recent evapotranspiration and rainfall <<<<<<<<**
 - c) the coefficient of irrigation uniformity
 - d) the type of sprinkler system, type of grass, and infiltration rate
 - e) None of the above
22. The advantage of using a plug vs. a sprig is that:
- a) a plug involves less plant material
 - b) a plug is somewhat protected from the effects of drying and weeds <**
 - c) plugs use less fertilizer
 - d) sprigs are not generally available
 - e) there is no environmental downside to plugs
23. The production of carbon dioxide from turf, involving the consumption of carbohydrates, is:
- a) translocation
 - b) photosynthesis
 - c) respiration <<<<<<<<**
 - d) evapotranspiration
 - e) denitrification

24. The approximate number of grass species in the world is:

- a) 1 million
- b) 20,000
- c) 400
- d) 10,000 <<<<<<<<**
- e) 250,000

25. The primary driver of evapotranspiration is:

- a) chlorophyll
- b) CO₂
- c) rain
- d) sun <<<<<<<<**
- e) wind

(Fill in the blank etc.)

26. List at least 4 advantages (benefits) and 4 disadvantages of turfgrass (8 pts):

(Adv 1) - **Ecology (soil conservation, habitat, natural A/C, groundwater recharge)**

(Adv 2) - **Safety (highway visibility, safe walking surface, inspection for seepage)**

(Adv 3) - **Esthetics (compliments other plants in a polyculture)**

(Adv 4) - **Sanitation (reduces tracking of soil, blowing dust)**

(Adv 5) - **Economic activity (jobs), low maintenance if done properly**

(Dis 1) - **Used often as a monoculture, not rich ecologically**

(Dis 2) - **Requires high energy inputs in the form of fertilizer, pesticides**

(Dis 3) - **Potential nonpoint source of pollution (fertilizer, pesticides)**

(Dis 4) - **Inadequate as a playing surface in shade or very heavy traffic**

(Dis 5) - **If maintained improperly may be watered excessively**

27. Correct the spelling (7 pts):

Cyodon dacylom -> Cynodon dactylon

Festuca arundinaceae -> Festuca arundinacea

Lolium perenne -> Lolium perenne

Poa trivalis -> Poa trivialis

Stenotarphum secundatum -> Stenotaphrum secundatum

28. Pick any turfgrass species and complete the following table (10 pts):

Charateristic	Your response
English common name	St. Augustinegrass
Scientific name	Stenotaphrum secundatum
Warm-season or cool-season	Warm-season
Sun grass, shade, or both?	Both sun and shade
Name of a common pest problem	Southern chinch bug
Main use (lawns, golf, etc.)	Lawns
Establishment rate (fast, slow, etc.)	Moderate
Normally propagated by (sexual or asexual)	Asexual (by stolon cuttings)
Texture (fine, coarse, etc.)	Very coarse
Bunch grass or sod forming grass	Sod forming

29. Describe briefly a turfgrass operation that you have seen or know about from class, e.g. sod harvesting or the manner of doing subsurface drainage on the Dolphins Training Facility (10 pts):

St. Augustinegrass sod is harvested in the organic soils of Everglades Agricultural Area and other areas of Florida typically using a Brouwer automatic sod harvester which is staffed by three persons, one a driver, and two people who stack the 24 inches X 16 inches sod “slabs” onto wooden pallets. Driver and stackers rotate positions periodically to provide relief. Sod consists of the growing parts of the grass plant, much of the root system, thatch, and some soil. The harvester machine undercuts a fully covered field block of mown grass using cutter head with a U-shaped blade that agitates on a cam, and there is also a cross-cutter knife that is spring-loaded. The cut sod is mechanically pulled up a conveyor belt to the two stackers. The driver navigates successive passes the length of the field, assisted with a pressure-sensitive navigation bar that runs alongside the previous cut and activates most of the steering. This allows the cutter head to harvest fairly accurately linear 16-inch wide alleys separated by an approximately 3-inch uncut ribbon which will be allowed to regrow during the subsequent 10-12 months to refill the cut alleys. The cut sod is stacked on wooden pallet which is 48 inches X 48 inches, thus it accommodates a 3 X 2 array of sod slabs in each layer. Stackers place the first layer with the soil on the bottom, and flip each alternately succeeding layer, so that sod slabs are always placed foliage-to-foliage, and soil-to-soil, which keeps the sod clean looking. Once each pallet reaches 500 square feet of sod of capacity (17 layers with two pieces left on top) the automatic harvester is turned backwards to place the loaded pallet in an area outside the active working area. (In sand areas where cut sod is heavier, pallet capacity is only 400 square feet). A forklift used by another operator lifts and places loaded pallets onto a field wagon consisting multiple tandem 2-wheeled large-tire carts, which is driven by a tractor to the hard-rock loading ramp for placement on semi-trailers. Each semi-trailer is typically loaded with 20 pallets of about 2000 or more pounds per pallet. Each three-person sod harvest crew is typically paid a combination of hourly wage plus a piecework incentive. The work week is six days, Sunday to Friday, from about 6:00 am to 2:00 pm. Many other maintenance procedures are important in the overall sod operation that are important include periodic mowing, irrigation, fertilization, pesticide application, maintenance of ditches and water levels, periodic replanting from plugs (about once every ten harvests), repair and replacement of pallets, equipment maintenance, collections, and bookkeeping. Some operations such as final mowing and pest management treatments are performed close to harvest to improve post harvest quality and healthy establishment. Harvested sod should normally be planted the same day or the day following harvest, to lessen the risk of composting and overheating. Other variations of this system including historical variations and recent developments have included roll harvesting, plugs, hand lifting, and sprig harvesting but these variations are not common for St. Augustinegrass sod in Florida.