Turfgrass Culture, ORH3222C Section 7982
and Grad. – Res. And Develop. in Turfgrass Sci. HOS6523 Section 5819
University of Florida - Davie
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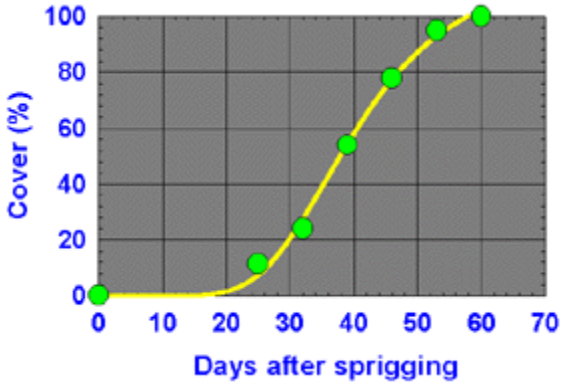
Turf Establishment: P-E-G-I-S-I-D



Design and establishment of turf areas are important because of their long-term consequences. Turfgrass has an amazing potential for compound growth. So do the weeds. The S-shaped growth curve is a powerful tool for accomplishing turf objectives: the establishment of a uniform, manageable turf cover, whether by sod, seed, sprigs, or plugs. While the two biggest factors in the success or failure of turf establishment are water and weeds, these and interwoven with other environmental factors, e.g., timing, temperature, soil, and use. There are seven operational steps in turfgrass design and establishment, and they are covered in the easily remembered mnemonic **P-E-G-I-S-I-D** Students should also be aware of specialized applications, some of which we will see or discuss on field trips, e.g., sod production, hydroseeding, washed sod, big roll sod, seed priming and pregermination, overseeding, and netting.

Species	Potential growth rate	Weight increase (% per day)	Time to achieve ground coverage (days)	Sod harvest cycle (months)	Maintenance requirement	Recuperation rate
bahiagrass (seed)	slow	2 to 4	N/A	12 to 24	low	slow
bermudagrass	fast	8 to 9	50 +	3 to 8	high	very fast
centipedegrass	slow	2	80 +	9 to 15	low	slow
seashore paspalum	fast	7	60 +	?	high	fast
St. Augustinegrass	intermediate	4 to 5	65 +	7 to 18	intermediate	fast
zoysiagrass	intermediate	4 to 5	90 +	11 to 24	intermediate	slow to moderate

1. Plan

a. List objectives for the turfgrass area, e.g., sanitation, safety, conservation, recreation, esthetics. How is it going to be used? Ask the users.

b. Are there alternatives to turfgrass - groundcovers, etc.?

c. Select the right turf species and cultivar for the site and use.

d. What are the environmental relations - people, other vegetation (shade trees, herbicide interactions), and wildlife?

e. Plan for drainage and other soil characteristics.

f. Design the irrigation system.

g. Establish a construction timetable, appropriate to climate factors, select contractor(s), obtain permits, etc.

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2. Eradicate noxious weeds

a. Spray with nonselective herbicide (e.g., glyphosate) to control such noxious grassy weeds as bermudagrass, torpedograss, and unwanted turfgrasses DO NOT DISTURB THE AREA FOR AT LEAST 7 DAYS, PREFERABLY 14 DAYS. Make sure not to introduce noxious weeds in stockpiled soil or in subsequent plant materials. Noxious perennial grasses require a minimum of two applications, usually three.

b. Alternatively, fumigate the soil with methyl bromide (more for weeds than nematodes).

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3. Grade the soil

a. Remove as much of existing vegetation as is feasible, e.g., cut sod or dragmat and windrow dying weeds and grass; this is important to make subsequent grading easier.

b. Partially or completely modify the soil, if necessary:

i. Poorly soluble nutrients, e.g., lime, phosphorus need to be incorporated before planting.

ii. Soil amendments organic humus, sand, calcined clay, etc. can be added at this time.

iii. Postpone soluble nutrients, e.g., nitrate, which will probably leach beyond the rootzone before the turf has gotten its roots down.

c. Rototill or otherwise mix the soil, mainly for aeration and subsequent easy of seedbed preparation; shallow is often best so as not to bring up buried problems, or destroy soil structure.

d. Install drainage, if any, subsurface (tiles), or overflow drains.

e. Slope soil away from buildings and sometimes roadways.

1. Remove rocks, debris, tree roots.
2. Discover point of irrigation connection, any hidden surprises.

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4. Irrigate

(to be covered in more detail in a supplement)

a. Goals: uniformity, flexibility, lack of runoff, adjustment to microenvironment.

b. Adjust all elements (valve boxes, pop-ups, etc.) to final grade.

c. Make sure to promptly and properly fill ditches, including flooding to prevent subsequent subsidence.

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5. Seedbed

a. Smooth the area to achieve a final grade with dragmats, wide rakes, etc.; allow for settling; inspect following a heavy rain; check the irrigation; visit at night with a flashlight, looking for irregularities.

b. Remove weeds, debris.

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6. Install turfgrass

a. For actively growing materials (e.g., sprigs), make sure to plant in a moist seedbed.

b. If using seed, it is almost always best to plant the seed under the ground, or at least make sure it is in firm contact with the moist soil.

c. Other considerations are mulch and wind erosion protection.

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7. Defend against hazards

a. Irrigate sprigged and seeded areas briefly during the daytime to help hold the soil together. Turf doesn't need much total irrigation during this period! For sod, every other day irrigation is usually adequate.

b. Control weeds through timely mowing, preemergence herbicides, etc.

c. Protect from destroyers, e.g., mole crickets, ATC's,

d. Fertilize on a timely basis (generally after, not before, planting).

Test yourself

1. Warm-season turfgrasses are generally propagated vegetatively because:

(a) seeds are not produced;

(b) seeds are not available;

(c) other organs (stem cuttings) are available and highly effective;

(d) to maintain uniformity

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2. What is the smallest possible unit in vegetative field propagation?

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3. What is the preferable "colony forming unit" for vegetative propagation under "controlled" field conditions?

(a) sprig (b) plug (c) stolon

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4. What is the preferable "colony forming unit" for vegetative propagation under "stress" conditions?

(a) sprig (b) plug (c) stolon

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5. What are the two main stresses limiting turfgrass vegetative propagation and establishment in Florida?

_____, and _____

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6. Under typical conditions, what is the planting rate (area of original plant material harvested / area established) for a St. Augustinegrass sod field which is plugged:

(a) 0.5% (b) 4% (c) 15%

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7. 400 bushels of bermudagrass sprigs per acre are planted in a ball field. What is the relative planting rate (area harvested / area established)? (Assume 1 square yard of sprig field yields 1 bushel).

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8. Bahiagrass seed commonly yields no more than 200 kg per ha. University of Florida extension recommendations say to plant it at up to 10 pounds per thousand square feet (probably 3-4 X too much). What is the relative planting rate (area harvested / area established)?