

Stabilized Turf

It may offer a solution to the compaction problem caused by golf cars and heavy-footed players

By G. D. GHASTER

With the advent of the caddy cart, and now the powered golf car, supts. are faced with an increasing problem of soil compaction, the primary cause of dead turf around tees and greens. The thought and sight of using blacktop to take care of these conveyances has encouraged me to speak up for stabilized turf.

Stabilized turf is what I call grass established on a soil mixture that under any moisture condition, will support pedestrian and vehicular traffic.

Grass Not Sheared

The problem of establishing and maintaining grass on areas to be used by people and their equipment is not one of turf durability so much as it is one of soil stability. When soils are stable the grass is not subjected to a grinding and shearing action. The holes or pores in the soil remain open and free for the movement of water and air.

Sand particles of a selected size provide a soil mixture that will remain open and porous indefinitely and, at the same time, support heavy loads regardless of the wetness of the mixture. The important point is that the sand particles be carefully selected as to size so that the smallest particles will not fit into the holes or pores between the larger particles and thus plug them. Sandy soils, compacted to their maximum density, cannot be altered by traffic. This is the basis for stabilized turf!

Extensive investigations have shown that stabilized turf shoulders on highways and freeways can be established and maintained at small cost compared to asphaltting and will support vehicular traffic — even heavy trucks. Several selections of particle sizes have been formu-

lated into stable mixtures. Mixtures of sandy soils for coarse and for fine turf are given in Tables I and II.

Not Mixed With Subsoil

Coarse stabilized turf soils (Table I) can be used for maintenance of access roads and for golf car pathways down the sides of the fairways or in the roughs. Depending upon the strength and moisture condition of the subsoil on the site, three to six inches of moist stabilized soil mix can be used. This soil is spread on the surface of the existing dry soil but must not be mixed into the subsoil. The stabilized soil is compacted to at least 90 per cent of its maximum density. At this density, the stabilized soil will have about 30 per cent pore space — 15 for air and 15 for water storage.

For ragged tee and green areas on courses and trampled grass in parks, around schools and other public build-

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ings, a fine stabilized turf soil mixture can be used (Table II). Four to twelve inches of this mixture is laid down and compacted to near its maximum density. Again, this soil mixture must not be mixed into the subsoil. This is the seedbed; topsoil must not be used on this stabilized soil.

Establishing Grass

The usual procedure for seeding, fertilizing, and watering when establishing new turf can be followed. Sprigging can be with adaptable grasses. At the University of California in Davis, experiments with sprigging and seeding a stabilized turf parking lot showed that a ¼ inch mulch of sand, firbark, sawdust, or other coarse organic mulch material aided the establishment of the grasses.

It is common knowledge that a sandy soil does not hold water and nutrients so well as a clay or loam soil. Therefore, as is the usual practice on most golf

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Table 1 — STABLE SOIL MIXTURES

For Coarse Turf		Per cent by weight passing			
No. & Sieve	Size	Type A	B	C	D
	$\frac{3}{4}$ "				90-100%
	$\frac{3}{8}$ "	60-100%			
#4	4.75 mm.	50-85%	55-100%	70-100%	35-55%
#10	2.0 mm.	40-70%	40-100%	55-100%	
#30	0.5 mm.				10-30%
#40	0.42 mm.	25-45%	20-50%	30-70%	
#60	0.25 mm.	13-25%	13-25%	13-25%	
#200	0.075mm.	8-20%	8-20%	8-25%	3-9%

Liquid limit: not exceeding 35

Plastic index: 4-9

Maximum density: 100% = 130#/cu. ft.

courses, frequent irrigations and fertilizer applications are necessary until the grass becomes established and develops a deep root system. After the plants are well established, the root system will be extensive enough to draw upon nutrients and water stored in the subsoil. This subsoil reservoir of food and water helps carry the grass over sudden, adverse weather conditions and reduces the need for frequent watering and feeding.

And good grass species adaptable to your area will produce good turf. However, recent studies by V. B. Youngner, using the "Wear Machine" devised by Marston Kimball and R. L. Perry of

U.C.L.A., have shown that some grass species at particular places in California have superior wear-resistant qualities to others. The wearability tests were made on turf grown on ordinary soil for golf course use.

Stabilized turf used on highway shoulders has been proven most successful. Coarse stabilized turf along the edge of the fairways or in the roughs will eliminate the golf car compaction problem. Fine stabilized turf around tees and between greens and traps will eliminate ragged, muddy turf in these areas. Stabilized turf is the answer to your soil compaction problems.

Table 2. STABLE SOIL MIXTURES

For fine turf	
Size of particles	Per cent retained
0.4 — 0.2 mm.	75%
less than 0.1 mm.	6-10%
silt + clay	not more than 1-2%
coarse organic matter	10-15%

Maximum density: 100%