

Grass Combinations for Turfs

mixtures of cool season grasses with bermudagrass show promise for year round lawns resistant to weeds

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The studies reported in the following article were conducted by Zaki Mahdi, a graduate student in Ornamental Horticulture, working under the direction of Professor Vernon T. Stoutemyer.

Three general types of turf—cool season grasses, warm season grasses, and mixtures of the two—can be grown in southern California.

A cool season grass gives ideal color, but usually involves periodic renovation and reseeding because it does not sufficiently resist invasion of bermudagrass and crabgrass during the summer—except in shade.

A warm season grass is practical, but usually such grasses are dormant and unpleasant in color during much of the winter, when considerable weed invasion may take place.

A mixture of both types of grasses has certain advantages—resistance to pests and weeds and good color in all seasons of the year.

Maintenance of combinations of cool season and warm season grasses, in proper balance, presents some problems because of their different levels of vigor. However, the introduction of new strains of grasses offers the possibility of better matching of the various components of seed mixtures. Merion bluegrass is unquestionably superior to Kentucky bluegrass in most respects and will tolerate lower clipping. U-3 bermudagrass forms a denser, tighter turf than common bermudagrass, which aids in keeping out weeds and crabgrass. The Highland strain of Colonial bentgrass is generally considered to be somewhat superior in drought resistance and vigor to other types and appears to be well adapted to southern California.

Tests for Turf Quality

Some of the improved grasses were used in experiments initiated in March 1952, when portions of well established turf sod of several grasses and combinations were lifted and laid in plots with nine replications.

Three weeks after planting the sod, a liberal top-dressing of compost—heavily infested with weed seed—was given to test the resistance of the various types of turf to weed invasion.

The plots were mowed whenever necessary to keep the height of cut at approximately $\frac{3}{4}$ ". Sufficient organic sewage

sludge fertilizer, containing 6% of nitrogen and 2% phosphorus as P_2O_5 , to furnish nitrogen at the rate of five pounds per thousand square feet per year was applied on the sod surface at intervals of two months. Liberal irrigations were spaced as widely as possible without damage to the grass. No protective measures were taken against insects, diseases, or weeds.

When rated in December, 1952, on the basis of quality, the two outstanding plots of single cool season grasses were those of Merion bluegrass and Highland bentgrass. The best combination was common bermudagrass with Highland bent—which received almost as high a rating as Merion bluegrass and Highland bentgrass—and followed closely by U-3 bermudagrass with Merion bluegrass.

Kentucky bluegrass was intermediate in quality, as were four combinations with common bermudagrass and with U-3 bermudagrass. Differences between these were not sufficiently great to permit exact comparisons, but suggested that the U-3 bermudagrass tends to displace and overbalance a companion cool season grass more than does the common bermudagrass. On the basis of plant density, those combinations having either

Highland bentgrass or U-3 bermudagrass were always high, doubtless because of the fine texture of these two grasses. All combinations having U-3 bermudagrass had a significantly lower weed count than combinations without it. The plots of Highland bentgrass alone were also relatively low in weed infestation.

The outstanding combinations—judged by winter appearance and quality—were all characterized by a relatively high proportion of the cool season grass in relation to the bermudagrass. This was particularly true of the best combination, common bermudagrass with Highland bentgrass. These relationships are shown in the table on the next page.

Cutting Height Tests

Additional experiments were conducted to determine the influence of different heights of cutting and different rates of nitrogen feeding on performance of mixtures of cool season and warm season grasses.

Each test plot was 30' long by 15' wide and divided lengthwise into two blocks. One block was cut at $\frac{3}{4}$ " and the other at $\frac{3}{8}$ "

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Latin square arrangements of turf plots.



