

DRY WELL / BLUES

This year will be a dry one in California. Water use is limited or curtailed on several courses. Any of us may expect to be limited before the summer ends. With a dry future it is in order to review how our management can help or hurt us.

Grass kinds. In 1955 we at Davis, carried plots of grass 185 days without water to examine what the effects of drought would be. All grasses survived to some extent, but there were important differences. Bluegrass, red fescue, and creeping bentgrass (we didn't have colonial bent in the trial) all survived as isolated clumps with a multitude of weeds between the clumps. None of these formed a turf the following year, and in my judgement these grasses should normally be resown unless there is a surviving shoot every 2-3 inches. Highland bentgrass survived in just such a fashion, surviving shoots, were evenly distributed and not more than about 2" apart. In November, 90 days after beginning irrigation again, Highland formed a presentable, even turf and by February was in excellent condition with good grass and few weeds. Bermuda, and Zoysia grasses survived well and recovered immediately upon receiving water. Plots were on a deep soil and bermudagrass had roots 7 or more feet deep. Tall fescue survived well, and required only about 30 days for recovery.

This tells us that if we have to cut off water we are most apt to lose our bluegrass, red fescue, and creeping bents; that Highland will recover; and that tall fescue, zoysia and bermudagrasses will pull through.

Fertilizer. This is a year to economize on fertilizer and skip use on fairways or roughs or on any area where we will cut down water use. The more nitrogen we use the more water we need. With nitrogen fertilizer we use water more efficiently, but we need more of it. If water is short nitrogen will store in the soil until water becomes available so it is not lost. However, any fertilizer increases soil salinity while it is being stored, and nitrogen results in grass with shorter roots and shorter survival time.

Water. If water is available in limited supply, the men at Nevada University recommend light sprinkles. They find turf can survive a long time with a little water applied as light frequent sprinkles if: 1. Water quality doesn't result in salinity problems, and 2. at the end of the period good soaking irrigations can be applied.

Chemicals. This is a good year to try to minimize use of chemicals. Most biocides tend to aggravate plant survival unless moisture is plentiful. Particularly avoid herbicides as many of them tend to injure the root system and again, to shorten survival time. On the

other hand, a dry winter has resulted in high survival of insects and we may have to use more insect controls than usual. This might be a good year to try natural control of caterpillars with Trichogramma wasps or with Bacillus thuringensis.

Water stress may often be a predisposing factor in turfgrass disease so we may see disease problems where we don't normally have them.

Mowing. Of course if water is short the grass isn't going to grow as much, so we can mow only as needed instead of to a schedule. The less frequently we mow the better the roots will grow and the cooler the grass will be.

End of the Year. When the rains come there will be a beautiful burst of growth from natural nitrification having taken place in the dry soil. But if early rains are light we may get solubilization of salts and high salinity levels and these problems can carry over into next summer unless we get enough rain to get good leaching. One of the best practices if you have enough water, is to get the soil as wet as possible just before fall rain. Then the rain can be used to drive the salts down out of the root zone leaving good water in the surface soil.

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