

# Let's Start With Irrigation Design



by GENE STODDARD, Superintendent, Irvine Coast Country Club,  
Newport Beach, California

If you're one of today's experienced golf course superintendents, chances are you're also an expert in inadequate irrigation systems. From that day long ago when someone first decided to water a putting green to today's "fence-to-fence" automatic systems — the superintendent has struggled, sweated, and sworn over irrigation. He has pulled hose, moved aluminum pipe, tangled with travelers, flushed sand from pumps and fish from screens. He has put up with poor fittings, bad pipe, electrolysis of soils, overwatering, under-watering, freezing pipes, boiling pipes and untold delays waiting for supplies. But the worst problem of all is poor design — and there's an abundance of it.

Those who design automatic systems without proper sizing of main and lateral lines, suitable spacing of heads, and lack the plain

good sense of knowing a system grows weaker not stronger, are hurting the automatic irrigation industry. The expense of correcting a badly done system doubles or triples the original cost. Mistakes, whether in estimating wind conditions, sprinkler performance, or bid specifications, are too common and are inexcusable. There is only one real answer to poor design — change it! Only then will the irrigation job be satisfactory.

I will try to tell you what we did for a bad situation on our course. The system was designed with a double row and head spacing 120 feet by 90 feet rectangular pattern. Areas A and B always received less water than the other areas.

In addition, because of overlap and the type of sprinkler used, the inside circle (C and D) received four times the amount of water that other areas received.

Figure 1.

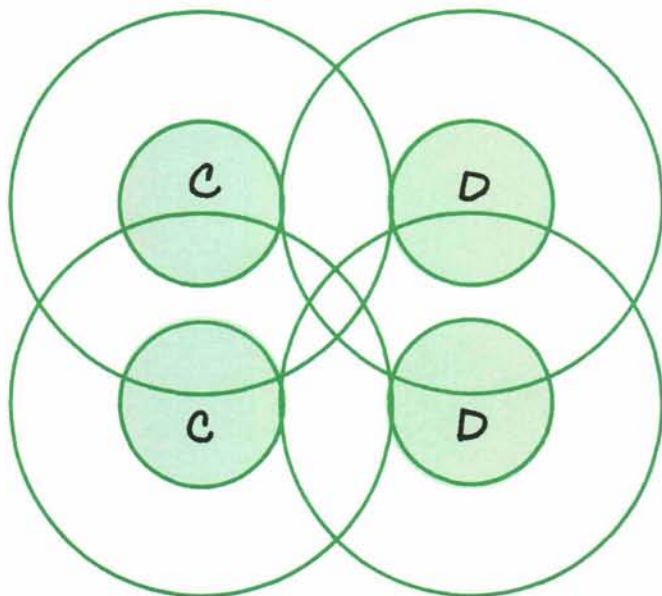
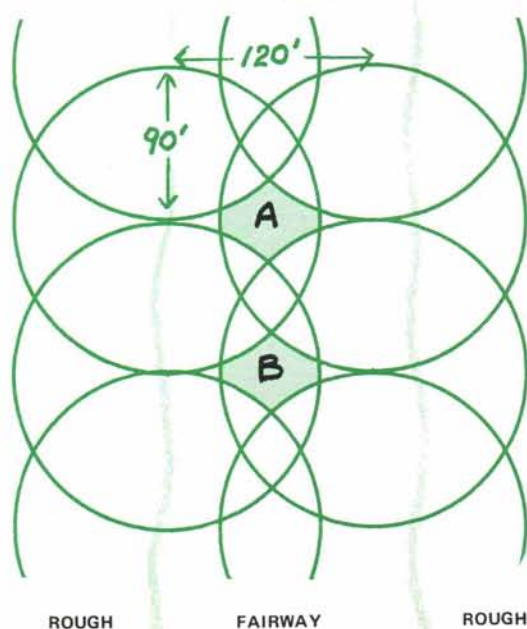


Figure 2.



We ended up with fairways dry and hard in the middle and overwatered on the perimeters!

To correct the situation, we first tested the sprinklers for performance patterns. They were not good. As a temporary stopgap, some of the original automatic heads were removed and replaced with quick coupler valves from which hose or hand set sprinklers could be used.

As time permitted, we then installed lateral lines from the existing automatic valves and respaced the system to cover a 65-foot triangular pattern. Two, three and sometimes four low-gallonage sprinkler heads were installed on lateral lines controlled by one of the original valves. Gradually the system has been converted to "head to head" coverage on 65-foot centers. We have very few wet or dry spots and — best of all — we have grass!

Fortunately, the original engineering in hydraulics and pipe size was adequate to allow us to compensate for poor original spacing and

to replace the improperly selected sprinkler heads. Both problems have now been solved but it has been a costly experience for our club.

In the future, I will recommend triangular head spacing of no more than 60 to 70 feet and the use of a low-gallonage head on fairways as well as on greens and tees. Some putting green design problems may be encountered where a green is more than 70 feet across. However, this problem can be largely overcome by jockeying the triangular patterns and "giving" where necessary on putting green outline. In addition, individual sprinkler head control on greens (and even on backup heads on rear and side approaches) has proven helpful to me.

Someone once said, "You can't grow grass with water alone, but you can't grow it at all without water." How true, and how important, therefore, to have a properly designed automatic system!

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