

## Crab Grass

C. V. PIPER AND R. A. OAKLEY

Crab grass is perhaps the worst of all summer weeds on putting greens, but on the fairways it is in the main desirable even if the heavy turf keeps the ball from rolling much. Crab grass is a native of the Oriental tropics, but long ago was introduced into America. In Colonial days it was called crop grass, because it grew so abundantly in cropped lands, as between the rows of corn and cotton, in oat stubble, etc. It was then and still is cut for hay, furnishing perhaps more hay than any other plant in the cotton belt, but always as a volunteer growth on cropped lands. Perhaps the negro is responsible for the change of "crop" grass to "crab" grass. In middle latitudes in the United States the grass is often called "summer grass" and in New England "fall grass." Sometimes it goes under the name "finger grass." It is purely a warm-weather plant, not appearing until the days are really warm and being killed by the first freeze in fall.

Common or large crab grass has been blessed with quite a series of botanical names, thus *Panicum sanguinale*, *Paspalum sanguinale*, *Syntherisma sanguinalis*, *Digitaria sanguinalis*, besides some others. Present-day botanists use one or the other of the last two. Just why it was ever called "sanguinalis" (*bloody*) is obscure; but most golfers would say it is very appropriate. With the first touch of frost or during severe drought the leaves turn red, and it was probably such a specimen Linnaeus saw when he named it *Panicum sanguinale*.

Small or smooth crab grass (*Syntherisma humifusa* or *Digitaria humifusa*) is scarcely less abundant than its hairy relative. It comes later in the season, however. At Washington, D. C., fairways are covered with common crab grass from May until late August, but in September and October smooth crab grass becomes dominant. It rarely bothers on putting greens. In both crab grasses the branches are so weak that they become decumbent and then root at the joints. One plant of common crab grass may thus cover a round patch 3 feet in diameter, but rarely so large with smooth crab grass.

About Washington the two crab grasses make up most of the fairway turf throughout the summer and fall, but as they die from the cold the perennial grasses soon assert themselves and rarely seem at all injured. Around Philadelphia, curiously enough, crab grass often kills out large patches of perennial fairway grasses. Perhaps the difference may be due to longer and warmer periods after frost in Washington, but this is not at all clear.

The two kinds of crab grass are well illustrated in the accompanying figures.

Crab grass is most important from its troublesomeness on putting greens. Thus far hand-picking is the only really satisfactory way to save putting greens, albeit rather expensive. Extensive experiments have been carried out to find a cheaper means. Flame throwers seemed hopeful, but they certainly do not work on old crab grass plants. They will be tried on seedlings this season.

Poisons that would kill crab grass but not injure bents or fescue would be ideal. The following results do not appear hopeful, however:

During the season of 1916 and 1917 a number of plots on Arlington



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Farm which were heavily infested with crab grass were treated with various chemicals to ascertain the value of this method in eradicating the weed. The plots were all 16 feet by 18 feet. They were heavily infested with crab grass and also contained bluegrass, white clover, and narrow-leaved plantain. The following chemicals were used:

1. *Formalin*.—Formalin was used in three strengths, 10 per cent, 30 per cent and 60 per cent of formalin in water. The plots were sprayed twice—on June 14 and July 1, respectively. The 10 per cent solution did not have sufficient effect upon the growth to be of consequence. The 30 per cent solution caused the crab grass to turn slightly yellow, but it soon recovered. The same effect was noted on the rest of the vegetation. The 60 per cent solution killed about 10 per cent of the crab grass. A 100 per cent solution of formalin—namely, 40 per cent formaldehyde in water—was tried but found to be impractical because the chemical caused choking and blinding of the operator.

2. *Gasoline*.—Gasoline was sprayed on June 14 and July 1, using full strength. The gasoline evaporated almost as soon as it was applied with the sprayer and had no permanent effect on the growth of crab grass. When poured on by means of a sprinkling can, all the vegetation was killed.

3. *Carbon Bisulphide*.—This chemical is too volatile to permit spraying and the fumes are dangerous. Consequently it was deemed impractical, even though it will kill all plant growth with which it comes in contact, including crab grass.

4. *Alcohol*.—Alcohol did not affect the crab grass when sprayed. Wood alcohol was used at the rate of 8 quarts per square rod. At one time alcohol was used at the rate of 2 gallons per square rod. No injurious effect was observed on the crab grass. Grain alcohol was also used at the rate of 4 gallons per square rod without injuring the growth of the crab grass.

5. *Ether*.—Ether was used at 100 per cent strength, causing wilting of the plants touched, within a few minutes. They soon recovered and showed no permanent injury.

6. *Sulphuric Acid*.—Sulphuric acid, full strength and solutions of 50 per cent and 25 per cent, were used. All of these solutions killed all of the vegetation so treated.

7. *Nitric Acid*.—Nitric acid was used full strength, 50 per cent, and 25 per cent. The effects were similar to those of sulphuric acid.

8. *Hydrochloric Acid*.—Hydrochloric acid was used in the same manner as sulphuric acid with practically the same results.

On October 4, 1917, all the plots treated contained an abundant growth of crab grass, showing that the effect of all of these chemicals was not permanent in any one case. On June 22, 1920, several heavily infested plots of crab grass on a lawn adjoining the Council of National Defense Building were treated by pouring gasoline on the vegetation by means of a sprinkling can. In addition to crab grass, the lawn contained Bermuda grass and blue grass, but the crab grass was the predominant vegetation. All the vegetation on the areas was dead the following day. Observation from day to day showed that the crab grass gradually encroached upon the treated area, until on September 25, 1920, the crab grass had reasserted itself in such a manner as to become the predominant plant upon the areas treated.

One very hopeful method was to kill it by freezing, which does not injure the other grass but is deadly to crab. Various difficulties make the



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scheme impracticable or very costly. A hopeful idea is to find a good grass that will withstand salt, which crab grass will not do. Several such grasses are known, but none of them yet found make fine enough turf. Crab grass will not grow in shade, but no genius has yet devised a satisfactory scheme to shade a putting green. The salt-grass solution of the problem is still the most hopeful one; but in the meantime hand weeding is effective, and, it may be added, necessary, if the green is to be kept good.

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## Dear Bill Letter II

Richland Center, N. Y.,  
May 1, 1921.

DEAR BILL:

I'm glad to hear you finally came out of your trance and started to build your golf course yourself. You'll have the time of your life and I'll bet four bucks you beat the experts to death.

Don't forget, Bill, that a golf course is just like a railroad in one respect. They tell a story about asking an old-time railroad president on the witness stand what the first essential of a good roadbed was and he answered drainage. To the question what the second or next most important consideration was, he said more drainage; and still more drainage was the third. Just so with your course. Put it in and be liberal with it.

Whatever else you do, stick to your architect's plan and follow his advice. If you hired some regular portrait painter to get up a picture of your wife you wouldn't think of changing it yourself. You let the plans alone, and if you don't fancy anything speak to your architect about it and give him a chance to reason it out for you. He knows his profession and you don't. If he is making a mistake, let him alone, as he'll correct it. When you get through, your course will look like something and will reflect the individuality of your architect; otherwise it will show as much feeling and be as inspiring as a plate of goulash.

Say, Bill, keep your eye on the men working on the job. When you find a man who catches on and is taking an interest in the work, try to keep him for your regular gang. A good picked crew on a golf course can do more and better work than twice as many hit-or-miss clock-watchers, and you can afford to pay them liberally.

Why should you ask me how you can finish traps and bunkers that are not fully covered by your plans? Guess you haven't looked about you much while you have been playing golf all these years. Go look at some of the good bunker work on the course near you. A bad bunker stands out like a lighthouse in a fog. A good one asserts itself and looks "fearsome," as Sandy would say; but just the same it looks as though Nature left it there. The lines are smooth and flowing and it sort of melts as it were into the background.

Drainage, Bill, don't forget it. See that your traps and bunkers all drain. Get the surface drainage and use tile when necessary.

Don't just dig a hole and throw the dirt up for a back and call it a bunker. Get some pep and style in it. A good bunker is just as pretty as a green. While you are at it, do the job good. Get some sheep's fescue or any heavy bunchy stuff and sow it for whiskers. No bunker is right until its whiskers stick out on its back to warn the player that it's no nice place to get in. If your bunker is big enough, stick some bunches