

Sulphate As a Fertilizer

By THORNTON CONOVER
Valley Club of Montecito, Santa Barbara, Calif.

In this article Mr. Conover answers a number of questions asked him in regard to his experiences with sulphate of ammonia, what fertilizers he uses, and the general upkeep of his course.

(Reprinted from the *Pacific Greenkeeper*)

SULPHATE of Ammonia began to be used in the early twenties and was well known to most greenkeepers by 1924. That year the amateur championship was played at Merion, near Philadelphia. Joe Valentine was and is now the greenkeeper there. The greens were in beautiful condition at the time of the championship. When asked to tell why his greens were so good, his answer was, "Sulphate of ammonia." He had used it liberally throughout the season. That remark went the rounds of the Eastern greenkeepers rapidly and most of them began the season of 1925 with the idea that all the greens needed was plenty of sulphate of ammonia.

Up until that time there had been little use of any fertilizer tending to make the soil acid and most of the courses, especially the putting greens, were neutral or slightly alkaline. Naturally the heavy doses of sulphate were highly beneficial and most of the clubs reported wonderful results from its use. However, the majority of greenkeepers failed to appreciate the fact that a fertilizer high in quickly available nitrogen and without any other mineral elements could not be used continuously without weakening the resistance of the grass to disease. But they continued to use it extravagantly until 1928.

That year was a very hard one on turf. It was hot and muggy for long periods. By the end of July most of the clubs were crying for mercy. The greens were simply riddled with brown patch, and mercury treatments seemed to do little good. Early in August a few clubs after advice from the U. S. G. A. Green Section treated their greens with heavy doses of lime. The effect was almost instantaneous and in a short time the greens were tremendously improved. By the end of the season the cry of lime was heard through the land and sulphate of ammonia was relegated to the dump heap.

The above account does not of course, apply to all of the clubs. Many, with really scientific greenkeepers, realized the danger of using sulphate of am-

monia alone and continued to treat their greens with other fertilizers. They mostly escaped the havoc of the season of 1928.

FROM ONE EXTREME TO ANOTHER

SINCE then the trend has been away from sulphate of ammonia and towards the use of lime and from what I hear from the East I am inclined to fear that they are overdoing the use of lime just as they did sulphate of ammonia. They are both almost essentials on a golf course but their purpose must be thoroughly understood.

That brings me to the question, "What fertilizers do you use on your course? How much do you apply, and how often?"

Before I answer these questions, let me say that I do not consider the mechanical improvement of the soil as an important feature of fertilizer treatment. I believe they should be considered separately. I think that organic matter can be introduced into the soil more advantageously in other forms than in fertilizers. If that idea is accepted the question of whether a fertilizer is organic is of little moment.

What we want to know is what available elements the fertilizers contain, how much they contain and how quickly they become available. If we know exactly how much nitrogen, phosphorus, and potash we are putting into the soil and keep an accurate record of each treatment it reduces fertilizing to a much more exact process. With certain fertilizers it is not difficult to approximate over how long a period their release of nitrogen continues. I am always wary of a fertilizer in which it is difficult to determine that.

I USE COMBINATION FERTILIZERS

I USE sulphate of ammonia, cotton seed meal, super-phosphate, muriate of potash, and lime. I seldom use a complete fertilizer, preferring to use

them singly or in various combinations. Roughly speaking, I use about the equivalent of a complete fertilizer through the winter, increasing the proportion of phosphorus in the early spring.

After April 1, I use sulphate of ammonia at frequent intervals, but very lightly; from one to two pounds to one thousand square feet. Also light applications of cotton seed meal. I mix cotton seed meal with my top dressings but not the sulphate of ammonia. I believe the less fertilizer you can put on the greens between April and November the better you are off. I always defer using sulphate of ammonia until I am convinced that more nitrogen is needed on a green. I consider every green an individual and treat it so.

Our greens average on a pH test from 6.4 to 6.8. They are all seaside bent. I like to keep them between those points. In the light of recent experiments, I am not at all sure though that the neutral point is not equally good or better.

I have written enough I think to be excused from writing much about the course in general. I consider the architecture of the course exceptional. We have been badly handicapped for lack of water during the past two years so the playing of the course has not been properly tested, but I believe that when our fairways are in good shape the course will present as interesting a test for players of all types as can be found on the coast.

Minnesota Gossip

By L. J. FESER, *Greenkeeper*,
Woodhill Country Club, Wayzata, Minnesota

OUR monthly meeting was held August 8, at the Minneapolis Golf Club and the Golden Valley Golf Club. Harold Stodola was among the absent at this meeting, and this individual wonders why he doesn't send a reporter to these meetings. Hope that Harold will be able to tell you about our September meeting which will be held at the Keller and Hillcrest clubs of St. Paul.

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Minneapolis is shining as usual under the master hand of Vic Larson. Vic has beautiful bent greens, some Washington and most of a homebred strain called Minneapolis bent. Perfect putting surfaces on all of them. Larson never needs to get his course ready for a special event; it is in condition at all times.

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The big problem at Minneapolis is white clover in the fairways. Previous to the installation of a fairway

watering system, Minneapolis fairways were free of white clover. Even now there is no clover in the rough and unwatered areas, but the fairways are lush with the plant. Vic is constantly fighting it with fertilizer as his budget allows, and is making steady progress against the weed.

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MINNEAPOLIS HAS PERFECT GREENS

ONE leaves Minneapolis club with the mental picture of perfect greens in a setting of beautiful young spruces, pines, birches, elms and maples. When the course was constructed, there were practically no trees on the land. Hundreds of trees planted soon after construction have been nursed along to twenty and thirty-foot spreading stock that makes the course one of the gems of this district.

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Leaving Larson's course with an ample interior supply of near beer and pretzels, we dashed a few miles overland to Golden Valley where Mike Sanko runs the works. Every course in this district has a habit of getting better each year, regardless of tough times, drought or what have you. Golden Valley in one of the outstanding examples of course improvement under the supervision of a capable greenkeeper.

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One of the stock jokes of a decade ago was the fitting of the name to the course. The grass was mostly brown which was called golden to make it sound better. Golden Valley can now be called the "Valley of Green," and Mike is the boy that made it that way. To any of our brothers who find their way up into this section of the country, let me advise you to see this peach of a golf course, and play a few shots over the rolling hills.

WASHINGTON BENT AT GOLDEN VALLEY

A VERY peculiar phenomenon is a puzzle to Mike as well as to the rest of the local boys. Mike has a lot of Washington bent. At early stages this grass was very coarse, but most of it is getting finer every year. Under practically identical conditions, one of the greens remains somewhat coarse. This rascal doesn't respond to the same treatment that has made excellent turf on the other greens.

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Sanko needs a crew of Pittsburgh hill climbers to mow around his traps. Most of them are deep enough to use a flashlight to locate the balls, but the banks are kept very heavily turfed, and are mowed by hand mowers. Mike was born in Pittsburgh, so he figures that the hills are O. K. Any of the Pittsburgh boys that want to argue this point will please look me up at Chicago. Challenges must be made in writing on or before January 1, 1933, and weapons must be limited from aces to deuces, inclusive.