

NITROGEN USE AND WHY

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When Dr. Daniels asked me to present this report he stated that he would like the practical reasoning behind the fertilizer program at our club and a resume of the actual program we follow. So let's reverse the wording of our title and start by discussing, WHY USE NITROGEN?

Nitrogen promotes vegetative growth, increases the green color of the leaves, and increases the succulence of the plant. Of course if we use too much nitrogen we get a weak, yellow, non-resistant plant. Our objective then is to find the happy medium so that we produce a good healthy plant and in turn a good healthy turf. Naturally we must keep a balance of other nutrients too in order to make the plant react in the proper manner. However, this report is designed to deal primarily with the nitrogen factor.

Our fairway soil varies from heavy clay to light sandy silt, so we naturally will vary our fertilizer program on these areas. The grass type is predominantly bent grass with poa annua and poa trivialis mixed in. The height of cut is 9/16ths in the Spring and Fall, with about 3/4 inch in Mid-summer. Our annual nitrogen application will total approximately 2½ lbs. per 1000 sq. ft. This is usually applied in three applications. We start our program off in late February or early March by applying about 1 lb. of nitrogen per 1000 sq. ft., along with phosphorus and potash. The past two years I have used 6-12-12 for the purpose @ 700 lbs. per acre. Then we follow up with Milorganite at 5 to 800 lbs. in early August and again in September, if we have funds left and if the grass needs it.

This Spring I will vary the program by eliminating the phosphorus in the mixture in an effort to make our spring sodium arsenite treatment of poa annua more efficient. We have been trying some mixtures of Nugreen and muriate of potash for this purpose.

I have noted that over the past 8 years we have reduced our application of fertilizer to the fairways. It appears to me from both soil tests and turf condition that we are building up some of the depleted reserves of fertility. This same fact seems to be borne out in the green program as well.

In 1954 we used 5½ lbs. of nitrogen per 1000 on the greens. In 1953 the figure was 4¼ lbs. Prior to that time we were using from 7 to 9 lbs. per 1000 per year. Along with the decreased use of nitrogen we have decreased to a greater degree the amount of phosphorus and increased the quantity of potash so that we end up the year with a nutrient ratio of about 5-1-2 on the greens and about 5-6-4 on the fairways.

The past two years I have been interested in watching the correlation between the summer condition of greens on various courses and the fertilizer practise on those greens. My observation is only a repetition of what so many of the older superintendents have told us in the past, that Greens should be kept slightly on the hungry side in the hot and humid weather. Greens that are seldom if ever given a square meal of nutrients will thin down and be victimized by disease and have no color. Those that are overfed and usually overwatered too are devoured by disease and wilt, and usually appear trampled to death around the cups.

Our practise for fertilizing greens begins in November when we apply approximately 2 lbs. of nitrogen per 1000 sq. ft. to the greens in a dry organic form of either Milorganite or corn gluten. This gives us a head start in the Spring by bringing out color and growth several weeks ahead of the usual spring applications. Also we do not have to rush around in the Spring trying to get the first treatment on the greens. With this procedure we can wait until we have the irrigation turned on which is usually about April 15th, and then go ahead and start our mid-spring fertilizing

which is generally a complete fertilizer, such as 10-8-6. We use about 75 to 100 lbs. of this material at this time. After these two treatments, we have no set schedule but depend more upon the weather conditions and the appearance of the grass as indicators of when and how much we shall fertilize. We have been using the same material throughout the summer months for the past several years and in about the same proportions. The materials are Nugreen and Muriate of Potash. The Nugreen is DuPont's synthetic organic with 45% Nitrogen content. The Muriate is Sunshine Brand from New Mexico and is a white sugar like material containing 63% potash. We normally use this combination at the rate of 6 lbs. of Nugreen and 2 lbs. of potash per green of approximately 5000 sq. ft. of area. Thereby we yield 2.7 lbs. of nitrogen and 1.26 lbs. of potash. Dividing this figure by 5 to ascertain the quantity per 1000 we get approximately ½ lb. of nitrogen and ¼ lbs. of potash. We have found this amount to be adequate under our conditions for a period of 3 to 6 weeks.

One of the primary factors guiding our choice of this material is cost. The application of 6 lbs. of Nugreen and 2 lbs. of potash costs 58¢ for the Nugreen and 9¢ for the Potash or a total of 57¢ per treatment per green. Another factor guiding our choice of this material is the fact that this fertilizer has a high safety factor as pertains to burning of the turf. It will burn and burn good if used improperly through quantity or time of application. I have learned by experience not to apply this or most any other material in the real hot weather where daily temperatures run over 90 degrees or when the soil is wet. When the Nugreen and Potash mixture is used it should be diluted in 100 gals. of water per green and then watered in lightly. If the weather continues hot for a long spell I usually apply the Nugreen without the potash and at the rate of 6 lbs. per green in 100 gals. of water and in this case no wash in is required.

This past year we tried out several plots on our fairways where we used the dry Nugreen as a fairway fertilizer. With the high analysis of 45% and the pelletized form, I felt that the kernels would be spaced apart from each other as they fall to the turf and if they burned it would be a very minor one. By applying only 50 lbs. per A. I would get about ½ lb. of nitrogen per 1000 sq. ft. Also, 1 ton of this material would cover my 18 fairways of approximately 40 acres, at a cost of \$160.00. Our tests worked out quite well with the biggest problem being the adjustment of the spreader to this low rate. We will do some more work along this line this coming season.

In summary I would like to repeat that we are using about 2½ lbs. of nitrogen per 1000 sq. ft. on fairways per year. On greens we are using about 5 lbs. per 1000 per year.

Bill Krafft, formerly Superintendent at Southmoor C. C., has moved out of the district and is the new Superintendent at the Valparaiso Country Club, Valparaiso, Indiana. However, Bill says that he will still attend our meetings and continue his duties as a Director and Chairman of the Golf Committee of our Association. Bob Chamberlin who was recently at Kankakee Country Club will take over at Southmoor.

Frank Dinelli is being kept busy these days with his annual spring garden club circuit.

Oscar Borgmeier says that more arsenate of lead is being sold to golf courses this year than for a number of years. The reason seems to be because lead has not been used as much since chlordane came into general use and the superintendents find that chlordane is not the final answer and that lead is necessary to control Poa Annuua, and Chickweed.