

# UNITED STATES GOLF ASSOCIATION GREEN SECTION WESTERN OFFICE

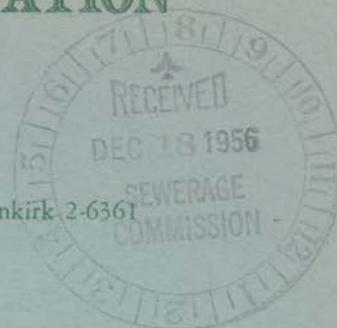


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How important are synthetic soil conditioners on a golf course? This is a question many Superintendents are asking themselves since the promotional activity of soil conditioning manufacturers has never been more active in the West. 'New' soil conditioners are found in nearly every area and their claims are bewildering: "Grow Grass on Granite", "Unlock Hidden Soil Nutrients", "Overcome Compaction with one Application".

It almost seems out of place to review a text book on soils and read that -- "The complexity of the soil, the instability of the constituents, and the bewildering succession of soil life make soil analysis difficult, soil interpretation uncertain, and complete soil control impossible.\* How can the above claims for soil conditioners be justified?

The first attempt to produce a synthetic soil conditioner took place in 1947. It met with only fair success but the work was continued. Today, there are three types ('polymers' they are called) that are in general use. Responsible research workers are now willing to make general observations concerning these synthetics: - Example: 'Greater aggregation has been obtained in the fine textured rather than in the coarse textured soils'. The fact remains, however, that much more research work remains if we are to take full advantage of this new field of soil science. Even then, "one should not overlook the fact that the modification of soil structure affected by organic (natural) residues is not their only function. The synthetic conditioners are not likely to replace the organics in management procedures but may be used in addition to them. \*\*

The day of "growing grass on granite" may still come - but this is not that day. Responsible manufacturers are continuing the development of their products. Superintendents will do well to keep abreast of these results. Indeed, the July-August issue of the Western Turfletter reported on research work that indicated Krilium treated clay was desirable in a soil mixture of 85% sand, 7.5% peat, and 7.5% clay. However, caution is advised in the use of products making sweeping claims with cure-all results. Publicity is easier to obtain than scientific fact.

\* "The Nature and Properties of Soils" - Lyon and Buckman

\*\* "Soil Aggregation" - Advance in Agronomy - 1955

Fertilizer Response from Soil Conditioners

Most States have long required fertilizer manufacturers to print the guaranteed minimum analysis of plant food (N, P & K) on each bag. Thus you know that a 10-5-5, 6-10-4, or 10-8-4 fertilizer will carry at least that amount of plant food. This requirement for a guaranteed analysis applies to materials claiming plant food value.

The majority of soil conditioners have no plant food value and claim none. They are completely legitimate business firms. The possibility does exist, however, for a dealer to add a nitrogen carrier (or any beneficial agent) to his "soil conditioner" and not claim this addition on his printed label. He is selling a "soil conditioner" (at a high price) and not a fertilizer.

The purchaser then applies the material to his turf area and soon notices an outstanding response. Conclusion: "This new soil conditioner is giving results". - and the conclusion is correct! But the real question is this: - "May it not be possible to obtain similar results and at a greatly reduced cost by applying a sufficient amount of fertilizer to this same area?" If the results are similar, then COST is the only basis for comparison between the two materials.

How Do We Figure Fertilizer Costs?

It is quite simple if the following steps are followed. Substitute the correct figures for your fertilizer in place of those given in this example:

- A. What is the cost per ton? Example: \$70.00 per ton (2000 lbs.)
- B. What is the nitrogen content? Example: 20% Nitrogen.
- C. How much actual nitrogen is in a ton of this material?

Example:

2000 lbs.	(one ton)
x.20	(the % of N)
0000	
4000	
400.00 lbs.	of actual nitrogen in one ton.

- D. How do we find the cost of each pound of actual nitrogen? - Divide the total number of lbs. of actual nitrogen into the cost of one ton.

Example:

400 )	70.000	.175	)	70.000	)	Cost per ton	)	Answer
	40 0			3000				
	2800			2000				
	2000							

In this case the cost of each pound of actual nitrogen in this example is 17½ cents per pound.

How Much Fertilizer must be applied to obtain one pound of actual nitrogen?

- A. What is the percentage of nitrogen? Example: 20% nitrogen  
 B. Divide the percentage of nitrogen into 100.

$$\begin{array}{r}
 5 \\
 \hline
 20 \ ) \ 100 \\
 \underline{100} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 \text{Answer} \\
 \hline
 \% \text{ of N } \ ) \ 100
 \end{array}$$

The answer is 5 pounds of this fertilizer will carry one pound of actual nitrogen.

Golf Course Maintenance Costs Show Increase

'Our Collaborator', a publication of the Northeastern Golf Course Superintendents Association, reports the following:

"Golf course maintenance costs for 45 Clubs having a total of 900 holes were 7% greater in 1955-56 than in 1954-55. Net golf expenses showed an over-all advance of 7.5%. Since 1951-52, golf course maintenance costs per hole have risen from \$1,882 to \$2,408 for an increase of 28%."

1955-56 Golf Course Maintenance costs for 45 Clubs

AVERAGE COST PER HOLE 1955-56	Over-All Average	Geographical Divisions			
		East	South	Mid-West	Far West
Salaries & Wages	\$1,609	\$1,650	\$1,311	\$1,565	\$1,970
Course Supplies & Contracts	390	432	358	391	222
Repairs to Equip, Bldgs, Etc.	203	220	279	104	216
All other expenses	206	172	302	154	347
<b>TOTAL GOLF COURSE MAINTENANCE</b>	<b>\$2,408</b>	<b>\$2,474</b>	<b>\$2,250</b>	<b>\$2,214</b>	<b>\$2,755</b>
Add Golf Shop, Caddy & Committee expenses	94	71	32	208	57
<b>TOTAL GOLF EXPENSES</b>	<b>\$2,502</b>	<b>\$2,545</b>	<b>\$2,282</b>	<b>\$2,422</b>	<b>\$2,812</b>
Less Golf Fees & Admissions	583	671	458	362	820
<b>NET GOLF EXPENSE</b>	<b>\$1,919</b>	<b>\$1,874</b>	<b>\$1,824</b>	<b>\$2,060</b>	<b>\$1,992</b>

"There is no virtue to stagnation,  
 nor is there safety or security  
 to be found in standing still"

C. H. Grunewalt

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