LETTERS

Thatch control lauded

I was so pleased with your article by R. N. Smiley, p. 38 *WTT*, April 1981 that I was spurred to comment and with the hope that more would be forthcoming.

I am not an erudite scholar on this subject but feel that it is so serious as to be central to greens management. Witness my April article in *Golf Business* and two previous editions. But, in our experience with greens that are built according to U.S.G.A. recommendations — Texas A.M.& C. specifications, endorsed by our eminent Alexander M. Radko Eastern Director Green Section, there is added reason to control thatch. Viz; with the old style method there was not much chance for thatch to develop, the roots were so shallow in highly compacted soil. But with mine, built 1969, there is plenty opportunity for accumulation which necessitated the various studies that I made.

Dr. Smiley has surrounded the subject very well; I applaud his effort.

Particularly illuminating are the references:

(1) to rates of decomposition of the various constituents of grass residues. Of significance is the comparatively slow rate of decomposition of phenolic compounds (6.5 years half life). I wonder, however, how you distinguish between lignin and phenolic compounds? Are they not joined in the same fibres? Is not lignin almost synonymous with peat, deposits of which have endured for thousands of years? And which suggest that the only way to dilute this kind of residue is by top dressing; the result of which is a green that grows higher and higher every year foretelling a very finite useful life.

(2) the statement "topsoil (but not sand) incorporated into thatch will help or prolong the available nitrogen supply (Beard 1973)"; earlier; "Nitrogen is essential for decomposition of organic litter." Which adds credibility to my recommendation that sand alone is a poor top dressing (April 1981-*Golf Business*) because it possesses no C.E.C. (cation exchange equivalent) to absorb nitrogen bearing ions but can be strengthened by the addition of clay, calcined clay or vermiculite.

(3) Smiley's recommendation for adjustment of pH by the use of lime is well taken and can be conveniently added mixed with the top dressing.

(4) I would take exception to his recommendation for moisture content, - 1 to - 5 Bars for peak levels for decomposition seems excessively low; - 1 Bar is practically saturated; there is no room for oxygen; I'd regard -10 -15 as being ideal and is the range we try to attain. When it gets to -20 it is time to apply water. With our instrument, the highest reading you can get is -80 but at -40 the soil is almost powder dry and if continued at this level you are going to generate a 'dry spot'.

I subjected three kinds of humus for one year to outdoor exposure and with some inoculation of cow and dog manure so the samples went through a gamut of dry-wet and cold-hot. At the end the dry weight had not altered significantly. The humus was from peat, peat moss, and the roots and thatch of old sod, ground, washed and sifted.

Of course our peat and brown coal deposits were protected from decomposition by water, excluding air and the upheavals caused by trees. But what about the accumulated layers of humus on drier ground?

There is much to learn.

(1.) On a green such as ours; are we gaining or losing on thatch.

(2.) How is it affected by the amount and frequency of top dressing, and

(3.) How could it be affected by the ratio of sand to clay—or calcined clay

We avoid excessive applications of fungicide (almost no insecticides) in the belief that they inhibit the soil fauna bacteria and fungi that help chew up the thatch. We also think that clay or calcined clay help by storing the "N" necessary for bacterial decomposition.

I would like to cooperate with Dr. Smiley, in so far as I can, in any studies that he wishes. This is not a new game for me: M.I.T. 1924-*Chem. Eng.*

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