Sawdust Shows Value As Top-Dressing Humus

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I know that good waste has been used in agriculture for centuries but I do know that it is not used as much as it could be used on golf courses.

The practice of removing the grass clippings from golf greens imposes on the greens superintendent the constant problem of replacing necessary organic material. There are a number of substances used to keep the organic content of the soil up to good normal growing conditions. Some of these are very valuable, and others leave something to be desired.

Any organic substance that is to be used to condition the soil on golf greens must have at least the following desirable properties: it must be a good moisture absorbent and moisture preserver; it should decompose quickly enough so that it becomes an integral part of the soil and not develop into an unabsorbable layer; it should be weed-free; its particles should be so fine that it can be easily mixed in a topdressing; it should not contain substances which would be toxic to the grass; it should have a certain amount of permanency and not be too quickly dissipated; and it should be easily available and not too expensive. One substance which answers to all these requirements and one which is seldom used on golf courses is sawdust.

Sawdust Qualities

Sawdust will absorb from two to four times its weight in water and retains this water resistant to rapid evaporation. It lowers soil temperature in hot weather and helps to insulate the soil against a too early quick-freeze. Because of its moisture-holding properties it also holds the soluble plant food which is in solution in this water and thereby retards fertilizer leeching. At the Haverhill CC we mix our spring topdressing with sawdust in the fall. In the spring this mixture shows no microscopic evidence of sawdust granules.

We have used it for six years, and a profile of the soil shows no layers of sawdust. It certainly is weed-free and mixes readily with loam and sand. It improves the tilth of the soil by promoting aeration and granulation and thus encourages a more luxuriant and deeper root system. It acts as a binder in sandy soils and decreases clodding in clay soils. As to the question of the toxic effect of the essential oils, terpens, resins, and tannins, which the sawdust may contain, it has been proved that they are rapidly destroyed by the soil micro-organisms before they do any harm.

The application of sawdust causes some temporary depression of the nitrogen content of the soil because the micro-organisms which proliferate more rapidly by its presence steal the nitrogen for their own body metabolism, but as decomposition progresses, the result is a slow and steady release of this stolen nitrogen. The addition of a little extra nitrogen to the soil is no problem to the greenkeeper. But even normal fertilization will keep the nitrogen content of the soil above the 1.7 level below which mecri-organism activity ceases.

No Soil Acidity Excess

The statement that sawdust produces an excess of soil acidity is an old superstition which has no foundation in fact. Sawdust should not be used as a direct plant fertilizer because, even though it analyzes about 4.2.4 plus carbohydrates, its nutrients are released too slowly to be of quick enough value. Plant food must be used with it. Nevertheless it does help to change the complex plant foods into the simple formulae which the plant can use. This it does by encouraging the proliferation of the beneficial soil micro-organisms, which break the complex nutrients down to plant availability.

When freshly applied to the soil, sawdust temporarily upsets the ideal carbon-nitrogen ratio, C 10 N 1; but with ordinary watering, sunshine, and proper aeration, this normal balance is soon restored. It increases the carbon content of the soil and promotes the carbon dioxide, oxygen exchange which is so necessary to plant growth.

Sawdust was first used by Manuel Francis about six years ago at the Haverhill CC, and soon after using it we noticed a change in the character of the greens. The surface of the greens lost their hard, upper crust, and a properly played shot

(Continued on page 60)

Here's section of Jack Redmond's golf studio where movies of the student are projected and studied by pupil and pro. Left—Jack Redmond. Right—Duncan Barr.

standing idea of swing routine that words alone can't give.

Another feature of the school is motion picture instruction. Lighting arrangement makes it possible to get clear, sharp movies of the pupils. Then the films are projected in a special room where the pupil can watch in comfort and have the lesson of the film fully explained and demonstrated.

Redmond says that what this school has taught him is that there's a lot of room open for the development of the indoor golf school beyond the equipment of nets and mats. "Supervised practice is one of the greatest markets for the indoor school and a logical means of developing more play and business for the home club pros," says Redmond. "The pro is expected to teach in a half-hour or an hour something that the pupil may not practice for another week and by that time he's forgotten just what the pro was trying to get him to do."

"I am confident from our experience with this school that the more intensive use of golf indoor practice and 'refresher' lessons by the businessman golfer are going to be a stronger factor in better health and better scoring as the modern indoor school idea continues to grow."

SAWDUST SHOWS VALUE

(Continued from page 52)

could be played onto the green and not necessarily to the approach to the green. We could keep our greens fast and true putting, and yet soft. Our standard topdressing mixture is equal parts of loam, of Number 3 sawdust, and of sand; but this may be varied in accordance to soil conditions. When discussing the use of sawdust mixed topdressing with course superintendents, I have met a great deal of skepticism as to its value, but if they

will try it, they will see that it is not toxic, it does not layer; and I feel they eventually will incorporate it into a part of their routine program.

References:

"The Soil and the Microbe"—Waksman and Starky; John Wylie and Sons, New York, 1931.

"Fundamentals of Soil Science"—Miller and Turk; John Wylie and Sons, New York, 1943.

"Grass"—U. S. Dept. of Agriculture; U. S. Gov't Printing Office, Washington, D.C.

"Paper Presented at the Virginia-Carolinas Section FRPS, Durham, N. C., November 4, 1949 by A. C. McIntire, Chief of the Regional Forestry Division, U. S. D. A., Soil Conservation Service.

POTASSIUM CYANATE

(Continued from page 40)

strength, improved the kill in most all cases—without injury to turf grasses.

Home-owners can use their small hand sprayers or sprinkling devices and greenkeepers their power equipment with equally satisfactory results. Sprays applied with 30 or more pounds pressure gave slightly better results. Solutions sprinkled had to be maintained at ½ to ¾% strength to equal the kill obtained by spraying.

The best time to apply potassium cyanate is in the spring, late summer and early fall. Poorest results were obtained during periods of extreme drought.

Principal turf varieties of both the north and south withstood extreme doses in tolerance tests. Bluegrass, Bermuda, St. Augustine, bents, fescues and others withstood as much as 64, 128 and 256 pounds of potassium cyanate per acre. This is 4, 8, and 16 times the amount required to kill crabgrass. Grasses growing under favorable conditions were not injured other than tip discoloration and many recovered within 5 to 10 days. Bents and fescues required 20 to 30 days for full recovery when extreme doses were used, but were not permanently injured, indicating a wide range of tolerance for many principal grasses commonly used as turf in the United States and Canada. With normal doses of 8 and 16 pounds, discoloration cleared up within 10 days and only discoloration from dead crabgrass, other weeds and the dead tips, was noticeable after the first cut following treatment.

Negotiations with several leading firms interested in formulating potassium cya-