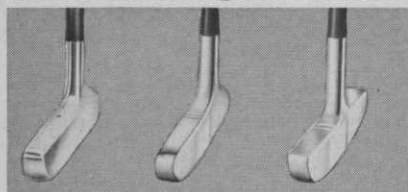


# NEW HOLE-IN-1 PUTTERS

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and color saves many dollars in maintenance costs during the life expectancy of a good green. The advantages of using stolons are many and important in providing the desired degree of satisfaction.

## Grau's Answers

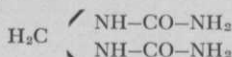
(Continued from page 70)

“framework” or “skeleton” that hold the nitrogen in a soluble form ready to go into solution and to feed the plant. Without the framework you would have 100-0-0 which is elemental gaseous nitrogen, almost completely useless to your turf. Efficiency would be a fraction of one per cent. Cost would be astronomical. You would have great difficulty in applying it to your turf.

Now let's look at 38-0-0, the familiar insoluble ureaform that you are using. The N content is higher but it is still a long way from the 100-0-0 you speak of. This material has no filler. It, too, must have a skeleton to carry the N in a slow-release form just as your body must have a skeleton.

Unlike the simple inorganic soluble molecule of sulfate of ammonia, ureaform is a mixture of complex molecules of various sizes. All ureaform molecules are made up of hydrogen, carbon, oxygen and nitrogen. The carbon, hydrogen and oxygen are all a part of the framework. Carbon furnishes energy to microorganisms that release N from the molecule. Oxygen is essential to the life and health of the soil microflora. Hydrogen enters into base exchange to release other nutrient elements to the plants.

Thus, you see, every part of the ureaform molecule is useful. A simple molecule might be shown thus:



From here they become increasingly complex.

The case of the natural organic, 5.5-4-0, follows the same general pattern but is not so easily explained because it is a variable accumulated by-product of a mixture of materials that have been used before for other purposes. The nitrogen is carried in a framework of lignins, cellulose, waxes, inorganic salts, and organic colloids, all of which act more or less as a framework for the nitrogen. Many of the soluble materials have been carried away in the water processing.

Fillers sometimes are used to make up a mixed fertilizer to equal a ton. More generally these are called “conditioners” which help the physical nature of the blend. Single ingredients as we have discussed never contain fillers or conditioners. The nitrogen is carried in an essential molecular skeleton or framework.

## Allen Co. Adds Distributor

Paul E. Allen Co., Palm Harbor, Fla., has added Illinois Lawn Equip. Co., Orland Park, Ill., to its list of distributors of True Organic fertilizer.