WHAT HOUR SHOULD YOU MOW?

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BEFORE determining the time of day best suited for the mowing of putting greens, a few fundamental facts must be considered.

All the food manufactured in a plant by photosynthesis is synthesized in the green portions of the plant. Photosynthesis means simply the chemical combination of water with carbon dioxide within the plant, in the presence of light and chlorophyll, to produce carbohydrates of food. Chlorophyll is the green pigment which imparts to plants their green color. It is only natural to assume that any injury to the green part of the plant, such as cutting away green tissue, will be detrimental to the process of food manufacture.

Nature determines the size and the shape of the leaf, and if some unnatural force, such as clipping, cuts this necessary leaf surface in half, then the plant's source of food supply and manufacture is limited to one-half of its original capacity. The manufacture of food is dependent upon the surface area of the leaf, and upon the amount of this area which is exposed to the sunlight to activate the process of photosynthesis.

Light Needed to Make Food

The manufacture of food in a grass plant cannot occur after sunset, because of the necessity for light.

A plant looses considerable water, mineral food and chlorophyll from an open wound, because the osmotic pressure from the roots accentuates transpiration through the new and unnatural opening. This excessive transpiration automatically increases evaporation. All of these conditions coupled with dry weather and intense sunlight will cause a depletion of soil moisture, which, in turn, will cause wilting.

Increased activity in photosynthesis causes a greater production of food. It is reasonable to believe that nature can and would accommodate this demand for additional food storage space by an increase in root growth. Cultural practices that promote a more intensive root growth will allow the plant to draw on larger volumes of soil for nutrients and moisture, and consequently resist more unfavorable weather conditions, than would otherwise be possible. Soil nutrients assure the production of sugars and starches in the leaves which, in turn, take part in the formation of the internal chemical energies that account for the entire plant growth.

Leaf and root growth should be relative or balanced in order to resist all conditions unfavorable to a growing grass plant. This is accomplished only by keeping all of the working parts of the plant in operation.

Past experiments also show that in general, root growth will not respond to applications of fertilizers if photosynthesis is hindered by close clipping in the sunlight. Such being the case, your fertilizer applications will be much more effective if mowing takes place after sunset.

It is a known fact that grass growth is most abundant in the evening. In consideration of this fact, it would be wise to capitalize this abundance of plant growth. With the added strength from growth, a plant becomes much more resistant to drought, fungus disease, temperature, evaporation, and competition of its neighboring plants, such as clover, dandelion, crab grass, knotweed, and plantain. These plants, by their prostrate habit of growth can escape the severe injury of cutting.

Many Factors Affect Best Mowing Time

Other facts and approximate statistics which have been results of experiments and which should be kept in mind because of their bearing on the subject at hand are:

That the stomata in bluegrass leaves are 78% open at 12:00 noon, 96% open at 6 A. M. and 58% open at 6 P. M.; the stomata of the Red Top are 15% open at 6 A. M. and the majority are closed at 6 P. M.; Red Fescue: 72% open at 6 A. M.,

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A. A. Needham, supt. of maintenance, Rockford (Ill.) CC, made a wise investment in business stationery and has on his business letterhead his identification as supt. of a fine plant in a manner befitting the responsibilities of the position. It's an idea that many other course supts. could adopt to their profit and with strong advertising effect.

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the majority are closed at 11 A. M. and 88% open at 6 P. M.

Experimental statistics show that uncut putting green grasses double their degree of growth every second day, varying from ¼ inch on the odd days and 1¼ inches to 1¾ inches on the even days.

Bleeding of leaves from cutting necessitates 3 to 5 hours of sunlight for healing.

Infrequent mowing promotes a coarse grass, higher tillering of new leaf blades, and more shade for root protection.

Frequent cutting will cause an increase in basal leaf growth, and lower tillering of new leaf buds.

And finally, regardless of our cultural practices and conditions, we should always remember that a perpertual vegetative reproduction and a lack of seed reproduction caused by frequent close cutting, will eventually develop a degeneration of all putting green grasses.

I have not given any consideration or explanations, regarding golf playing conditions. I feel that this is an important problem by itself, and should be discussed only after one has reached a decision as to what is the best time for mowing putting green grasses. From the foregoing, I believe that the best time to mow is between 12 o'clock at midnight and 2 o'clock in the morning, or during that part of the day when the manufacturing of food is at a standstill and the accumulated product has been completely translocated to the roots. Realizing that this is quite impossible because of that ever important factor, namely light, my second choice would be to start mowing putting greens at an hour that would enable me to do a careful and thorough job just before dark.

TABLE OF ARSENICAL POISONS

Name and Formula	*% Metallic Arsenic*	*% Water Soluble Arsenic*	*Adhesiveness*	*Suspensibility*	*Compatibility*	*Toxicity*	*Remarks*
Arsenious Oxide White Arsenic	76	1.2—2	Fair	Good	Very poor	High	Burns foliage severely
Paris Green	39	1.5—3.5	Poor	Poor	Fair	High	Burns foliage easily
Acid Lead Arsenate	21	less than .75%	Very good	Very good	Good Reacts slightly with lime sulfur	Low	Slight foliage injury. Best for sprays.
Basic Lead Arsenate	15	less than .75%	Poor	Poor	Good	Very low	Not as efficient as Acid salt.
Calcium Arsenate	35	less than 1%	Very good	Good	Good except with slaked lime	High	Some foliage injury. Must use fresh material. Most efficient dust.
Zinc Arsenite	29	1%	Very poor	Poor	Good	High	Burns easily. Sold as Zinc-Bordeaux paste.
Magnesium Arsenate	21	1.25	Good	Very good	Good	Low	Does not burn bean foliage, and is cheap.
Sodium Arsenite	61	100	Poor	Water Soluble	Very poor	High	Burns severely; used as weed killer.

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