Needed: Adequate Maintenance Equipment

A mist blower used for spraying greens at DuPont Country Club, Delaware.

by LEE RECORD, Mid-Continent Agronomist USGA Green Section

One must remember that equipment alone will not save on labor costs unless sound management programs are being initiated. With a sound program and modern equipment supervised by a competent golf course superintendent, labor expenditures can be substantially reduced.

Scientific discoveries and achievements during the past few decades have contributed much to the reduction of labor expenditures on the golf course. The necessity for endless hours of hand labor has been circumvented. Our scientific age continues to revolutionize this great and challenging profession. Consider what has been gained through years of mechanical and chemical advancement:

> The day of hand putting green mowing is past history. The 20th century has brought tri-plex green mowers; once they were walked behind, now they are ridden upon. The time required to mow greens has been cut by a factor of three.
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> Application of chemicals, such as fungicides, insecticides, nematocides, etc. is no longer guess work. The obsolete wooden barrel and faulty pump is no longer relied upon. New pumps, new engines, new ways of applying chemicals have reduced the original two- or three-man task to a one-man operation.

Mobile equipment such as trucksters used on greens to deliver fertilizer and pesticides is common practice. Many superintendents have "put every employee on wheels." Certainly, this reduces the total number of employees necessary to effectively operate a course, and it increases their productivity.

"Drop fertilizer spreaders" are becoming history, and with them goes a three man operation. Perhaps the cyclone fertilizer spreader has saved more man hours than any other innovation. Fertilizer misses, burns and uneven distribution need no longer be an occupational hazard.

Top-dressing greens has also been revolutionized by mechanization. Hand shoveling and push type top-dressing machines are outdated and grossly un-

economical. The new improved method is all power, with even distribution of material assured. Weeds that once ruled the domain are no longer a problem. But let us not forget the countless hours of hand labor spent in weeding greens and bunkers. Today, pre- and post-emergent materials are used without hesitation and with little injury to desirable growth. Hand labor for weeding has all but been eliminated.

Finally, let us not forget the hours that are being saved with automatic irrigation. The night waterman for the automatically irrigated golf course is no longer so important. Wilt, which could not be thoroughly controlled on hot days, can now be checked within minutes.

Automatic irrigation is only one example of mechanical labor saving. The use of two-way radios and television is just coming into its own. Labor may be reduced here through greatly improved communication.

TODAY'S EQUIPMENT

There is no substitute for having adequate equipment in good repair. The November, 1966 issue of the **USGA Green Section Record** suggested a list of "Golf Course Maintenance Equipment." This list is suggested for the majority of 18-hole courses in the United States and should be consulted.

In conjunction with the maintenance building, an additional building is needed for the storing and mixing of top-dressing material. Top-dressing should be kept in a dry area so that it will be available at any time of the season. Space for a two-year supply should be provided.

MANPOWER

If we have the necessary equipment and an adequate maintenance building, how many men will be required to keep the equipment rolling for the turf maintenance program? We suggest that the following personnel be considered for the average 18-hole golf course in the Northeast.

1 superintendent (year round employment).
1 assistant superintendent or foreman (year round employment).
1 mechanic (year round employment).
2 laborers (year round employment).
3 laborers to be hired at the beginning of the outside maintenance season and continued until fall maintenance is completed.
3 laborers to be hired as summer help.
11 men total.

Regardless of the maintenance building and modern equipment, the work load cannot be carried out unless an adequate work force is available; a work force that can be depended on, day in and day out; men with responsibility to themselves, to the golf course they are working for and to the equipment they are handling. Any appreciable construction work should be supplemented with additional labor.

IRRIGATION EQUIPMENT

Pumping station and number of heads will be determined by the superintendent at each individual course.

This suggested list has only touched a few of the many odds and ends and pieces of equipment needed. If we have omitted the one piece of equipment you feel is necessary, by all means add it to the list.

A maintenance building should meet the following requirements:

(1) Superintendent's office (desk, file cabinets, adding machine, phone, etc.).
(2) Toilet facilities (shower, lockers, etc.).
(3) Adequate heating and ventilation.
(4) Paint spraying room.
(5) Herbicide-fungicide, etc. storage room.
(6) Fertilizer storage area.
(7) Adequate storage area for all equipment.
(8) Adequate maintenance area.

THE FUTURE

What can we look forward to in the future as a contribution toward reduced labor costs? As we gaze into the crystal ball, countless dreams are before us. Selective chemicals which biologically control growth as desired or systemic pesticides which need be applied only once or twice a year may be just around the corner.

We are already working with grasses which grow to a limited height. But, can't you see new improved bluegrasses, bents, bermudas and zoysias that resist disease, traffic and insects! How about the new plastic turf

currently being tried that needs only vacuuming.

Perhaps the crystal ball will show that wheel marks will no longer be seen after the turf has been cut with sonar principle equipment.

There is no need to worry about clipping accumulation or dew as air cushion machines take care of these problems as well as offering swift and "rutless" transportation. Helicopters are made practical for fungicide, insecticide, herbicide and fertilizer applications if indeed our new improved plants require them.

These are only a few of the dream mechanisms being visualized. Are they unreal? I don't think so. Today's technology won't let them be unreal. The Saturn rocket and Apollo capsule were in the crystal ball only a few years ago. Today, man has almost reached the moon.

Pesticides for Warm Season Grasses

by JAMES B. MONCRIEF, Southern Director, USGA Green Section

FUNGICIDES

In the South, fine leaf bermudagrasses are used mainly for greens and very little fungicide is used in a preventive disease control program. A preventive program is used when greens are overseeded, but it is not as efficient as it should be. A curative program on overseeded greens is followed in most cases, but not always with satisfactory results.

A fungicidal program has a wide range of cost per square foot. The lower cost of fungicide per 1,000 square feet is usually between 48¢ to 55¢ whereas the upper range of cost will run between 95¢ to $1 per 1,000 square feet per treatment. A preventive program will cost more than a curative one; the final figure depending on the choice of fungicide. However, the resulting better turf will offset the cost increase.

One disease complex causing concern with bermudagrass is spring dead spot. When a green is lost, it may cost as much as 20¢ per square foot for resodding. This is about $200 per 1,000 square feet, or $2,000 for 10,000 square feet of green. Leaf spot is probably found more often than any other fungi on bermudagrass. In most cases, this foliage disease is easy to control.

HERBICIDES

Herbicides may generally be divided into pre-emergence and post-emergence categories and also as selective or non-selective types. Selectivity is based on physiological, morphological, translocation, and absorption differences between plants.

The physiological plant differences are probably least understood, and it involves the internal chemistry of the plant. Some compare it to the resistance or susceptibility of humans to certain diseases.

Translocation can occur through the xylem, phloem, or between cells. The xylem tissues move plant nutrients from the roots to other plant parts, and the phloem tissues move manufactured food from the leaves to other parts of the plants, mainly roots, fruit, and storage areas.

Morphological plant differences refer to size, shape, leaves, and stages of growth. Weeds are the result of poor turf quality, not the cause. A healthy turf offers the best control. Herbicides will do an excellent job for you where they are needed and if they are properly used. Unfortunately, mis-use during the past several years in the form of poor distribution has been most noticeable.

There is a wide range in "cost per acre" between pre-emergence and post-emergence materials. Good results have been realized with either type when properly handled. The bermudagrasses are especially tolerant of the arsenate products, such as disodium methyl arsenate and monosodium methyl arsenate.