

conditions on the installation, responsibility for provision of utilities on the site, time of installation, workmanship, a review of quality assurance and operating instructions and record drawings.

The section covering material specifications reviews all equipment to be installed, requirements for bidding and provision for substitute equipment of equal or better quality than specified, and a listing of materials and equipment to be specified.

Copies are available for \$1 from the Association at 13975 Connecticut Ave., Suite 310, Silver Spring, Md., 20906.

### National Golf Foundation Releases Instruction Films

A five-unit color sound motion picture series entitled "Modern Golf Instruction" has been produced with the assistance of leading PGA-LPGA professional-educational consultants by the National Golf Foundation, reports NGF executive director Don A. Rossi.

Designed to replace the Foundation's 1964 series which enjoyed a six million viewing audience, the new series first introduces the game as a rewarding challenge for every age and skill level, then utilizes the latest in group and individual teaching methods to show simple, how-to-learn progressions for the sound mental and physical execution of skills. Critical learning moments are punctuated with slow motion, stop action and superimposed animation to increase retention. Top men and women collegiate golfers serve as model demonstrators while a realistic cross-section of players — juniors, men and women, and seniors — carry the learning message through to the viewer.

Requests for further information regarding preview, purchase or rental should be addressed to national Golf Foundation, 707 Merchandise Mart, Chicago, Ill., 60654. Or call 312-527-3564.

### Club Design and Repair Explained in New Book

Over the years, golf manufacturers have invested millions of dollars and years of research in equipment technology. They have produced hun-

dreds of club designs and accessory products, all with the intention of improving the game.

Each innovation, from dimple configuration to changes in weighting, has been accompanied by subsequent advertising claims that either overwhelm with technical detail or confuse with frivolous data.

Now, Faultless Sports, Division of Globetrotter Communications, Inc., has published *Golf Club Design, Fitting, Alteration & Repair: The Principles and Procedures*, by Ralph Maltby, director of marketing and product development for Faultless.

Liner notes for the book explain that the material in the book is presented "from a concise, technical point of view. But the applications are practical, easily understood by the professional and the amateur alike."

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## Tight Fertilizer Situation Continues

With the fertilizer situation still tight, and prices still on the upswing of a 350 percent rise in the last 1½ years, golf course superintendents may find themselves curtailing course maintenance programs, experts say.

"Most superintendents will first eliminate fertilizing of the rough," says William E. Knoop, director of education of the Golf Course Superintendents Assn. of America, "then the fairways and then the tees. The greens have to be fertilized to promote growth. The more traffic there is in an area, the more the grass must renew itself to maintain a surface. Greens get a maximum of traffic."

Meanwhile, in Washington, Fertilizer Institute President Ed Wheeler has said, "Suggestions that farmers in the U.S. or underdeveloped countries could gain substantial fertilizer supplies for food production if U.S. lawn and garden use was diverted are both cruel and misleading. It is cruel in that such suggestions have raised expectations far beyond our ability to provide, finance or deliver to the emerging nations."

Wheeler said it is unrealistic to talk about fertilizer being taken from golf courses in America to supply

The book was written to provide the golf pro with a selling guide enabling him to properly fit or adapt clubs to his customers' needs. It is intended to be a comprehensive volume explaining the logic behind golf club designs; definitions of terms; the functional relationship between such factors as swingweight, shaft flex and loft; and methods to apply this knowledge.

Chapters in the book are grouped into eight sections beginning with simple refinishing operations and progressing to more complex problems of custom fitting. The appendices deal with the specifics of performance and provide reference information. Cost of the book is \$19.95, and can be obtained by writing the company at 160 Essex St., Newark, Ohio, 43055.

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farmers in developing nations. He said what is needed is funds from the wealthier countries to secure fertilizer deliveries and to help pay shipping charges to the users. Quoting a recent report made by 36 state fertilizer regulatory officials, Wheeler pointed out that only 3.5 percent of total U.S. fertilizer use was being used for all non-farm purposes.

Experts have said that consumption of the three primary fertilizer nutrients — nitrogen, phosphate and potash — increased more than 10 percent from 1972 to 1974, despite product shortages. The availability of fertilizer materials in the U.S. was affected dramatically by the energy crisis, since large quantities of energy products are essential for fertilizer manufacture.

Domestic production capacity for nitrogen fertilizers increased only three percent in 1974 while consumption jumped by more than seven percent. Since it requires about three years to build a new plant, the only additional U.S. capacity that will be available in 1975 is that for which construction is well advanced. It is estimated total production this year should be up about three percent. Existing construction activities point toward an additional four percent production for 1976 and more than a 10 percent increase for 1977.