

Mid-Atlantic "Operation Zoysia" Exhibit "A" in Cooperation*

By WILLIS H. GLOVER

Simple as it may appear to the casual observer Operation Zoysia has many ramifications. The Mid-Atlantic Assn. of G.C. Supts. believes that part of its function as a professional organization is to apply its efforts in the direction of proving for itself, and for golf, new findings which research produces in turf management. Improvement of fairway turf in the Mid-Atlantic area has been the number one problem. USGA Green Section research on fairway grasses has been going ahead at Beltsville, Maryland for years. From this have come several warm season grasses which seemed to have promise. Proving conclusively that Zoysia is, or is not, the best answer to the problem of a better fairway turf, is the important task chosen by the Mid-Atlantic Assn. as its contribution for 1952. This came about through the complete cooperation of the USGA Green Section.

Not since the advent of Merion bluegrass had so much been said about any one grass in any one year. The Green Section had been severely criticized for releases to the press which were said to be "premature" and which were claimed to have put some superintendents in a bad position. Since the USGA had not considered it one of its functions to prove research in other than small demonstration plots in its turf gardens, it became apparent that there was a gap to be filled. The Mid-Atlantic Assn. of G.C. Supts., accepted the challenge and hopes that it is doing golf a great service.

Fairway turf research at Beltsville has for a long time been directed along channels from which it was hoped a grass, having many more desirable attributes than the poa-annua-crabgrass combination so prevalent and unsatisfactory in the area, would come. Everyone is looking for a pure stand of grass which can be clipped close, which will heal rapidly, has good color, doesn't have to be watered, and which is disease resistant or free. In other words, a made-to-order turf. It has been said that probably Meyer Zoysia

comes as close to being the answer to the golfer's prayer as any turf selected so far. It also is true that we shall never find the perfectly adapted grass. One species of grass, like the weather, will never completely satisfy the desires of everybody. Zoysia is no exception.

There were some things we knew about Zoysia, some more which we could guess at and still more which we knew nothing about. We had followed the progressive research on Zoysia for many years — we had seen selections made which were improved grasses from observational data. Meyer Zoysia seemed to have a great many of the desirable attributes of the grass we were looking for. Under demonstration plot conditions it seemed to be entirely winter hardy; established itself rapidly from plugs, stolons and rhizomes; became pure stand excluding crabgrass effectively; had no apparent enemies such as fungi and insects; would grow on poor soil if not too wet; would produce a superior surface to play from if closely clipped; and would heal rapidly because it is difficult to take a deep divot from it. Its stolon and leaf structure is stiff enough to permit sufficient backspin to a properly hit iron shot, to offer proper resistance to the ball, and to give superior lies to wood shots.

We could only guess at or knew nothing about the following:

1. Under actual play how would the public take to the winter color?
2. What would it cost per acre to interplant existing turf?
3. What would be the best method of planting?
4. What type of planting material should be used, seedlings, rhizomes or plugs?
5. How far apart should planting material be spaced?
6. How much would planting operation interfere with play?
7. What mortality could be expected?
8. What time of year should the planting take place?

*Paper presented before GCSA annual Turf Conference

9. How much would planting material cost?
10. Could the average club afford to turn over acreage to Zoysia?
11. What balance of fertilizer should be used, and how often to apply and how much?
12. Would existing fairway grasses be completely removed eventually or would some native plants live with Zoysia?
13. In trying to arrive at a warm-season, cool-season combination is it best to establish the cool season grass first or last?
14. Would Zoysia completely control silver crabgrass and how long would it take?
15. How much of a problem would the invasion of greens by Zoysia pose?
16. Would there be compensating factors if invasion were to become a problem?
17. What would be comparable costs of maintenance between present fairways and pure Zoysia or summer-winter combinations?

In one short question—Is Zoysia superior from the viewpoint of playability and from the standpoint of economy in maintenance?

Plans for operation Zoysia were laid in the late fall of 1951 by the Education Committee of the Mid-Atlantic and the Green Section staff. It was agreed by the group that the Green Section would grow Meyer Zoysia seedlings in flats during the winter and would furnish two inch plugs of both common Zoysia, and both over-planted with Merion Bluegrass. Mid-Atlantic agreed to do the planting. The date decided upon was the last of April. The actual planting date was April 22. Fairfax CC offered its number three fairway for the project. It was decided that seedlings would be planted into one inch aerifier holes made during the day of planting. Plugs would be planted into holes made by the West Point two inch plugger.

Nature of Site Selected

The chosen site seemed to offer the desirable combinations of soil and existing turf into which we wanted to plant. The fairway slopes from right to left and changes from a hard, clay top to a damp lower section with fairly good soil. The fairway has nearly solid bent on the lower area and goes through Kentucky bluegrass to fescue on top. The tee end

of the fairway for about 100 feet was a perfect stand of Silver crabgrass and *Poa annua*. *Poa annua* and soft crab were interspersed through the rest of the fairway. The fairway is not watered artificially and has been fertilized every fall for years with one thousand pounds of 6-10-4. No additional fertilizer was added during 1952. The fairway was cut at $\frac{3}{4}$ ins. during the season. West Point crabgrass rakes were used on the mowing equipment from the middle of June throughout the rest of the cutting season.

Planting Operation

The aerifying operation was started early on the morning of April twenty-second—so that the holes would be freshly made. The machine was operated from the bottom to the top of the hill so that planting could be done in the same direction making it easier on the men planting. It was also found that holes made going up the hill were easier to close tightly against the roots. It was fairly easy to lay off the rows on two foot intervals which was every fourth row. In the row every fourth hole was two feet. It was not too difficult to follow the rows up the hill.

As the men arrived they were instructed in how the plants were to be put into the ground. Each man had been asked to bring either a large screw driver or an asparagus knife or a tool of his own choosing. Instructions were to be sure that the hole would take the root, that the root be carefully placed into the ground even if the hole had to be enlarged, and that the soil should be firmly packed against the root. A constant check was kept behind the planters to try and avoid carelessness in planting.

Planters were lined up obliquely to permit more room per man and also to insure that no rows were missed. This system worked well because it allowed each man to guide himself by the man in front and to the left of him. It also stabilized the rate of planting and helped to keep everybody busy at a moderate pace.

The day was bright and the temperature climbed to the middle eighties. The soil was damp but the soil from the holes dried rapidly even though the aerifier operation was not too far ahead. A crew of eight men did the planting of plugs. Aerifier holes were used as a guide for rows and distance. Holes were cut by half the team and insertion of plugs was accomplished by the other half. Each

plug was firmed in and spread at the top by heel pressure of the planter.

Who Did It

A total of 55 men participated in the planting project. Included were golf course superintendents, some of whom traveled over a hundred miles round trip to take part. Some superintendents brought as many as three of their labor force with them. Many of the firms which cover the Mid-Atlantic area for golf course supplies and equipment turned out and took home sore hands, tired muscles, and sunburn. One green chairman, fresh from a hospital, was able to give moral support and encouragement to the weary.

A total of 275 man hours were consumed in the actual planting. 28,000 Meyer Zoysia seedlings were planted along with 4,800 two inch plugs of Meyer Zoysia, Common Zoysia and both species with Merion Bluegrass. These plug plantings were replicated three times along the fairway. The average cost per acre at current rates of pay for labor would approximate \$100.

The last mechanical operation was to roll the fairway with a standard three gang fairway roller. The last mental operations were the satisfaction of having

completed a very important task in the interest of golf and to the credit of the Golf Course Superintendents of the Mid-Atlantic Area. The departing wish or prayer was for rain. Some of the boys must have had a private line and good connections with the Man up there because the rains came the next evening.

First Season Observations

[It is important to stress the fact that, the total value of this project cannot be determined during the first year nor during any one year. The aggregate of all observations and the final determination of facts pertinent to the progress of this project may not come for several years. However, when it does come, there will have been a very interesting living story of what Meyer Zoysia seedlings and plugs will do under actual playing conditions and actual maintenance of fairway turf.] All that can be given at this time is a progress report of the first year's observations.

The fact should be mentioned that conditions of soil at the time of planting were near ideal and that precipitation immediately after and during the summer were optimum. The whole summer season was extremely favorable to Zoysia and Ber-

Teaching Player to Know Course Problems, Biggest Job

By LEO J. FESER
Wayzata, Minn.

I wonder if ever a morning dawned on any golf course in America or elsewhere when the first thoughts of the man in charge were not applied to what was "most important". As many are called, but few are chosen, so it is with the problems of golf course maintenance. What is most important today may be of minor consequence tomorrow; there are never enough hands to hold time.

As I look at the business of golf course maintenance thru somewhat wearied eyes of experience, I wonder if possibly the greatest and most important problem of all is one of education. Not education of the men who supervise maintenance (some of our weariness is attributable to education) but education of the golfer.

The enthusiastic yet patient golf scholar devotes time and energy as well as good hard cash to learning how to hit a golf ball. He rightfully expects dividends on his educational investment. He guards his personal implements with jealous care and his stomach does somersaults when his own hook carries his ball away into the great unknown. Yet he has no qualms about being bitterly disagreeable if a patch of turf succumbs to hostile environment, leaving the bare area that no one loves. His divots freckle the landscape, but he sees no reason why the dollar spot isn't controlled.

Golf course maintenance presents many more technical problems than our golfers realize, and if they can be enlightened on this score, understanding and co-operation will be increased. It seems to me that we have overlooked the possibilities along these lines, and that action in this direction will do much to ease the pressures on the golf plant managers.

I think it was Franklin who said something about an investment in knowledge paying the most interest. Certainly an understanding of the basic problems of golf course management on the part of those who pay the bills would be beneficial to all. To bring about that understanding looks to me like a very important, if not most important problem.

muda. This was evidenced by the unusually rapid growth of established plantings and elsewhere on the golf course.

Observations and counts throughout the summer and pictures at the end of the growing season proved some interesting points.

1. Mortality in two inch plugs amounted to practically zero per cent.
2. Mortality throughout the seedling plants was less than fifteen per cent. Actual counts on the rows spaced about equally from one end of the fairway to the other in late fall showed 85% survival. However, it is reasonable to expect that actual survival will be more than 85% — because in the Silver Crabgrass it was extremely difficult to identify Zoysia plants after the frost had changed the color. Consequently, accurate counting was nearly impossible without spending too much time. A spring count before Silver Crab comes on may show a higher survival over all.
3. The rate of growth of plugs exceeded that of the seedlings but not in the same ratio of their comparative original size when planted. Actual photographs show that surface area of plugs developed to as much as 6 inches and the rhizome spread developed to as much as 11 inches—surprisingly enough the crown area on some seedlings developed to 4 inches and the rhizome structure to 9 inches. This could point to strong seedling vigor during this last season which might not hold for every season where seedling planting is compared with plug planting. However, on watered fairways where seedling survival would be guaranteed, this seedling vigor might be evident.
4. There seemed to be some indication that the seedling plants competed with soft crabgrass better than it did against strong bent. This observation did not hold true where the competition was between seedlings and Silver Crab.
5. Little difference was observed between survival on the damp area of the fairway over the highest elevations, nor was there noticeable differences in spread of plants from the low elevation to the high.

Enthusiasm may promote the desire to enter into conjecture as to what will

eventually happen in this project. Progress reports will, however, be made from year to year confirming only what can actually be seen by the eye and recorded by the camera.

Other Values of the Project

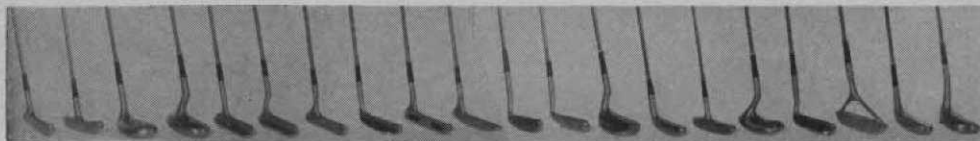
Beside the factual knowledge and experience to be gained for the benefit of golf and in the interest of better turf for everyone from this project, equal importance must be attached to another side. Perhaps, the importance of this project to the Golf Course Superintendents Associations, both local and national, may be selfish. However, we think it is justifiable even if it is selfish.

There exists now and there has always existed a void between turf research and the proof of scientific findings. No group has filled this empty space. The proof of this statement lies in the history of turf establishment and management in the past. Every superintendent with years of experience with turf, as well as club officers and golfers have witnessed the selection of new turf grasses and have experienced their recommendation and use only to find to their sorrow that not enough time had been spent proving that the strain was superior. The history of Virginia bent is a good example. The same has been true in the past with materials used on golf courses. The accumulation of copper and its resultant toxicity to grass testifies to the above fact. Many others could be mentioned.

The above statement is not made with the intention of detracting from the great research which has been done by the Green Section and State colleges and manufacturers of equipment and chemical companies. The comment only points to the fact that the researcher is not in a position to prove in the field of actual operation what research indicates under controlled or sample plot conditions. This points directly to the fact that the organization of golf course supts. offers the logical solution to the proof of research on the golf courses in representative sections of the United States and Canada.

The importance of projects such as operation Zoysia cannot be over-stressed. The value of similar projects in any area will accomplish the same ends which have begun to appear in the Mid-Atlantic area. The Mid-Atlantic Assn. has enjoyed considerable national and local publicity from this project. Much interest is in evidence locally from golfers, home owners, gardeners, and club members. Recognition

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and scoring are given as my responsibility, and I've described the main features of these arrangements in this article.

The house committee, the entertainment committee, the hospitality committee, the ninth hole refreshment committee (which also has the job of seeing that caddies get a bottle of milk free after the ninth hole), a liaison team of two members to pick up the loose ends that may show up during the tournament, the caddie committee, the Green committee and Art Asplund, course superintendent, all have their respective special jobs assigned in the letter which is signed by our president, John L. Bero.

Manager Joe Bida, with many house operating problems due to the large number of guests, gets the understanding cooperation necessary to fine operation, from the instructions issued.

This is a three page letter, too detailed to be given with this article. It leaves nothing to chance.

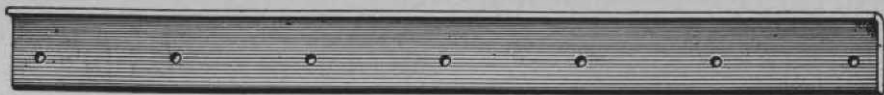
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of golf course supts. as professional men has surged forward. Green chairmen have evidenced great interest in the project and have given much credit to the organizations which fostered it.

Projects such as this one offer a new medium in which the golf course supts. and every person interested in turf has an equal stake. This project has drawn the members of the Mid-Atlantic Assn. much closer together because it gave every member an opportunity to take part in its establishment and will hold his close interest from year to year as he is called upon to give his opinion based on his observations of the progress. He will be asked for suggestions. This provides a

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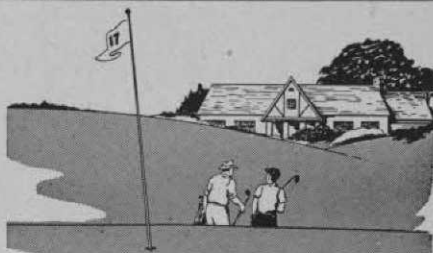
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It is surprising to notice how interested the press becomes when a project which will provide a story of continuing interest to the public comes to its attention. This project made the sports section of local papers and will continue to be desirable copy, especially when the golfing public is invited to pass judgment on the quality of the turf as it develops. The golfer will be asked to pass final judgment on this planting before this type of fairway is either accepted or rejected. Every time this project is mentioned in the press the superintendent and his professional organization is given recognition for being progressive, awake, and with ambition directed toward solving a problem which may benefit golf greatly.

"Operation Zoysia" provides a new avenue along which the Green chairman and superintendent can travel and see the same results and come to the same conclusions in deciding whether or not a new selection of turf will fit their own fairway problem. This is extremely important because, here again is common interest in a problem, mutual to both, and vital to many people, whose best interest they must serve. It is sincerely hoped by every superintendent that this project will create the first desire of many green chairmen to come out at least once a year to see what is transpiring in this project. Some chairmen have already found that they are being asked questions by their membership which have made it imperative that they become acquainted with the project. This need for information makes it mandatory for the chairmen to go to their superintendents or to the Mid-Atlantic Association of their golf course superintendent to get the desired information. This contact may provide the first spark of a fire which could develop into an extremely desirable co-operative relationship between employee and employer. Certainly it must result in a better under-



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standing of turf problems. It is entirely possible that it may also help to strengthen the position of the golf course supt. as the professional man which he is.

Trick Shot Artist, Paul Hahn To Star in Movie Short



Paul Hahn, trick shot artist, has been made the star of a Grantland Rice Sport-light film to be released through Paramount Pictures.

Aside from its entertainment value, the film should be helpful for duffers for it carries a distinct clinical flavor. Hahn first exhibits fine classic form, the aim of every golfer, and then refutes his own arguments with the aid of artificial and physical liabilities without sacrificing either distance or control. To the spectator, the performance pins good golf down to timing and coordination. It is an entertaining film for golfers and non-golfers alike.

Everything said about pro shop merchandising adds up to the pro answering "how can I get this golfer using something that will give him (or her) more pleasure out of the game at a price that really is a bargain in enjoyment?"

—Maurie Wells
Professional, Cascade CC
Grand Rapids, Mich.

Eric Cremin's "Par Golf" Clear Picture Teaching

Eric Cremin, Australian pro star, has produced "Par Golf", published by Angus & Robertson Ltd., Sydney, Australia. American agents are Anglobooks, 55 E. Washington st., Chicago. Cremin is a sound player. His text is brief and to the point and clear. A good part of the instruction is done by exceptionally clear and informative action pictures. The photography is exact, with the lens being at a spot where the ball shows accurately its position with respect to the feet.

A feature of the book is some instruc-

tion and illustrations for left-handers. Cremin played both left-handed and right-handed before settling on right-handed.

Golf Club Manufacturers Report Total Sales

Figures submitted by the member companies of the National Association of Golf Club Manufacturers show a total of 3,067,470 clubs sold between November 1, 1951 and October 31, 1952. Of this total 2,138,529 were irons and 928,941 were woods.

This compares with a total of 3,371,631 clubs reported sold for the previous corresponding period ending October 31, 1951.

Member companies of the Association anticipate an increase in sales volume for 1953 and indicate they will be in a position to take care of their customers' requirements.

UNIVERSAL'S NEW TROPHY BOOK

Available for club events chairmen and pros is the new 60 page trophy catalog of Universal Sports and Awards, 515 S. Wabash, Chicago 5, Ill., the largest and most complete they've ever published. 1500 items are shown, including trophies, cups, plaques, medals, etc., with many newly designed models. Several pages are devoted to economy award items with the complete line embracing a wide range of prices. Catalog upon request.



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J. Victor East with a background of 50 years of research, design and sales experience in golf joins the Fawick Flexi-Grip Co. of Akron, Ohio as director of golf research and promotion, it has been announced by Exec. VP James Karns.

Recently retired with Wilson Sporting Goods Co. after an 11 year association East previously had held an important position with Spalding and during 1922 and 1923 manufactured golf clubs in his own business in North Carolina.

An outstanding competitor in his play-