Central Plains Turfgrass Conf. Proc. 1961

SUMMARY OF THE ELEVENTH CONFERENCE

WELCOME - Dr. C. Peairs Wilson

Dr. Wilson expressed the pleasure of Kansas State University in playing host to conference and extended an invitation to all to take advantage of the facilities services available on the campus. He stated that the primary purpose of the versity is to serve the people of Kansas. This is done in several ways including ular instruction to students in classrooms and laboratories, research for discovng new information and extending knowledge to all people of the state by the tension service.

Emphasis was placed on the importance of basic research which does not always d itself to immediate application to a problem but which adds to our storehouse of wledge as a reserve to be used at a later date.

Some of the things needed for turfgrass research at the present time are more enhouse space and additional land which has been asked for this year. It is hoped t you will support this program of requests in the legislature.

REPORT AND TOUR OF TURFGRASS RESEARCH
Dr. R. W. Campbell, Dr. Ray A. Keen and Graduate Students

The early part of the season of 1960 was especially favorable for the growth of grass. Consequently, crabgrass did not present the problem it usually does h immediately reminds us that anything that can be done to increase the quality urf will automatically decrease the crabgrass and weed problem. Such things as rainfall and temperature cannot be changed but such practices as fertilizing, gation, and mowing can be improved.

Pre-emergent tests using seven different chemicals were explained and sheets ing results to date were handed out. Four of the materials are showing very ising results. These are Dacthal, Zytron, Lead Arsenate and Calcium Arsenate. results with chlordane are highly variable.

Post-emergent tests indicate that treatments should be made in the 2 or 3 leaf e.

Basic research is being conducted on the application of herbicides to newly ed bluegrass. This investigation includes several basic studies of crabgrass as optimum temperature for germination, period of germination, and the affects xins or growth regulators which trigger many plant processes. The procedure isolating and identifying these auxins was demonstrated.

In an effort to answer the question of "what will happen to my lawn if I keep chemicals year after year," Bob Long, graduate assistant, reported on his ess with the residue problem using various herbicides. It was his observation some chemicals allow normal germination and normal growth up to a point and the plant will deteriorate, while other chemicals allow normal germination but a dwarfing affect on the plant.

A new addition to the turf plots this year is the new experimental green which eported on by John Pair, graduate assistant. Construction of the green began e fall of 1959 and was planted in April, 1960. The green was constructed using fferent soil mixtures ranging from 65% to 100% sand and planted with five vars of bentgrass. Slides were shown of the actual construction procedure and the nizing operation. Each plot was observed throughout the growing season and on its performance to test the efficiency of soil mixtures and grass varieties. It was observed that the stolonized varieties of Cohansey, Springfield and Carey, establish a satisfactory putting surface on 100% sand if it was not allowed to it. Seeded varieties of Penncross and Seaside were difficult to establish and ain on high sand content mixtures. Two grades of sand were used in the mixtures termine whether a coarse mason sand or a fine blow sand is to be preferred.

ot studies and compaction tests will be made in the future to obtain some basic nformation to be used in the final evaluation of these mixtures.

Dr. Keen reported on the progress of the bermudagrass breeding program. When e program was first started back in 1950 very few grasses were available that ssessed the winter hardiness necessary to survive in this region.

The most desirable grasses are sent to Hays to produce seed. Seedlings are own in the greenhouse and later transferred to the field. The better ones are nt to various experiment stations and other cooperators throughout the country to tested.

We are still looking for superior grasses especially in bermudas and bents and e still adding to the germ plasm of wintergreen bents so we can someday play on eens instead of "browns."

Work done by John Murnighan, graduate student, indicates that 2,4,5-TP will te satisfactorily control henbit and chickweed applied either in the fall or ring but should not be applied to newly seeded grasses.

A tour of the bermuda plots and experimental green concluded the first afternoon.

WEED KILLERS AND HOW THEY ACT - John Gallagher

Herbicides are classified as either contact, soil sterilant and fumigants, or temic. The latter is a hormone type or growth regulating substance and is the primarily concerned with in turfgrass work because it is selective. It is ught that this material speeds up the rate of respiration to the extent that the d supply cannot become available fast enough and the plant literally starves it- f to death.

The primary purpose of any plant is to stay alive if possible long enough to uce its seed. Therefore, in studying a plants reaction to a chemical we have onsider all of the factors in a plant which prevent the material from reaching site of action where the chemical does the particular job for which it was applied. of the factors affecting the action of herbicides are microorganisms in the soil, rption by soil particles, leaching through the soil, photo-decomposition, and rption by the plant. There are many morphological characteristics which prevent entrance of the material into the plant and after entering, there are many acles to overcome before taking action, thus, many factors are involved in the n of herbicides. However, we need not wait until we know all the answers before ttempt to use them effectively.

WEED CONTROL THRU FERTILIZATION - Dr. Eliot C. Roberts

We have proceeded a great distance in the field of weed control since the dis- y of herbicides which will control weeds far more quickly and just as effectively ltural practices. However, this is no reason to exclude maintenance practices keep turf in a vigorous growing condition and dense enough to prevent the entrance eds.

Weed seeds are always present awaiting a chance to find a bare place to grow. invade when grass is thin, or weakened by disease. This can best be prevented pper fertilizing, watering, aerifying, and disease control measures.

Caution should be used in fertilizing since excess fertility can increase the ity of disease where only moderate fertility produces grass resistant to disease. ering the pH of the soil, dandelions are eliminated; whereas, grass can thrive. ium must be present in moderate amounts for clover to grow, but grass can grow the potassium level is low. By regulating factors such as these through proper ization, the weed problem can greatly be reduced.

FUNGICIDES AND WEED CONTROL - Paul A. Sartoretto

he control of weeds and fungi are very similar in that you are treating the sm in its various stages of development. Whereas weed control is divided into

pre-emergent and post-emergent, treatment for diseases may be considered as prevention and eradication. A preventative spray may kill the fungus just as the spore is germinating but an eradication program deals with the mature organism.

Much better control can usually be had by using a broad spectrum fungicide, that is, one containing a readily soluble material with a high immediate phytotoxicity and also an insoluble compound which will slowly hydrolyze releasing a certain amount of active chemical which kills germinating spores over a long period of time. Pre-emergent control of weeds is always to be desired but it is always very possible that all germinating seeds will be killed including bluegrass and other seeds, so there are certain disadvantages using pre-emergent weed killers but there will always be a market for post-emergent chemicals.

Recommendations for different areas are not always the same for any one chemical. For the control of silver crab and dallis grass in some parts of Texas 16 pounds of Disodium methyl arsenate per acre gives good control with only slight discoloration to bermuda. In Louisiana, the same effect may be obtained by using two applications of only 8 pounds plus one-half pound of 2,4-D per acre. The dosage is reduced to 5 or 6 pounds per acre with one pound ob 2,4-D in Florida but two or three applications are necessary. When trying any herbicidal chemical for the first time, apply it to a small area before using it on a large scale.

ATHLETIC FIELDS - Charlie Wilson

Emphasis was placed on the importance of sterilizing the seed bed and the need for soil testing for pH and fertility. Slides were shown of the fumigating operation with the use of methyl bromide. The optimum pH of a soil seems to be around 6 to 7.5 for most grasses. Above this calcium and phosphate are tied up and at low pH levels iron and aluminum become unavailable.

Pregerminating bermuda seed is becoming quite popular. The seed is mixed with 3 parts of fine grade vermiculite and kept wet for seven days at about 85° before seeding. This operation speeds up the establishment of the grass when it becomes necessary to overseed an area. Seed must make contact with the soil and will not germinate if merely placed in the thatch of the existing grass. This is best accomplished by aerifying in several directions prior to seeding.

All of the operations of weed control and fertilizing, especially with superphosphate, should also be done before planting.

In Massachusetts with a very acid soil many problems arise using calcium arsenate due to the calcium being absorbed too quickly which releases the arsenic to arsenic acid and both desirable and undesirable grasses are killed. A list of management practices were discussed with the emphasis placed on the word MANAGEMENT.

SHADE TURF - John Firsching

Shade is not always a clean cut area and no value can be placed on it like ; furthermore, very little can be done to elimate it. However, the term turf not limited strictly to grasses so good use can be made of the many ground vers available such as periwinkle or myrtle and ivy which substitute for grass the lawn.

The cool weather grasses are best suited to shaded areas but zoysia can lerate some shade. Maintenance practices should allow nature to define the aded area and permit grasses which tolerate shade to grow in this irregular ttern formed by trees. Thin out trees or groups of trees which cause unnecesry shade and allow good exposure and air movement to the grass if possible.

BERMUDA GRASS FOR FAIRWAYS - Dr. Glenn Burton

A number of characteristics are to be included in a bermuda if it is to be a

real top notch grass for fairways. Not only is it necessary to have drouth and salt tolerance and disease and insect resistance, but a desirable grass needs to have a certain degree of chemical resistance all of which bermuda has. Bermuda grown in the widest pH range of all grasses suitable for fairways, makes a dense sod with blades stiff enough to give the ball a good lie and is tough enough to stand the wear and rough treatment to which it is subjected. Although this grass is not green during the cool seasons, it maintains a better color than other grasses under hot conditions in the summer and can be overseeded with rye for winter color. It is reasonably easy to establish and under sandy soil conditions where rainfall is low the stolons are much to be preferred if no irrigation water is available. Bermuda is relatively easy to maintain and recovers quickly from damage done on the fairway.

Bermuda sometimes poses a problem by invading greens and sand traps but this may be reduced by ringing the green with Zoysia.

In answer to a question of how about U-3 seed, Dr. Burton commented that it is a much easier means of propagation but it does not breed true because of the extremely variable nature of the species and many of the superior qualities are lost in the development of a good seed producer. Also U-3 produced from seed does not survive the winter in some areas.

Bermuda is to be highly recommended for use on fairways and other areas because there is a variety for every purpose.

MAINTAINING BERMUDA GRASS FAIRWAYS - Panel Discussion

Bill Adams says there is no finer turf to hit a golf ball from. However, in establishing the bermuda weed control measures should be taken because it will not crowd out all the weeds if sprigged in over them.

Bob Lester has had good luck with common bermuda and says it is not coarse but is a fine turf as good as you'll see. It is overseeded with blue and bent for winter color. His objections to U-3 bermuda are its lack of tolerance to heavy traffic and its susceptibility to spring dead spot.

Chester Mendenhall believes it is very important to have fairways wet when cold weather strikes and to water them in spring to keep March winds from drying them out. Much of the so called winter injury is believed to be purely a matter of desiccation.

Bud Elmer has had more winter killing on ridges and high spots when fairways were watered so perhaps other factors are partly responsible. Spraying for Poa annua was discussed and Dr. Glenn Burton cautioned the group about spraying in the fall for fear of weakening the bermuda just before winter set in. Maybe a better time to spray would be after the bermuda is completely dormant.

The panel agreed that for establishing bermuda, it is advisable to apply 300 to 400 pounds per acre of nitrogen but this may be reduced to 200 pounds the second season. However, we are now growing five blades of grass where one grew before and in view of this denser sod, our fertility levels will have to be kept higher. It was also suggested that fertilizer and sometimes lime helps to break down thatch.

Bermuda is thought by some to require more mowing, but in view of the shorter growing season than cool season grasses this question is still unsettled.

Mulching tees was discussed but this is not feasible as long as people continue to play in the fall. This practice has been beneficial to one club in the Manhattan area.

be continued

WEED IDENTIFICATION LAB - Dr. L. E. Anderson

The first step to any weed control program is to find out what you are controlling [t is not necessary to know the name of a plant to kill it but if you know its exact ıame then much information can be obtained from various books and references which can greatly aid in understanding the growth characteristics of the plant, which determine .ts resistance or susceptibility to a chemical.

The easiest way to learn the identity of a plant is to consult someone who knows t already. If this is not possible, then many books are available with colorful ictures which are helpful in finding the proper name. Still a better and more sure ay is to key the plant out with a taxonomic key which describes the individual haracteristics of all plants and allows you to choose statements which most nearly it the unknown specimen. Most plant keys furnish pictures and a complete description of each plant so no mistaken identity occurs. Dr. Anderson demonstrated this ethod of keying out plants and everyone was given a plant key and participated in ıe identification of a number of unknown weeds.

POA ANNUA CONTROL - Marion Mendenhall

At the Kenwood Country Club in Cincinnati for the past 5 years 10 to 12 pounds r 1000 sq. ft. of lead arsenate have been used on greens but the poa annua seemed be increasing.

In 1958, calcium arsenate was applied to one green at the rate of 16 pounds per 00 sq. ft. and the control of poa annua was outstanding with only minor damage to e bent.

This was tried on other greens and gave equally good control but these greens re verticut at about the same time of application which resulted in very slow owth of bentgrass for quite a while. Such maintenance practices as verticutting, rifying, etc. should be avoided during this period of slow growth following the raying.

In 1960 the greens were in excellent condition and almost 100% free of poa ıua, so the results justified the effort.

The collars had been mostly poa annua with Cohansey being sprigged into aerifier les. Since the Cohansey was slow to take over calcium arsenate at the rate of 20 ınds in 1958 and 10 pounds in 1959 per 1000 sq. ft. was applied dry to the collars. haps, due to the higher cut and more vigorous growth and salt tolerance of ıansey it was not injured, and the poa annua was eliminated. Factors such as icity in the soil, proper timing, weather conditions and amount to apply govern success or failure of any weed control program. Some people have lost their ens from arsenical damage but others have had marvelous success, so be cautious.

SPRAY COMPATIBILITY - Dr. R. W. Campbell

We all know that it is often desirable to apply an insecticide and a fungicide the same operation and as a means of saving time and labor costs and as a matter convenience.

Compatibility charts classify mixtures of such chemicals into four groups. se are: (1) desirable, where components will control the pest without injury to plant and one chemical may actually benefit and increase the effectiveness of other, (2) usable, in which the chemicals will be just as effective if applied arately but there is no synergistic effect, (3) undesirable mixture, whereby efficiency of one material may be decreased by the other, and (4) incompatible, which case the two materials should not be combined because such mixtures may be rious to the plant and relatively ineffective against the pest. Some factors consider when mixing and applying any material are the season of the year, the

prevailing weather conditions, time of application, soil moisture and temperature. Chemicals should only be mixed just prior to application and not allowed to stand any length of time.

CHANGING TURFGRASS COMMUNITIES - Dr. Eliot C. Roberts

A community or area of grass established from seed or a seed mixture may change over a period of years due to more favorable conditions for a certain grass. A study of this problem involves a knowledge of ecology wherein plants are considered in relation to their environment. Such factors which influence this environment and thus cause changes in the grass community are climate, soil texture, structure, moisture, fertility, and pH, biological organisms, and last but by no means least is man's influence in controlling many of these factors.

Slides were shown illustrating certain things which cause a change in population of grasses such as the effects of clipping, liming, fertilizing, and various combinations of these maintenance practices.

It is interesting to know the reasons for certain weeds and other grasses invading a turf community. For instance a poverty grass such as fescue thrives where fertility is too low for many grasses, and bluegrass is more dense on some soils if limed; whereas, bentgrass may be more dense if not limed.

The advantage of a mixture is in providing a stand which is very stable, yet possesses a certain degree of flexibility whereby it can adjust letting a certain grass be more dominant at times, thus preventing the entrance of weeds if one species of grass is weakened. For the Iowa area, Dr. Roberts recommends a mixture of 50% red fescue, 45% merion bluegrass and 5% astoria bentgrass in the place of 100% seeded grass of one species.

BIRDS vs. SPRAYING - Otto Tiemeier

Some common rules everyone should abide by are (1) proper dosage or quantity insecticide, (2) right material for the pest involved, (3) proper personal safeguard, (4) proper usage in relation to wildlife, and (5) avoid destroying predators of insects.

For many years conservationists have inquired about the possible harmful effects of the widespread application of crop protection chemicals. This has become more concern during the last 15 years due to the increase in usage of agricultural chemicals.

The hazard to wildlife is increasing by the application of stronger rates of more toxic chemicals to insects having a high resistance to pesticides. Most chemicals capable of destroying insects are usually capable of harming other forms of life also, some of which may cause harmful effects not immediately available.

The expanded use of insecticides is expected in the next few years but let's hope that the chemicals become more selective and the people become more careful.

GOLF COURSE DESIGN AND CONSTRUCTION - Panel Discussion

Dr. Marvin Ferguson, Moderator

Green construction received a large portion of the discussion period. Such things as rolls on greens which require hand watering, surface area of the greens, soil mixtures to use were among the main topics discussed.

Dr. Haymaker commented from a golfer's point of view and suggested that a course should begin with a par 5 shot followed by an easy par 3 hole to get the people out of the way of other players. A short par 4 hole is to be discouraged also.

Trees can add both beauty and interest to a course. When using trees to penalize golfers, favor the short shooters because in most cases these are the players which pay the bills. Also avoid monotony and don't have par 3 shots at the same distance.

In considering green size, it was decided that smaller greens placed at strategic positions would be more challenging by favoring not the good putters but those who make accurate approaches. Green size is ever increasing due to the heavier play and a need for more cupping surface. Especially on the municipal courses 7,000 sq. ft. is not too large.

Dr. Ferguson demonstrated a soil profile showing the detailed construction of a green and reported on the laboratory methods now available for evaluating soil mixtures prior to construction.

GOLF COURSE LANDSCAPING - Chet Mendenhall

Every planting should serve one or both of two purposes: (1) beautification and (2) improving the playing quality of the course. If one of these interferes with the other, the number 2 season should receive priority. Well placed trees and groups of trees can change an uninteresting course into a championship layout.

Every superintendent should make an inventory of the trees on the course and if 60% are of any one species, he should change the planting. Select fast growing trees such as Chinese elm and Silver maple for quick effects and plant along with them certain long lived and more permanent trees such as oak, hard maple, honey locust, hackberry, ash, sycamore and linden.

Trees which deserve more attention in your planting are tulip tree, chestnut, oldraintree, ginkgo, and small flowering trees as dogwood and crabapple.

Evergreens are not to be overlooked. Use Norway and Colorado blue spruce, Douglasfir and Canadian hemlock where they can be protected from the heat of the sky.

Trees can serve also to provide privacy, cut down the noise along highways and make narrow entrances to greens if not placed too close to cause root trouble.

SPRING DEAD SPOT OF BERMUDA - Dr. D. F. Wadsworth

This injury is distinguished from other diseases in two ways. Once this dead spot develops, the affected areas appear to be sterile and prevent re-establishment of the grass. And in most cases the spots show up very conspicuously because weeds have invaded instead of the grass coming back.

This problem was first observed in Stillwater, Oklahoma on common bermuda in spring of 1954. It was at this time thought to be a root rot disease. It continued increase in severity and prevalance throughout the southern states until now it considered to be the number one problem in bermuda, especially in Oklahoma.

A complete picture of its distribution is not known but it occurs in Kansas, Nebraska, Missouri, Arkansas, Pennsylvania, and a number of states along the Atlantic seaboard. It is absent in some of the most southern states and seems to increase in severity as you go north. It seems the causal agent has a greater opportunity to work on bermuda in the north due to a longer dormant period, and isn't thought to be just a cold weather organism but the definite cause is still unknown. The reason for the difficulty in isolating the cause is because the damage is already done when the grass begins growth in the spring. If an area is treated, it is necessary to wait until the following spring to observe the results. The causal agent evidently requires two or three years to reproduce itself since it was not observed on U-3 until the third year after planting. There is no recommended control as of yet, but recovery is apparently quite good when treated with Dieldrin and areas previously treated with Dieldrin are not badly infested with spring dead spot. Dieldrin continues to be the most outstanding material in tests so far and also actidione RZ looks promising so both have been applied and results will appear this spring.

EMPLOYEE MOTIVATION - Basil Cole

What motivation does it take to get people to work? This is not purely a

salary factor or how well they like the job. Motivation is made up of a number of things. It starts with the selection of an employee.

An employer should know the job himself and know what type of person it takes to fill the position. You need to know about the employee you hire, his attitude, his needs, and his desires. If you can't see this person working well with other personnel, you'd better be careful.

Orientation is a most important step in breaking in a new worker. Show him the total objective as well as his special duties so he can feel a pride in the overall accomplishments.

Follow the orientation period with a few questions later on. Ask the employee how he is doing and let him know you are interested in him and not just the job he is doing. In a week or two the employee may have a few things to say so give him a chance to say them.

Nothing is more motivating than a challenge and it is the people around you who challenge you to do better.

Salaries should be fair and competitive with other similar jobs. Be sure and inform the employee in the beginning what and when he is to be paid so this matter can be settled and you can then get his attention on the direct duties he is to perform.

Job satisfaction constitutes about the largest part of motivation. This can be improved by the employer in helping him to have pride in his work. So all in all motivation falls right back on the shoulders of the employer. It is largely up to him to get the overall job done the best possible way with the people he has.

BREEDING BERMUDA FOR TURF - Dr. Glenn Burton

There are a terrific number of objectives to be attained in any breeding program. In bermudagrass some of these are resistance to insects, diseases, drouth cold, and still maintain a dense sod, which will prevent the entrance of weeds, stay in a desirable color, and be able to tolerate frequent and close mowing and be capable of quick establishment and fast healing when injured.

In the fairway softness is more important than fineness. A bermuda should be tough enough to support the ball but not necessarily of real fine texture.

Sometimes plants possessing many of these qualities can be found in nature but it is up to the plant breeder to combine these characteristics into one plant without losing other important traits of the grass.

But the job only begins when a new plant is created, especially if it is to be propagated by seed. A grass has to be tested and proven in many areas before it is released. If the new variety is to be propagated by seed, the breeding behavior of the grass is determined. Many desirable characteristics may be lost in the development of a seed parent. And often times a superior plant will give rise to an inferior and a very mixed population.

When people wish to have a grass for their lawn which does not produce a lot of objectionable seed heads, and yet they expect to purchase a cheap source of seed, they begin to overestimate the ability of the plant breeder.

Hybrid grasses present a real problem as far as propagation is concerned. They are naturally triploids and completely sterile so the only alternative is vegetative propagation.

The two main objections to vegetative propagation is special care in merchandising and some people insist on seed anyway.

Isolation and selection of a superior grass out of several hundred is a most difficult endeavor when trying to please everybody and considering all of the requirements mentioned previously. Observations are usually made once a month for a period of 3 years before any conclusions are derived.

Regardless of how good a grass is, it must be sold if it is to make any contribution and as long as it is on the experiment station it is only a curiosity. But when it gets out on the golf course and home lawn does it begin to pay dividends on the investment which went into its creation.

CENTRAL PLAINS TURFGRASS FOUNDATION

KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS

File
Conf. Proceedings
Sir file book's
in my office

March 1, 1961

Dear Members:

It has been a long time since we have experienced such an open and delightful winter. There has been a lot of golf played at Manhattan. We have also had to water the new experimental green a number of times and may have lost some grasses on the pure sand strips.

The new administration in Washington has decreed that construction projects involving federal funds will be expedited, which means the girls dormitories will be built this summer. As we pointed out last fall, the stakes for these buildings extend into our bermudagrass test plots. We are busy salvaging some of these grasses at the present time. We are hoping this will be the last time we have to move because we should have 20 acres of turf plots available if the legislature acts favorably on the request for more land for the experiment station. If you know any of the senators or congressmen, you might drop them a line explaining that this is not new land but replacement for land that was taken by the University for new building sites and athletic fields. Anticipating such favorable action we were able to purchase a 20' x 50' quonset hut from the Winter General Hospital using Central Plains Turfgrass Foundation funds. Total cost will be around $30 for buying the building and moving it to Manhattan (it is piled in your secretary's yard now).

The following pages contain the first half of a summary of the conference, prepared by graduate student John Pair from the tape recordings of the meeting. The summer Field Day will be June 5 at Moila Country Club in St. Joseph, Missouri. I am sure you will look forward to visiting this club and the historical beginning of the Pony Express route to California.

See you in St. Joe.

Ray

Ray A. Keen
Secretary-Treasurer