

der putting green conditions, giving a good comparison of their qualities.

The next 15 plots are devoted to fertilizer experiments on putting green grasses (seeded German mixed bent). Here you can compare the fertilizers such as sewage sludge, poultry manure tankage, sulfate of ammonia, compost and sulfate of ammonia, nitrate of soda, urea, phosphate of ammonia, complete fertilizer 6-12-4, also 12-6-4, lime and sulfate of ammonia, and bone meal. These fertilizer results can be checked against each other and against check plots that received no fertilizer.

Two plots of putting green grass are devoted to arsenate of lead treatment. One plot is poisoned with arsenate before seeding, the other receives none. The purpose of this experiment is to see if arsenate retards weeds and eliminates grub worms, angle worms and ants. The same experiment is worked on two plots of fairway grasses, mostly for grub control.

Three plots of putting green grass and 3 plots of fairway grasses are used for cutting experiments. It is believed that cutting length has much to do with root growth and strength of the plant.

There are 5 trial plots of fairway grass mixtures. This is to determine the best. There is Kentucky blue, redtop and Chewings fescue, Kentucky blue and redtop; Kentucky blue, redtop and German mixed bent; Rhode Island bent, and Chewings fescue; and German mixed bent.

Ten plots are for fertilizer experiments on fairway grasses (Kentucky bluegrass and redtop mixture). The fertilizers used are bone meal, lime, sulfate of ammonia, sewage sludge, manure, complete 6-12-4 and 12-6-4. These fertilizers can be checked against each other and against plots that received no fertilizer.

* * *

Fairway Grasses

By DR. JOHN MONTEITH

FOR FAIRWAY grasses in this section I think you are interested in Kentucky bluegrass. There are three other kinds of bluegrass, Canada blue, rough stalk blue and annual blue which are ordinarily planted in this section of the country. Canada blue is used in Ontario and in the south where the soil is too poor for Kentucky bluegrass. It is not as desirable as the Kentucky bluegrass.

Redtop is also used. Kentucky blue and redtop is a mixture that is most common-

ly preferred on the fairway. Kentucky blue is slow to grow and redtop is a fast grower and a short lived grass so that by the time the redtop is gone the bluegrass has become established. Sometimes Colonial bent is added to redtop. You reduce the amount of redtop and add Colonial bent. Colonial bent is longer lived than redtop, is finer, and remains finer; also has a tendency to give a nice green mat and cover up the bare spaces.

Red fescue and Chewings fescue are important. Where grounds are established they make excellent fairway grasses. They are not as certain as Kentucky bluegrass, exhibiting a tendency to be more choosy of the soil conditions. Fescues are a much safer bet on fairways than on putting greens. There is a great deal of sheep's fescue on the market, but it has a tendency to bunch, and bunch grass has no place on a fairway. It is an excellent grass for the rough but not desirable for fairways.

I have seen some very satisfactory fairways planted with creeping bent. We can see no distinct advantage of creeping bent on fairways over the other grasses. Other grasses tend to grow more upright. If you are cutting real close the creeping bent is the best. There is no advantage for creeping bent except from the standpoint of the nurseryman. There have been other grasses used in mixtures, but in this section of country the Kentucky blue, redtop, Colonial bent, and Chewings fescue are good.

* * *

Trees for Golf Courses

By E. G. CHEYNEY

CERTAINLY there is no place where a tree has any more value aesthetically than on a golf course. People go out to play for pleasure and they want all the pleasure that they can get. A golf links that is artistic is much more enjoyable than an open field. Nothing is thoroughly beautiful if it is not useful.

Trees can be used to define or mark out your fairways. You can put them in pretty close around the tees. They can be planted for protection for the players. Sometimes they can be planted to screen a tee that is exposed to other shots. Make new hazards by planting trees.

There are places where you cannot use anything but low growing shrubs or the Mugo pine. This pine never grows high, and it will make a very beautiful tree,

growing in the form of a ball. Crab apples which maintain a low form and the honey locust are good for this region; they blossom and do not get large. Some trees that attain height but do not spread are the spruce, firs, and tamaracks. Then there are times when you want rapid growth; soft maple, willow, cottonwood and box elder are good for such purposes. Along with these you have the elm and black locust which are very rapid growers and are good and hardy. They grow to a good height.

Then you have a number of long lived, slow growing trees which eventually reach a high size. They are hard maple, sugar maple, oaks, basswood, hackberry, pines, green ash, and black walnut. These are long lived trees.

There are two times in the year when it is best to plant trees, fall and spring. We prefer spring planting. The spring planting season here is from about May 1 to 15. You can begin sooner if you want to, but this is early enough unless you are getting the trees from a southern nursery. The fall planting season can be anytime after the first of September.

The cost of the tree goes up with its size. It is a question of how much money you want to invest and rate of growth wanted. Small trees have a better chance to survive than large trees because they don't get as much of a set back as a large tree. Very often you can get along with the small stock. Watch out for watering in the large stock. If you plant smaller stock you can probably get along without watering it at all. In planting a tree remember that it should grow.

Most evergreens look better when grouped rather than planted singly. Group formation about 6 by 6 feet is a good distance. In setting out trees do not plant any trees in the sod. Don't make a hole in the sod and expect the tree to get along. If you have plenty of water it is all right, but in this part of the country it is not satisfactory as grass takes up a great deal of the water. There should be a space 2 or 3 feet where the grass is taken out before you plant a tree.

Evergreens are much harder to handle than the broad-leaved trees. If roots are exposed to the air for a short time the tree dies. There was an experiment conducted in regard to this and those that were left in the sun one minute were reduced in vitality 60 per cent.

Order early enough before the shipping

season begins in the spring. If your orders come in late they will be hustled out. Get your order placed in February or March; you'll stand a better chance of getting good stock. Do not accept stock that has hot or dry root systems. Stick your hand into the bundle and see if it is damp. It doesn't have to be sopping wet but there is no use planting dead roots. If they are moist so you can feel it, water them so that they won't dry out when exposed to the air. The broad-leaved trees don't need this. They stand a great deal of drouth.

Small size stock requires very much less care than large. If you order stock up to one foot high you will get it packed in moss without dirt. Put it into a bucket with some water, dig your hole and plant your tree. Keep stock in water all the time so that the roots will not dry out. When you plant them, plant them at the same depth as they were in the nursery. If you get anything larger than one foot high it should come bailed with burlap. If you get anything much larger than 3 or 4 feet high the only time you can move them with certainty of success is in the winter time when you can take the frozen ground with the tree.

Where roots are taken out of the ground it means that the trees will have a set back. The first year they will grow roots and do not make much growth on the top.

In trimming trees cut back as close to the main stem as possible. All cuts should be painted to prevent infection.

I never put manure on evergreens because if it comes in contact with the roots it burns them.

Question: Why are the oaks dying?

Answer: The oaks are not dying on account of the drouth. It is caused by a shoestring fungus. It is in the ground almost everywhere and affects the black oak especially. There is no way of stopping it as it is in the roots.

Question: Is there any treatment that you can give the ground after you take the tree out?

Answer: I don't know of any. I would not plant another black oak there or white oak. It won't attack other species.

Question: Is Chinese elm hardy?

Answer: It is hardy around here and seems to be a good tree.

Question: What about the mountain ash, and silver poplar?

Answer: The mountain ash is a good hardy tree. It is a large but slow grow-

er. Silver poplar is a very hardy tree, growing comparatively fast and large.

Question: How large a tree can you transplant?

Answer: I don't think there is any limit, if you want to put the money into it.

Question: Are chestnut trees and Lombardy poplar hardy?

Answer: Chestnut trees are not hardy around here, but the Lombardy poplar is perfectly hardy for about 10 or 15 years.

* * *

Mole and Gopher Control

By H. L. PARTEN

THE MOLE is causing a lot of trouble on golf courses, but it is one of the most easily controlled rodents we have to contend with. (Mr. Parten displayed a trap and stated that it made a difference in the way you set the trap to get the best results.) Poison bait does not affect the mole. With the gas method you sometimes get them and sometimes you don't because the runway closes up. If the mole trap is properly set you will get them everytime. Be sure not to close the runway.

The pocket gopher is closely related to the mole. It is easier to control than the mole. In getting the pocket gopher the trap method is too slow. Cyanide gas works well only about 30 per cent of the time. The gophers smell the gas and push the dirt into the runway between them and the gas.

The following poison will kill pocket gophers:

$\frac{1}{8}$ oz. sodium bicarbonate.

$\frac{1}{8}$ oz. powdered strychnia alkaloid.

$\frac{1}{8}$ oz. saccharin.

This amount will last 2 or 3 years.

This poison is put on pieces of potato cut in slices about $\frac{1}{4}$ in. thick, then you cross slice it. Sprinkle the poison on each piece of potato, not too thick. Two or three little crystals on each piece of potato are enough.

Find the main runway of the gopher by probing with a stiff wire. The main runway can easily be found by observing the shape of the mound. The mounds are of two general types, heart-shaped or straight on one side and curved on the other. These mounds indicate the direction in which the soil was thrown out by the gopher. The main runway is on the

straight side of the mound which shows an indentation. The probing wire should be pushed into the soil 6 to 18 ins. from the mound. The hole made by the probing wire should be enlarged by the sharpened broomstick, using a revolving motion when putting it in. Don't let any light shine in the hole. Drop two or three pieces of poison bait into the hole and close the hole immediately.

Question: Would this work on striped gophers.

Answer: No. Use cyanide gas for controlling them and rats. Put the cyanide gas in a Major duster and you will find it very effective in controlling the striped gophers. Leave the mounds open so that the gas will penetrate through the runway.

Who Hires the Help? Puzzle to Department Heads

GREENKEEPERS and managers are experiencing this year one of their toughest problems by being compelled by members' instructions to hire certain employees. Unemployment has hit some of the members' friends and the members select the golf club as the best port in the storm.

Department heads complain that necessity of operating short-handed this year makes it essential that each man on the payroll be the best one for the job but in some cases they are afraid to go to the mat for this principle because of fear of losing their own jobs to some one who will hire anyone strongly recommended by an officer or influential member.

A FORMER PRO who now has one of the star positions in the golf manufacturing business was telling the other day how he got along so well with his club members that they boosted him into one of the first spots on his climb. He mentioned getting acquainted with the members as the prime necessity for a pro. Club politics always are something to be considered and for that reason he said he started in by making the worst grouches in the club his best friends. This, he maintains, was the toughest job he ever had in his life, for it had to be handled so the rest of the members didn't think he was petting the grouches to the neglect of the other members. He couldn't be so oily and servile to any class of the membership that he became offensive.