CORN GROWING

In Montana

For Juniors

BY

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CORN GROWING IN MONTANA FOR JUNIORS

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Herein We Try to Answer the Corn Questions Juniors Ask

WHY AM I JOINING THE BOYS' AND GIRLS' CORN CLUB?

In order that you may become accustomed to taking up a definite piece of work and completing it with the satisfaction, pleasure, profit, and education which invariably follow a planned job well done. At the time, you are going to be afforded an opportunity of working and co-operating with nature in the field and on the farm. You are gradually going to learn the principles of plant growth and production and by the exercise of good judgment and care make the best use of your soil and climate in growing corn. In that way you should learn some principles of agriculture first hand and through the team work of Club Work learn the foundation for your participation in the game of life either as a better farmer or citizen. Specifically you should learn how to secure better seed corn, which in combination with better methods of cultivation and handling, would mean better yields and larger profits. You should climb one rung closer toward a genuine appreciation of Agriculture and its problems which are ever challenging the best brains of the land for their solution. By doing your own thinking and working in harmony with your fellow club members, you just can't help but become a better citizen and a bigger community worker and builder.

WHY IS THE WORK WITH CORN CONSIDERED WORTH WHILE?

Because corn is not only unquestionably the most important farm crop in the United States but it lends itself admirably to Boys' and Girls' Club Work. King Corn is one of the most interesting monarchs in history. The banners of his victorious army may be seen every growing season in Montana and the advance guard is well into Canada on the way to Alaska. Corn has been largely responsible for the prosperity of the Central States. In Montana, corn cannot be expected to effect miracles but it is a crop which may be profitably grown much to the advantage of the state. As farming grows older,
corn will assume an increasingly important place in Montana agriculture. Varieties will become better adapted to our conditions; we will devise more efficient and effective methods of cultivation and handling and the necessary change from a one-crop to a diversified system will create a greater need for such a fundamental crop as corn.

If you were in a debate, championing the cause of corn in Montana, your arguments could be arranged about the following main points:

1. Corn makes livestock diversification more easily possible and profitable.
2. Corn is very careful and thrifty in the use of water (and remember now that we are in a rather dry region).
3. Corn is a good substitute for summer fallow in furnishing a seed bed for the production of small grains.
4. Corn furnishes a cheap and sure supply of roughage for livestock.
5. Corn from a good year can be stored in silos for use in feeding livestock in a year when the feed supply is short. It makes the farmer more independent of the changeable weather.

WHAT KIND OF CORN SHOULD I PLANT?

In other words, you want to know what is the best seed for you to plant under your conditions and for your purposes. The best is none too good and skimping a few cents on the price of seed is mighty poor business. Grow the finest corn that the climate and soil will permit. But beware of one thing, don't get your sights too high or you won't hit the target. In other words, don't get the notion that you can grow Iowa or Illinois types of corn in Montana because that means that you are trying to fight nature. Nature is a mighty good scout to get along with if you co-operate, but if you start to fight—well, you're licked before you start.

Just remember this. Corn was once at home only in the heat of the tropics and subtropics. Gradually Indian tribes moved it northward. Just as slowly but surely the sensitive corn plant began to

![Figure 1-Digging stick, willow rake, shoulder-blade hoe, deer horn rake and a braid of Indian corn. With modern tools and implements, what an advantage Juniors have over the Indians who cared for corn with tools like these.](image)
adjust itself to its new surroundings. It probably started out as a big, husky twelve footer, carrying ears shoulder high, but the farther north the Indians brought it, the shorter the growing season, the cooler the days and nights became. But the corn plant accommodated itself to each change and one of the most interesting and important facts of history, is the story of Indian Corn grown by tribes occupying the Missouri river bottoms in North Dakota. (Fig. 1.) Using such crude implements as a buffalo shoulder blade hoe, a willow rake and a pointed stick, these agricultural red men were successfully raising corn before the coming of the white men. Lewis and Clark bought loads of corn from the Indians.

But what had become of our twelve foot "Giant Grass" called corn, which started out from the tropics? Would you believe it? The Indian Corn was now only two or three feet high with ears appearing very little if any above the ground. The sensitive and sensible corn plant had not tried to fight nature. Quite the contrary, it proceeded to adjust itself, and the dryer, cooler, and shorter the growing season, the shorter the cornstalk, the more suckers present, the lower and shorter the ears, the shallower, smoother, and flintier the kernel. (Fig. 2.)

Is not that a good object lesson for you corn growers to keep in mind? You, too, must harmonize your ideas about corn types to suit Montana conditions. That's right, lower your sights. Be satisfied to grow a type of corn which has adapted itself to Montana's shortened growing season, cool weather and scarcity of water, by cutting down in height of stalk, number of joints, distance between joints, size of ear, roughness of kernel, etc. (Fig. 3.)

As to the exact variety which you should grow, that will depend a lot on what you intend to do with it. However, we can safely assume that most Juniors are going to grow corn for the ear corn
primarily, which is far from being the case with Dad who usually wants fodder too.

For purposes of study we might classify corn varieties in many ways, but suppose we try to arrange them as simply and practically as possible according to what use is to be made of the corn—according to utilization.

1. For hogging off and a very certain crop of ear corn. The Indians were raising corn for ears too, and they naturally grew the surest type—the low flints. The white man has improved these

flints by selection and we now have two well known varieties, the Gehu and the Dakota White Flint. Both are very early and are high yielders of ear corn. They just naturally fit into our conditions. They are short of stalk; are apt to have a number of suckers; bear small
earls covered with flinty and rounded kernels; are very efficient in
the use of soil moisture and are capable of developing to maturity
within seventy to ninety days, all depending on the season and the
location. They are adapted to harvesting by livestock.

2. For fairly dependable yields of car corn and more fodder. 
Early dent corns can be utilized in this way. These varieties are
not as early as the flints, do not generally produce ears as heavy
nor as surely but the stalks are taller, can be harvested with ma-
cchinery and furnish fairly good fields of fodder. There are several
good varieties which might be recommended and your choice should
be governed somewhat by what varieties are being grown in your
locality. Pioneer and Rustlers White Dent, Brown County Dent, and
Square deal are the more important varieties of this group. They are
not given to much suckering. The ears are short, the stalks are
fine and the kernels shallow and quite rounded. They will mature
in anywhere from eighty to a hundred days. For the more favored

sections of the state, corns listed under paragraph three (3) can be
raised for ear corn as safely as the above varieties are grown in less
favorable locations.

3. For fodder and silage purposes. In raising corn for fodder
or silage, a variety should be grown that will reach the glazing stage
every year and get ripe quite often. It is a mistake to grow a late
(Fig. 4) watery corn which rarely more than attains the milk stage.
The apparently heavy tonnage is mostly water. Would it not be
better to pump the water from the well than haul it in from the
field? Where conditions are as variable as they are in the Treasure
State, it is to be expected that the extreme types of corn which may
be grown will also vary. One must be governed by the local practice
and the results of local experience and local variety tests. The
Silver King is about the latest variety grown successfully in the
state. It is grown largely in Rosebud and Custer Counties. Paynes
White Dent is quite similar in its behavior. Minnesota 13 is a
popular variety which is represented by various early and late
strains. While not as late as Silver King, it is not recommended ex-
cept in the Southeastern portion of the state and a number of other favorable localities scattered over Montana. These two varieties are late and usually require from 110 to 130 days for maturity.

Late flints are noted for their leafiness, fineness of stalks and comparatively high yields of fodder. Varieties such as the Mercer, Triumph and Longfellow are popular where corn is harvested by machinery and threshed with an ordinary grain separator. They are quite late and generally mature only where Minnesota 13 is safe.

For the greater portion of Montana, corn varieties known as the semi-dents are the most dependable producers of roughage. Northwestern Dent and Minnesota 23 are in the lead. Local trials will determine the choice. These varieties are reasonably early and usually mature in less than 100 days.

Whatever variety be grown, it is best to use home grown acclimated seed. Seed corn does not “run out” if properly selected.

1. Secure seed of well selected adapted variety.
2. Make sure that the seed is strong and vigorous.
3. Grade it to secure even planting.

No matter how rich the soil, excellent the seed bed, or thorough the cultivation, if the seed is poor or mediocre, you will almost surely reap what you plant.

HOW SHOULD I TEST MY SEED FOR GERMINATION?

To insure a perfect stand it is necessary that every seed planted should grow. If you follow the instructions outlined regarding seed selection and storing, your seed should germinate well. In any event, however, you should make sure by testing for germination. First make a bulk test by taking five or six kernels from different parts of each of one hundred ears. If your test shows a test of over 95 per cent, an individual ear test would probably not be worth while. If, however, the test be lower than that, make an individual ear test in order that all poor ears may be discarded.

For the bulk test, the kernels may be laid on wet paper or a blotter placed in the bottom of a pie tin. Cover this with an inverted plate and place in a warm place (room temperature). Keep the paper moist and remove the kernels as they sprout. Continue this for one week and calculate your percentage of germination by adding two ciphers to right of number of kernels in the test.

For the individual test, several good methods might be used. The Rag Doll and Sand Box methods are quite popular.

SAND BOX METHOD

Use a box 3 inches by 20 inches by 30 inches which will be large enough for testing one hundred fifty ears. Fill this half full with moist sand. Cover this with a white piece of muslin marked into two inch squares, each of which is numbered. Take six kernels from each ear (two near tip, two in middle, two near butt). Place each set of six kernels in regular order, all tips pointing one way, in a square numbered to agree with the ear. Cover the kernels with another cloth tacking it to the edge of the box. Then again cover with a cloth considerably wider than the box and fill in another layer of moist sand and firm it well. One week at room temperature will be sufficient for the test. Then observe the kernels in each square. Discard ears which show weak or low germination.
THE RAG DOLL METHOD

This is easy to make. (Fig. 5.) Take a piece of muslin ten inches wide and fifty inches long. Better have mother hem the edges. Mark off two rows of ten, block each in the middle of the cloth, making each block three inches square. Number these blocks and moisten the cloth. Place your kernels in the square with tips pointing to the side of the cloth that will be considered the bottom of the completed roll. Turn the edges of the cloth over the kernels and roll the cloth around a stick and tie securely. Place the roll, kernels tips down, in a pail full of water kept at about 70 degrees for six hours. Drain off water, cover the top of pail with a moist cloth. Keep at room temperature for five to eight days before reading test.

HOW SHALL I SELECT AND PREPARE THE LAND FOR MY CORN?

Having secured proper seed, the next thing in order, is to find a suitable home for it. Corn likes a warm soil and if you have a choice, select the sandier types of land in preference to the cooler and heavier soils. A southern slope is also better than a northern exposure. Under irrigation, provide good drainage. For club work, it would be mighty fine to obtain a field near the house where it would be convenient for you to visit the field frequently. Also try to avoid locations where stock will be apt to get into your corn. If you are growing a different variety than your Dad or the nearest neighbor, try to locate your field far enough away so that your corn will not get mixed. Forty to eighty rods is close enough especially if the field is in line with the prevailing winds.

For convenience in handling, the field should be longer than it is wide. For a one-acre plot, ten by sixteen rods is very good. Spring plowed land is probably more practical for use than any other preparation. Before plowing, an even but light application of barnyard manure may be applied with profit. Plow the land to an ordinary depth or a little deeper. Corn will stand it. Work the seed bed early to start and to kill weed growth and to create a nice mellow granular seedbed covered with a loose and open clod mulch. A good seedbed is half the crop. It is the home and boarding house of the corn plant. Prepare the seedbed before planting the corn. The land should be harrowed as soon as possible after plowing. (Fig. 6.)
This will save moisture and will also insure a better surface than would be obtained if the top soil were allowed to dry and harden before cultivation were given.

Before planting it is also usually advisable to further pack and improve the seed bed by cultivating the land with a disk set fairly straight. Use a spike tooth or spring tooth harrow until you have a good firm seed bed covered with a granular cloddy mulch.

**HOW SHALL I PLANT MY CORN?**

Corn planting time must be changed to suit the season but May 5th to May 20th is generally about right. Our corns will stand some frost in the spring and one must take some risk. Find out the average date of the last frost in the spring for your section and observe when farmers are planting. Too early planting in cold soil with a great deal of danger from frost is not recommended.

Corn may be planted in several ways; namely by drilling, check- rowing or listing. (Fig. 7.) Juniors will find it easier to keep the fields free from weeds if cultivation be given both ways. Checkrowing is therefore preferred. Two or three kernels in hills 12 inches apart give a sufficient stand. At this rate, one bushel of corn will plant seven to nine acres. Five quarts will plant one acre. If corn is planted in drills, the kernels should be spaced 12 to 15 inches apart. Planting may be done with a regular planter, a grain drill or a hand planter.

The depth of planting will vary with the conditions. In a wet, cool season, shallow planting is advisable. If your soil is light or the spring quite warm and dry, deeper planting is desirable. A good rule is to plant deep enough to get the seed into wet soil without putting it into soil that is too cold for good germination. From one to two inches is good. Deeper planting is only occasionally advisable.
TELL ME ABOUT CORN CULTIVATION

We should not cultivate by any blind “cook book” rule. There is a vast difference between Cultivation as a Habit and Cultivation for a Purpose. It is best to know why we cultivate and then use our common sense and good judgment in deciding when and how it should be done. Here are 

FIVE GOOD REASONS FOR CORN CULTIVATION

1. To get rid of weeds.
2. To save and store moisture.

Figure 7—Weeds grow in the row when corn is drilled. Check-rowing with cross cultivation means clean corn land.

Figure 8—The club member who tries to grow both weeds and corn usually harvests weeds.
A LESSON IN INTERTILLAGE

(For Average Soils)

"Excavation" Cultivation

Deep Cultivation with Narrow Shovels

1. Does not effectively kill weeds
2. Cuts the roots of the corn plant
3. Creates a rough uneven surface
4. Induces unnecessary loss of moisture

Shallow Cultivation with "Duck Feet"

1. Eliminates the weeds
2. Does not disturb the corn roots
3. Maintains an even "clod" mulch
4. Conserves moisture efficiently
3. To keep the soil mellow.
4. To warm the soil and hasten growth.
5. To aerate the soil and increase the amount of available plant food in the soil.

Now notice, we place the control of weeds first because corn cultivation is largely a war on weeds. An Indiana farmer put it about right when he said, "There ain't but one principle ter foller in corn cultivatin' and that is ter kill the pesky weeds when they're young." Just remember that it is the early work that chases weeds.

Cultivation is expensive and we should accomplish the objects of cultivation with as little expense as possible. It is for this reason that harrowing of corn land is recommended. Lots of ground can be covered and yet the weeds are killed before they become large enough to do much damage. Heed these

**HARROWING HINTS**

1. Thorough and early harrowing is the most effective and economical method of getting the drop on the enemy—weeds.
2. Harrowing warms up the soil and induces quick corn growth.
3. Harrow once or twice before the corn comes up, to break the crust and to kill weeds.
4. Do not harrow when corn is shooting through the surface. Better wait until the plants are 2 to 3 inches tall.
5. Keep your eyes open and your judgment working while harrowing corn.
6. Do not harrow standing corn in the early forenoon while the corn is tender and easily injured.
7. Do not use the harrow too much on light soils which have a tendency to drift and blow.

If the harrowing has been done properly and at the right times, the battle is usually half won. Thereafter one should cultivate to keep the field clean and free from weeds; to restore and maintain the loose cloddy mulch and to prevent moisture from circulating away through deep cracks. Study the diagram (Fig. 9) "A Lesson in Intertillage" and note especially that "cultivation" and not "excavation" is desirable. You will find the "duckfoot" shovel to be very effective in weed control, in the creation and maintenance of the clod mulch with a minimum amount of injury to the corn plant by root pruning. (Fig. 10.) Duckfoot shovels may be purchased for any standard make of cultivator.

Disk cultivators are not recommended except on land that is soddy, full of "nigger wool" or infested with wild morning glory.

A homemade cultivator may be constructed from a mower wheel to which mower guards have been bolted. This is used either for
Figure 11—Mower-wheel cultivators at work. The team is hitched together in the regular way, but the mowers wheels are not fastened together. The projecting guards surface-cultivate the soil and the rim of the mower wheel cuts or pulls out small weeds. The rope is for lifting the wheel and freeing it from trash.

"blind" cultivation before the corn is up or when the plants are too tall for the ordinary riding cultivator. One can drive two horses pulling one wheel each, taking two rows at a time. (Fig. 11.)

In using any of these cultivators, it might be well to study and obey the

**TEN CULTIVATION COMMANDMENTS**

1. Thou shalt use such shovels on thy cultivator as will prevent thy foes—the weeds—from slipping by as hair through a comb.

2. Thou shalt cultivate deeply only before the roots of thy corn plants develop near the surface between the rows.

3. Thou shalt adjust the shovels to enter the ground evenly and at such an angle as will protect thy corn plants from being covered by soil.

4. Thou shalt not cultivate deeply on average soils during the remainder of the season, lest moisture be lost and a new crop of weed seeds be turned up to plague thee.

5. Thou shalt desist from the cultivation that pruneth the roots of thy corn plants.
6. Thou shalt honor the duckfoot type of shovel that maintaineth the granular clod mulch and wreaketh destruction and death unto weeds.

7. Thou shalt not stir the soil deeply needlessly.

8. Thou shalt provide air and moisture for the bacteria of the soil that they may multiply and provide “soil soup” for the corn plants.

9. Thou shalt strive to maintain thy corn land level like unto a floor.

10. Thou shalt not ridge or hill thy corn at the last cultivation for it availeth nothing and may do harm.

Even with the most careful methods of cultivation, you will be very apt to find some Russian thistles, volunteer grain, etc., in the corn row or close to the hills. (Fig. 13.) You would be surprised how quickly these “strays” may be rounded up by walking up and down the rows and using a sharp hoe. It will pay in returns as well as satisfaction.

WHAT ENEMIES HAS CORN AND HOW CAN I CONTROL THEM?

One must ever be alert and on the lookout for diseases and pests that may injure or destroy the corn crop. In Montana, the enemies of corn are relatively few. The more important will be briefly discussed.

Gophers: Gophers often follow up the planter marks and dig up the corn, causing uneven and poor stands. They continue their work of destruction during the season. Harrowing will destroy the planter marks and the use of poisoned oats is recommended for the most efficient extermination of the gopher.

Grasshoppers: You are probably quite familiar with this insect and the methods employed for control. For detailed information as to the preparation and distribution of the poisoned bran mash, get in touch with your county agent or the entomologist at the State College, Bozeman.

Figure 13—Get after the weeds in the hill with a hoe before they become as large as this.
Worms: The cut worm and the wireworm often destroy considerable of the corn crop. Crop rotation is about all that can be done to affect the wireworm, which is a dark brown or black fellow about two inches long and covered with a hard shiny coat. The army cut worm which feeds on the succulent leaves of the young plant can be controlled by the spreading of poisoned bran mash. The pale western cut worm operates under ground and effective methods of control are being worked out with difficulty.

Smut: The most common disease of corn is smut. This is a fungus parasite which appears as black masses on ears, tassels, stalks, and leaves. Rotation of crops and the removal and burning of the smut masses from the green corn will eliminate most of the damage from this source.

HOW SHALL I HARVEST AND DISPOSE OF THE CORN CROP?

On the average Montana farm, corn will be harvested either with hogs or sheep or with knives, sled harvesters or binders. The early flints are adapted to hogging or sheeping off.

If man is to do the harvesting, the choice lies between (1) husking from the standing stalks; (2) cutting and shocking in the field and later husking, shredding, stacking or feeding in the bundle; (3) cutting before maturity and putting it in a pit, trench or upright silo. In Montana our types of corn are not suited to “Cornbelt” methods of harvesting. Labor is also scarce and expensive. Montana corns are apt to be small eared, short stalked, fine and leafy. The crop will therefore generally be harvested with livestock or with a machine adapted to our types of corn. An ordinary grain binder can be used but it is rather unsatisfactory. Homemade sled-cutters are also employed. They require considerable labor and are somewhat dangerous. Corn binders of the low-corn type are being used more and more as corn growing increases in acreage and importance. This type of corn binder is equipped with extra drag-chains or some similar device, in order that the low corn plants may be harvested properly.

CROSS SECTION OF CORN FODDER STACK.

---DIAGRAMMATIC---

Figure 14—This gives one an idea of the proper way to stack corn fodder so that it will keep well.
If the corn is not put into a silo immediately after harvesting, it is generally allowed to cure in the shock. Later it is hauled in and either threshed through a grain separator or stacked ready for winter feeding. Montana fine-stalked corns are adapted to threshing. The corn should be dry and it might be well to thresh oats or run straw through the separator at the same time.

In stacking corn fodder, the stacks should be tall and narrow, not over 10 feet wide. (Fig. 14.) Layers of straw about 4 inches thick will help to absorb excess moisture and thus prevent spoilage losses.

TELL ME ABOUT THE SELECTION OF SEED CORN.

One should save sufficient seed corn in September for two years in advance because:

1. It is the most certain means of improving corn and adapting it to the needs of your farm and community.
2. A seed corn shortage in any year is mighty serious—really an agricultural calamity.
3. The sooner we depend on home grown seed corn—the better.
4. Yields of corn may be increased at slight expense by proper and careful field selection of seed corn.
5. Losses resulting from poor stands and puny plants may be largely prevented by proper selection of seed corn.

It is mighty important that seed be selected from the standing stalks in the field before killing frost. The germ—the living part of the kernel—is very delicate. Freezing of the germ while it is moist, will destroy or seriously lower its vitality. An experiment station test showed that seed corn which had been field-selected before frost germinated 93 per cent while that picked after frost failed to show over 60 per cent. Selection in the field also enables one to eliminate immature and undesirable types of plants. Continued selection from year to year will work wonders in improving the type of corn.
Seed corn should be selected a week or ten days before the average date of the first killing frost in the fall or sometimes early in September at most Montana points. (Fig. 15.) Tie a sack across your shoulder and walk through the field taking two rows at a time, selecting the best matured ears from vigorous well rooted plants. Do not select for anything too extreme. Observe the average type in the field and do not make your selections too far from this average. Select the right kind of ear from strong vigorous plants. Avoid coarse or extra long shanks.

![Figure 16—the “Corn Tree.” Note the stove furnishing artificial heat for drying.](image)

**HOW SHOULD SEED CORN BE CURED AND STORED?**

Seed corn should be dried and stored properly. The freshly picked seed corn should not be left in piles to heat and mold. It should be cared for at once and stored under shelter and in the shade, where there is a free circulation of air. Every precaution should be taken to insure the seed corn from freezing or overheating before it has become thoroughly dry. Good places to dry and store corn are attics, kitchens, spare rooms, machine sheds, farm shops, or a regular kiln drier. Any dry, sheltered and well ventilated place will do. But avoid such places as the roof, under the eaves, the granary, cellar, porch, windmill, barn or similar damp, unsheltered or poorly ventilated location.
Handy devices make curing easier. Any method that permits free circulation of the air around each ear is satisfactory. Several methods have been devised and are in general use.

**The Corn Tree** can be made rather quickly and at slight expense. (Fig. 16.) It consists of a 4x4 about 6 feet long, either suspended from the ceiling or standing on a wide plank base. Drive one row of ten-cent finishing nails on each side of the tree at three inch intervals. The nails should be driven slightly downward to keep the ears from falling off. The butts of the ears are jabbed onto the nails. The capacity of the tree can be doubled by planing off the corners and adding extra rows of nails.

**The Double String Method** is quite popular. Take about twenty feet of twine, tying the ends forming a loop ten feet long. (Fig. 17.) Hold one end in each hand, making the right end a trifle the longer. Lay the first ear on the bottom of the loop. Then weave the right hand over the left and the left hand between the opposite string. Reverse No. 2 ear, butt and tip, when placing above No. 1. Continue this process until the string is full. Then pass right string through left and hang up by the loop thus made.
Other Methods are the Lath and Woven Wire racks as shown in the accompanying illustrations. (Fig. 18.) These are very convenient and permanent. (Fig. 19.)

After the corn has been thoroughly dried, it will not be injured by extreme cold, if kept in a dry place. If allowed to reabsorb moisture, hard freezing is very apt to weaken or kill the germs. Seed corn should be protected from injury by mice by poisons or by making the room or the curing devices mouse proof.

CAN YOU TELL ME ABOUT SEED CORN MARKETING?

In the marketing of seed, one should strive to establish and maintain a reputation for high quality seed and honest, fair and courteous dealing. The seed should have been handled in the manner and be up to the standard which you advertise. Good marketable seed corn should have been selected from the standing stalks in the field before killing frost; should have been properly cured, stored, shelled, tested and graded. The seed should be put up in new bags which should be sewed or at least neatly tied in two places. In too many instances, seed corn growers do not conduct their correspondence or transactions in a business like manner. They do not promptly acknowledge inquiries or remittances nor do they notify the buyer when seed is shipped. Seed is too often shipped in old, patched, unattractive bags.
It pays in dollars and cents to be businesslike. As a Junior seed corn grower, it would help to instill business methods as a matter of second nature in your makeup, if you begin to practice those principles now. Be prompt, courteous and honest in your dealings with seed companies or individual purchasers. Establish and maintain your Seed Corn Reputation.
GIVE ME SOME IDEAS ABOUT CORN EXHIBITING AND JUDGING.

Every corn grower should do his bit in creating interest in corn growing and improvement by exhibiting at shows and fairs. One will be well repaid in experience gained even though the prize is not captured. It is much more difficult to select and prepare a winning ten ear exhibit than it is to pick good seed corn. The exhibit must be quite uniform and attractive in addition to meeting the requirements for good seed corn. Now do not get the idea that corn prizes are won on good looks alone. (Fig. 20.) The modern corn show is becoming more practical every year. Fancy but unimportant points do not receive as much consideration as they have in the past.

Go through the field or bin and select a large number of ears which on casual observation appear to meet your ideas as to the proper type. Then by a closer inspection of these ears, the selection may be narrowed down to the ten typelest and most uniform ears for entry at the show.

It is not to be expected that a mere inspection of an exhibit of corn can be considered an infallible method of determining its value in the field and corn exhibiting and judging is far from being an exact science. Much depends on individual ability and judgment. However, we must have some fairly definite guide to go by. This is sometimes referred to as a score card but it is in reality a standard of perfection which the exhibitor tries to keep in mind in selecting his corn sample for entry. Four main questions should be asked in the selection or judging of a ten ear corn exhibit.

1. Will it grow?
2. Will it mature?
3. Is it improved?
4. Is it fancy looking?

To answer these questions as accurately as is possible by mere inspection, is the difficult job of the corn show judge. Let us now briefly consider the points which must be considered in answering these four questions.

1. Will it Grow?

Has the ear strength and vitality? Will the kernels germinate strongly and produce healthy, husky plants? The only sure method of finding out is to plant it or make a germination test, but a pretty good idea may be gathered by observation. First examine the germ, for the germ is a small corn plant waiting for proper conditions to germinate and develop further. Outwardly the germ should look plump, bright, cream colored and waxylike and not blistered, shriveled, brittle nor mouldy.

The kernels should be bright and clear in color. Chalkiness and a dull dead color indicate lack of life. The only discoloration not indicating poor condition, is the normal black spot under the tip cap. Also look out for kernels injured by mice or insects.

2. Will it Mature?

Will the ears mature eight seasons out of ten in the locality from which they are entered? Is it a safe corn for the average conditions or has the grower raised his sights too high? Every effort should be made to overcome the all too common tendency of attempting to grow a type of corn which is too large and too late for the conditions. One must consider the maturity of the sample itself, the size of the ear, roughness of dent, starchiness of kernel and depth of kernel.

Exhibitors are too often inclined to bring in the largest ears which are generally too late for average seasons. One cannot lay down any definite rule as to size as this will vary with the location and variety. Select a size which you find can be matured in most seasons under your conditions. Adapted types for Montana are apt to be rather
longer in comparison to circumference than the corn belt types. The ears are also apt to taper a little more.

Roughness of dent, deep kernels and lateness generally go together. One would naturally reason that rough and deep kerneled ears would yield more corn per acre but careful tests under conditions such as exist in Montana, have proved that the smoother dented and shallower kerneled types are higher and safer in yielding power. The ears making up the exhibit should show maturity by their plump well developed kernels set firmly on a rigid cob. If the ear be twisted, it should give an impression of firmness and solidity. Kernels should shell off clean without a trace of chaffiness.

3. Is it Improved?

Can the sample be relied upon to reproduce itself? Does the type indicate that the grower has had a definite ideal in mind toward which he has consistently selected? Is it pure as to variety? Is this corn what you might term well bred?

Uniformity of color in kernel and cob, in width, thickness, depth and shape of kernel; indenting of kernel; in arrangement and spacing of rows and in the size and shape of the ear as a whole, all are good indicators of the purity of breeding.

Varieties have definite characteristics and samples showing deviations from this type should be scored down accordingly.

4. Is it Fancy Looking?

Formerly “fancy points” were very important at corn shows. It has been found however, that there is not much relation between fancy looking corn and yield and judges give them very much less weight. Some of these points are more important than others. Now, shape of kernel for instance will vary with the variety but for Montana dents, a moderately deep kernel of keystone or slightly wedge shape is preferred. Such kernels fit onto the cob nicely. Very little relationship exists between straightness of rows and yield but in a show, it is a point to be considered, all other factors being equal. Well filled butts and tips used to be stressed but from the practical standpoint, it is not worthy of consideration. In a show, it is but right that some credit be given to the fancy looking display when samples are equal in other respects. Undue coarseness in the shank scar or hollowness of cob are objectionable.

In selecting ears for exhibit, the grower may remove two adjacent kernels about one-third of the length from the butt. Other missing kernels will be considered just cause for a lower scoring.

In packing samples, it is well to number the ears in the order in which they should be displayed from left to right. Each ear should be packed in paper and wrapped securely.

HAS THE CORN CLUB PAID?

The farmer produces corn to make money and he wants the corn project on his farm to pay. One cannot tell, however, whether one is the gainer or loser unless accurate and dependable records have been kept. It is exceedingly important that the farmer “keep books” in order that he may eliminate the non-paying propositions and devote his time and energy to the things which pay out best. So also, Junior Corn Club members should keep a complete record of time and money spent and of total income received in connection with the corn club work. Know where you stand financially. Then on Achievement Day—the culminating event of the year—consider the other benefits you have received in remaining in the work to the end, finishing what you started to do, and profiting from the numerous lessons learned.

ACKNOWLEDGMENT. Very free use has been made throughout this Junior Corn Circular of photographs and subject matter heretofore appearing in Montana Experiment Station bulletins and circulars compiled by Alfred Atkinson and M. L. Wilson.
Store-house in which reserve plant-food is found

Factory where plant-food is made into plant-tissue

Transportation system by which plant-food is carried

Mine from which all plant-food except carbon is obtained

Figure 21.—Diagram of corn showing function of roots, stem and leaves.