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Chapter on Out-Worms and Grubs.

In our own personal experience we never had much trouble with cut-worms. But that experience, such as it was, and observation of other farmers' experience taught us to believe that an extra allowance of seed is a good thing in case of corn. Birds and insects, drouth, rains, imperfect seed, etc., may be provided for largely in the seeding, and it is better to lose a little seed than a great deal of growing corn that we cannot well spare. A farmer of long experience is furnishing a series of articles that are published in the *Ohio Farmer*. His last was on cut-worms and grubs, and we give it entire to our readers because of the suggestions it contains. It is as follows:

There is an insect which from its small size when young, and abundant food, attracts but little attention among farmers. But when the larvæ attain a larger growth, over an inch in length, greasy looking, and in somber garb of gray, brown, or striped with light and dark, depending on the species, come forth to nip our crops and blast our hopes, then we realize that we have an enemy of some magnitude. They are called cut-worms, being so named from their prodigal habits of cutting off plants, and are not confined in their operations to a single staple, for nearly all our cereals, grasses, and especially our corn crops, are attacked by them. They appear to rejoice in rioting and wantonness, not taking their fill from a single plant, simply cutting the plant asunder, thus ruining every plant they attack. In England they are called surface caterpillars, from their habit of lying concealed by day just beneath the earth's surface. There they are dreaded from their effects upon pastures and meadows; as the loss of a third of a crop is ruinous; here it is common and hardly causes comment.

It is upon our young corn crop, strawberry plants and garden vegetables that we feel their effects most. The Indians of America found in them a foe fully as persistent, if not as formidable, as the white man, as they frequently found their plants of young corn wholly ruined by them, and then the squaws would say, "White man sent his worms to starve poor red man," spurring the "braves" to continuous acts of warfare.

The family of cut worms is a large one, embracing many destructive species, such as the greasy cut-worm, the striped cut-worm, the checkered rustic and the glossy cut-worm, as the more common and injurious. I use only the common names in use among farmers, discarding the scientific terms of entomologists.

There is another class called climbing cut-worms, from their habit of ascending fruit trees at night and committing great havoc among the expanding buds and foliage. Among the climbers are the variegated cut-worm, often found on the twigs of the apple, cherry and peach; the dark-sided cut-worm; the climbing cut-worm, which is a very active climber, and does a great deal of injury to fruit trees; and the marked cut-worm, which has also been found feeding on apple buds, although it more frequently attacks low bushes, such as currants and gooseberries.

I shall not occupy space in describing the appearance of the larvæ and moths, or to give the natural history and habits of these various species, as farmers and gardeners are more interested in learning how to overcome them and the best remedies to use in exterminating them.

I shall class the May beetle with cut-

worms, as its habits are similar and the remedy about the same. It is hardly necessary to give a description of the white grub all farmers are so well acquainted with; suffice it to say that this destroyer of our meadows and strawberry plants is the progeny of the brown and plump beetles we see in early twilight during May and June, often thumping against our windows, and should a door be ajar they will enter our rooms to be felled by bumping against the walls; hence the name door-beetle given by some, and the expression "beetle-headed", and "blind as a beetle." The female deposits her eggs, to the number of fifty or more, in the ground near the roots of grass or other plants, the natural food of her progeny. The white wrinkled grub, with a brown head, feeds on the roots of grass, wheat, corn, and other plants for three years, when it becomes full grown, having attained one and a half inches in length. In the third autumn it forms a cocoon of earth, in which it pupates, and comes forth the next May or June as a beetle to prepare for another brood to work mischief under ground. In some localities they are becoming very destructive, being considered the farmer's worst insect pest. In old meadows where the grass begins to turn yellow and die, it is good evidence that the white grubs are doing the injury by cutting off the roots of the grass. This can easily be determined, as the grass, now rootless, will yield freely to the hand or rake, and the turf removed, exposing to view the sleek, fat gormands that have done the damage.

A field thus affected had better be turned over to the swine, and the more the swine the better, and it may be just as profitable—this state of facts existing—to turn the grass into pork indirectly through the white grub, as to change it directly into mutton or beef; besides we are thus destroying a grievous and dangerous pest.

Every farmer and every man who was raised on a farm knows how fond certain birds are of those white grubs; even the despised crow, if he can find a meadow where they exist, will not be found pulling up corn. I have in a former article advised farmers to enter into a partnership with all insectivorous birds, and as I am now to suggest a remedy for cut-worms, I am fully persuaded that there is no more sure way to ward them off than to have, as your partners, a goodly number of such birds on your premises. You need not be alarmed about having too many—the more the better for us all. The principal cause of the rapid increase of insects, is the decrease in numbers of our insectivorous birds. They are our most reliable insecticide. Encourage by all means possible their increase.

Having formed the partnership, let it be the duty of the party of the first part to plow the land early in the fall, especially any meadows to be used for crops the next season, that the bluebirds, robins, larks and blackbirds may have a feast of fat things, before leaving for their southern winter home. And, by the way, our brother farmers in the southern States should protect all such birds with a jealous care, as it is to their benefit to do so, as well as ours here in the North. And again this fall, plowing will give that valuable feathered friend of the farmer—the quail—a chance to assist the other birds, and by so doing put on flesh to aid them in enduring the severe cold of our long winters.

Deep harrowing will aid the party of the

second part very materially, while a repetition of the same as early in the spring as the season will permit, will give our partners another supply of food, just at a time when they are much put to it to gain sufficient food to sustain life, and with this opportunity will become great aids in cut-worm destruction. Men who are good authority tell us that from this cause, and not freezing of larvæ, is the fact that fall plowing is beneficial, as they say that unprotected larvæ can survive a temperature of thirty degrees below zero.

It is very difficult to apply any prepared poison for cut-worms, as an effective remedy, but killing them wherever found in our corn hills, may help somewhat. The plow, cultivator and harrow will expose many of them, and birds, if protected, will render great aid in their destruction. A flock of quail, or several of them on a farm, are especially valuable for this purpose, and I repeat that killing them should be made a crime punishable by imprisonment.

Some plant more seed than is necessary for the purpose of having enough left should the worms take a portion of the young sections, and then thin out after the stalks have grown beyond the reach of the worms.

When in southern Tennessee, soon after the close of the war, I saw an old negro dropping corn, and his song, which he repeated at nearly every hill, was in accord with this principle, and somewhat philosophical. I desire to add, that in my opinion, the blackbird and the crow had earned their two grains, and had a right to take them if they were in need. His song ran in this way, as he dropped two grains at a time, suiting the action to the words—"Dar's two for de blackbird, and dar's two for de crow; dar's two for de cut-worm, and dar's two for to grow." They only raise two stalks to the hill in that locality.

It not unfrequently happens that young, freshly planted trees are killed by climbing cut-worms, and the mischief is attributed to other agencies. They are especially fond of the pear, apple and grape, but attack the raspberry, currant, and other trees and plants. Dwarf pear trees seem to be particularly subject to their depredations.

The Cabbage Fly.

Various means have been suggested for controlling the depredations of the cabbage fly. Bouche, the original describer of the fly says the plants may be preserved by dipping the roots, when they are transplanted from the seed-beds, into oil or lye of ashes. Powdered tobacco, or the fine dust from tobacco factories, scattered over the plants, will preserve them from attack. The use of super-phosphate of lime has been advised, as a preventive against the deposit of the eggs. If cabbages are not grown upon the same ground for successive years, and the ground, meantime, thoroughly cultivated with some other crop, the insect will be materially reduced in numbers. In some experiments at the Michigan State Agricultural College a strong decoction of tobacco was freely applied to the plants, but without appreciable benefit. Prof. J. A. Lintner writes upon the subject as follows: "When the attack of larvæ has reached that stage of progress that the plants unmistakably show it by wilting and the leaves turning to a faint lead color, all such should be promptly taken up, and the hole left should be filled with strong brine of lye to destroy any of the lar-

væ which might remain in the soil. This last precaution would be unnecessary, if the plants be carefully lifted by means of a broad-bladed knife. The accompanying ground with the plant should be thrown in a deep hole made for the purpose, and covered with solidly packed earth, through which the flies, if any of the buried larvæ should attain this stage, could not penetrate to the surface. Watering the plants with lime water has been found to be of service in killing the larvæ." Prof. A. J. Cook has recently recommended the following method for the destruction of the larvæ: Bisulphide of carbon is used. To apply it, a small hole four inches deep is made in the earth near the main root of the plant by use of a walking stick or other rod, and about one-half a teaspoonful of the liquid poured in, when the hole is quickly filled with earth, and pressed down by the foot. In every case, the insects were killed without injury to the plants. While Prof. Cook, as the result of recent experiments, believes carbolic acid to be preferable to bisulphide of carbon for the protection of radishes, he is still of the opinion that the latter material is the most reliable in contending with the cabbage fly.—*Ex.*

Steel Horse Collar.

A steel horse collar has been invented. We find a drawing and description of it in the *Scientific American*. It is provided with a hinge at the top and a spring latch at the bottom, which instantly locks the collar on the horse when the sides are pressed together. The rapidity with which this collar can be securely fastened has recommended its use in a great many fire departments throughout the country, and praise in its favor has been general. The collar is strong, light, and durable, and presents a very neat appearance, being made of steel, and as no hames are used, the weight on the animal's neck is much reduced, and the liability of sore necks lessened. It has a uniformly smooth surface, and always keeps its perfect shape. It being a good conductor of heat, scalding of the skin of the animal is obviated. The collar and pad are covered with zinc, which has a healing effect, and it is claimed that sore necks and shoulders can be healed under this collar while the animal is continually at work.

This collar is well adapted for the use of canal men and farmers. The draught on a tow line or plow team being continuous generates excessive heat on the animal's shoulder, which soon produces sores. The same collar can be fitted to horses with necks of different sizes and shape, as each collar is adjustable at the top and bottom. Pressure upon the windpipe and the possibility of choking are prevented by the shape of the collar at the bottom. This collar has been thoroughly tested in extreme hot and cold wet weather, and for light and heavy draught, and it has given good results and is highly spoken of by those using them.

"Is this beautiful little girl your grandchild, Mrs. Yerger?" asked that demented creature, Gilhooly. Exasperated, and stung to the quick at not being taken for the child's mother, Mrs. Yerger unthinkingly retorted: "Is that child large enough already to be taken for a grandchild?"

A little four-year-old said to his mother last week: "Mother, I believe God thinks I am dead." "Why?" asked the mother, somewhat astonished at the remark. "Cause I haven't said my prayers for a week."

THE KANSAS FARMER

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- J. W. Arnold..... Breeder's card.
- N. E. Paint & Oil Co... Roofing Paint.
- C. S. Elcholtz..... Breeder's card.

Kansas stood first on the list last year for average yield of corn per acre.

The company that advertised Rex Magnus is reported to us insolvent.

Although this is the 28th day of May, we have had no really warm weather.

This will not be a good year for chinch bugs. It starts out too cold and wet for them.

Next week the Republican National convention meets to place in nomination candidates for President and Vice President.

Reports from different parts of the State show wheat in excellent condition and corn a little backward on account of the late, cold spring weather.

Are the seasons really changing? Or are the differences we observe in climatic conditions here in Kansas traceable to our work in plowing and planting?

There is no better way to provide against drouth than by deep plowing unless it be the collection of water in large reservoirs from which it may be run over the land as needed.

Potatoes are good winter feed for cows and hogs. Milch cows are much benefited by eating potatoes, both in flesh and milk. Cut up small and fed with grain or meal they are much relished by cows. For hogs they are better boiled.

Deep plowing and shallow cultivation for corn. The first working, if done with small teeth or hoes, may be deep if the ground was plowed in the fall, or very early spring and has been hardened with rain. After that let the working be shallow.

Mr. Jacob Nixon, Cowley county, writes us that peach trees are overloaded with fruit. Apples full. Small fruits ditto. Peas, a very few left from May 3rd freeze. Early planted corn, not a very good stand. Farmers busy plowing corn, tame grasses doing well.

It is time now to prepare late potato ground. Plow deep, manure well and keep clean. It is better to spread manure on the ground thickly, then plow under and let lie a few weeks. Then cross plow shallow. Use large potatoes and healthy. Cut to one or two eyes in large pieces.

What Farmers Must Do.

When it is said that the farmer has advantages not enjoyed by persons in any other vocation, a simple fact is stated. It is the primitive employment of man, and is therefore of the first importance. Everything else is secondary and in some way an outgrowth of agriculture, or a dependency, auxiliary or servant.

But agriculture, like other callings, long ago moved away from its original simplicity. In the last one hundred years, farmers have grown in productive powers very fast, and in the last half of that period, their progress has been wonderful. Out of this growth has come a development that is marvelous when we consider all its bearings. Fifty years ago it was not an uncommon sight to see fifteen to twenty persons at work in one field cutting, binding and shocking wheat. One man now with a self-binder will cut and bind as much as a dozen did then with the cradles and sickles and rakes of the olden time. This is one instance only. Improvement and change has been as marked in many other matters. We now plow by steam. Two men will plow twenty acres in one day.

Out of this expansion of power among farmers has come an expansion of territory occupied by farmers and a vast increase in the amount of their productions. While the number of farmers as compared with numbers engaged in all other vocations, is not as great now as it was a hundred years ago, still we have more of them and the work they do is vastly greater than ever before.

But other callings show still greater improvement than do the farmers. Take manufactures. It is only about forty years since Americans were able to make their own musline and calico. When George Washington was President, we had no woolen mills, no foundries or machine shops. Railroads came after Jackson's time, telegraphs in Buchanan's, and now we can talk on a wire two hundred miles long. In 1775 there were only 37 newspapers in the country; in 1790 the entire length of all our mail routes was no longer than from Boston to Denver. It would require two freight trains of 13 cars each allowing 10 tons to every car, to carry all of the average daily number of newspapers printed in the United States, and upwards of sixty thousand persons are required to handle the people's mails.

These are some of the evidences of progress in other directions. Men have gone out into almost numberless ways of living, and they all live off of what springs forth from the earth. While all this has been going on, relations in a thousand ways have changed. Values of things are not now as they once were. A bushel of wheat and a yard of calico were about equal in parts of this country sixty years ago. In those same places land is now rating at one hundred to two hundred dollars per acre. Coming home to Kansas we have lands rating from \$2.50 to \$150 per acre, and Kansas was organized as a Territory only thirty years ago.

With land held at five dollars or less per acre men live cheaply. Their conveniences and comforts are few, though the gifts of nature are profuse. We cannot long remain monarchs of large areas. Settlement comes, and with it numerous social necessities. School houses and reaping machines cost money; so do bridges and post offices and blacksmith shops.

Out of all these things come local and personal necessities. If a traveler would reach his destination on time he must not jump off the train. If the farmer would keep up with the general progress he must improve his methods.

He must abandon crops that do not pay and he must raise them that do pay. When wheat drops permanently to prices that only under paid labor can produce it and save money for the landlord, then the thrifty farmer must drop wheat, except for family use, and raise something with money in it. If there is more profit in poultry than in peaches, then poultry is the better crop. If corn pays better in beef, or pork or butter than it does in cribs, then put it into the better paying articles. If it is more profitable to keep one good cow than three inferior ones, that is the kind to keep. If apples pay better than beans, then raise apples. In short, do that which is most profitable.

As settlement advances and social comforts increase, the market value of our lands and appurtenances increase also, and we cannot help it. We grow richer in spite of ourselves, provided, however, that we keep up with the procession. If we lag, we fall behind, and our homes are soon sold for taxes. This takes place everywhere that things move. Sooner or later this condition will come to all farmers. It is fast crowding upon us here in Kansas. Many men, feeling the pressure, and not having courage to resist or knowledge to move ahead, sold out and went to newer lands to be followed up there the same as here. Those men that have kept pace with the times are getting rich. But their methods are very unlike they were when they were "roughing it."

We desire to impress upon the minds of our readers the fact that farmers, being the first, are most important of all men, yet, unless they change from worse to better as other men do, and condense their labor and property into most valuable forms they will fail in their high calling. Farmers must keep in the front in everything that pertains to material and moral growth.

Kansas City Fat Stock Show.

We are in receipt of premium list for the Kansas City Fat Stock Show to be held October 30 to November 6 next. We have not room for it in detail. But we are anxious to see the show succeed and to have Kansas animals carry off the prizes, or as many of them as possible, and for that reason we advise every stock raiser in the State to write to the Secretary, Edward Haven, for a copy of the premium list. Premiums offered are large enough to be worth working for. For sheep, they range from \$30 down to \$5; for hogs from \$100 to \$25; cattle \$100 to \$25. Then there are special premiums offered by Breeder's Gazette, and several stock associations. Total amount of premiums offered is \$7,165, divided among, cattle \$5,255, hogs \$1,075, sheep \$835. Chicago offers only \$30 more than this for her show.

The report of the State Horticultural society of 1883 is published and is a most interesting volume. It contains a great amount of information that is useful to the practical horticulturist and farmer. It covers the whole field, containing something for every inquirer. G. C. Brackett, Lawrence, Kas., is secretary, and has charge of the report. How many he has to distribute we do not know, but a postal card from any person directed to Mr. Brackett, will receive prompt attention.

When setting out cabbage plants or tomato, or indeed any plants, if a piece of paper, with the ends joined so as to make an open cylinder like a piece of stove pipe, is set down over the plant and the lower end settled in the ground, it may save the plants from destruction by cut worms. Old fruit cans will do well for same purpose.

Wheat Farming.

Like every other commodity, wheat rises and falls in the market in perfect accord with the law of demand and supply. Prices paid for wheat the last six months or more have not been encouraging. We had not the same faith in better markets for the crop of 1883 that we had in 1882. Accumulations of wheat were so great that no reasonable hope could be entertained that prices would rise before that year's crop was disposed of. There is still a great deal of old wheat in the country, and the supply from Australia, India and Russia is larger every succeeding year.

It is not at all likely that there will be any decrease in the quantities of wheat grown in any of the foreign wheat-growing countries. Climatic conditions are good, and the product is good. India wheat recently exhibited in Chicago proved to be better than our grain dealers expected. Tropical wheat is not as good as that grown in colder latitudes; but it is evident that we cannot calculate on that to be of any special service to us as farmers. Russia produces first-class wheat and so does Australia. Then, we have Canada right at our doors, as good a wheat country as lies under the sun.

It is an established fact that wheat grows well in cold latitudes, and that, as a general thing, it is not profitably grown in tropical regions. It is equally well understood that in colder climates the variety of crops is less in number than in warmer places. That argues that the northern farmers will continue to raise wheat, as much from necessity as from desire. They cannot grow some crops that are profitable farther south, and they can get little profit out of stock. In warmer latitudes farmers have opportunities that their northern neighbors do not enjoy. They can change from one thing to another as occasion requires and make money out of all.

These considerations tend to teach us that the days of profitable wheat-farming in the southern one-half of our country are passed. Our Kansas farmers are intuitively falling into this line of thought. Many of them this year have little if any more wheat growing than they expect to use in their own families. But they are doing more than formerly in other directions. It costs 25 to 30 cents to take a bushel of wheat from Topeka to New York. That is cheap—very low, but it is a large percentage of the value of the wheat. It will be wise to shorten up a little in our wheat and lengthen out in fruit and meat.

In Dodge City Times we find these good suggestions: "It is probably not understood by a great majority of people that flour and some other articles of food, however good originally, may be rendered entirely unfit to eat by being closely confined in a closet or any other apartment, with coal oil, onions, etc., being placed in contact with them. A can of coal oil or bag of onions will contaminate a sack of flour as certainly as a case of small pox will infect a healthy person if brought in contact with him. A leaky oil can being carried in a wagon with flour will often give it a nauseating taste, immediately condemn the flour. Therefore, such articles should always be carried and stored entirely separate. Butter and cream also imbibe the odors of oil and onions."

Mrs. H. M. Crider, York, Pa., has prepared and published a little pamphlet entitled "How to Grow Fine Celery—a New Method," and sells it at 25 cents. It will well pay anybody that thinks of growing celery.

THE STRAY LIST

HOW TO POST A STRAY. BY AN ACT of the Legislature, approved Feb 27, 1866, section 7, when the appraised value of a stray or strays exceeds ten dollars, the County Clerk is required, within ten days after receiving a certified description and appraisal, to forward by mail, notice containing a complete description of said strays, the day on which they were taken up, their appraised value, and the name and residence of the taker up, to the KANSAS FARMER, together with the sum of fifty cents for each animal contained in said notice.

How to post a Stray, the fees fines and penalties for not posting.

Broken animals can be taken up at any time in the year. Unbroken animals can only be taken up between the 1st day of November and the 1st day of April, except when found in the lawful enclosure of the taker-up. No persons, except citizens and householders, can take up a stray. If an animal liable to be taken, shall come upon the premises of any person, and he fails for ten days, after being notified in writing of the fact, any other citizen and householder may take up the same.

Strays for week ending May 28, '84.

Clay county--W. P. Anthony, clerk. MARE--Taken up by Henry Mahn, in Goshen tp, May 5, 1884, one dun mare, mane and tail white, branded J on left hip, also indistinct brand on left jaw; valued at \$35.

STRAYED.

From the subscriber, two miles southeast of Pauline, Kas., on the 18th of April, 1884, a bay mare with bald face and 4 white feet, 7 years old, weighs between 800 and 900 pounds, had on 3 shoes; also, a black yearling horse colt with star in forehead.

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We allow no misrepresentations. Every Piano is just exactly as represented, and satisfaction assured. We sell no Pianos of inferior quality--even our cheapest Pianos are fully warranted.



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