

cow around for exercise. One individual he mentions had her constitutional of a mile walk every day.

Now the important question is, how long can a cow stand this pace, even if her digestive apparatus is as good as the average of her kind? Not indefinitely anyway. Sooner or later, she will show the bad effects of it. Such feeding is running too close to the danger line, and is contrary to all nature's laws. And the breaking of these laws is the sure road to trouble. I can speak from first-hand and bitter experience on this subject. Having put a couple of cows in the R. O. P. test a little over a year ago, I proceeded to feed them according to the formula of the experts. Things went along very well for a couple of months, when one of the cows developed udder trouble, and to-day she has what is known as a slack quarter. Not only that but a bealing formed and broke, and has been running intermittently ever since. The other cow pulled through and qualified all right, but this year, in spite of the best of care, she cannot be made to produce more than half the quantity of milk that she did a year ago. It seems to me simply a case of over-production for a short period, and Nature exacting the penalty and trying to restore the balance. Another thing in connection with this official testing is the impractical system of milking that goes with it. If these records that are being made are to have any real value for the man who is going to invest in high-grade stock and wants to know what they will do for him under ordinary conditions, they should be made by cows that were milked twice a day only. No farmer in these times of hired-help scarcity, or any other time, for that matter, is going to milk his cows four times a day for any extra profit he may make by it. It would be slavery, and no farmer thinks of it seriously. That fact being admitted, would it not be a reasonable thing to ask for legislation that would make it necessary for those doing official testing to conform to normal conditions obtaining on the average farm in this country?

We farmers claim, above all things, to be practical, but if this system of forced feeding and frequent milking, that is practiced by many of our leading breeders of dairy cattle, is of any real use or any lasting benefit to the industry, it will be believed by some of us only upon further evidence than we have yet received.

As purchasers of pure-bred stock we want to know exactly what we are getting, and as sellers of this same stock we want our customers to be so well pleased with their bargains that they will return as often as they have wants that we can satisfy. This is no more than good business, but anything less is not business at all.

Nature's Diary.

A. B. KLUGH, M.A.

Among the many insects which are pests in the field and garden there are none which are more aggravating than the cut-worms. It is bad enough when insects come and eat holes in leaves or devour whole plants, but what renders the work of the cut-worm so particularly aggravating is the fact that it destroys a whole plant for the sake of the little ring of tissue which it gets in the process of cutting it down. The second tantalizing feature about the activities of cut-worms is that they so frequently attack plants which have just been set out—plants of cabbage, cauliflower, and tomato, which we have carefully raised from early-sown seed, plants which we have watched over, and watered and thinned out, until they have become fine, strong specimens. Then after we have carefully transplanted them to the garden, the cut-worms come along during the night, and in the morning we find many, sometimes the majority, of the plants lying wilting on the ground.

Cut-worms are the larvæ, or caterpillars, of moths of the family Noctuidæ, otherwise known as the Noctuid or Owllet Moths. There are a vast number of moths of this family. All are stout-bodied, and they are mostly brown or brownish-gray in color. A large number of the moths which are commonly termed "Millers" or "Dusty Millers," and which are so abundant about lights on summer evenings are the parents of the cut-worms.

The different species of cut-worms vary a good deal in their life-histories. Some have but one brood in a season and others two broods. Some winter in the adult state, some in the larval state, but the majority pass the winter in the egg. They also vary considerably in their feeding habits. The majority of the species cut off plants just at, or just above, the level of the soil; some feed on roots, etc., beneath the surface of the soil; others climb plants and feed upon their leaves, and some species when abundant march along after the fashion of the true Army Worm.

The larvæ are smooth caterpillars, usually about an inch and a half in length when full grown. They are greenish-gray or grayish-brown in color, and are usually greasy-looking. The larvæ of different species are variously, though usually somewhat obscurely, marked. Thus the Spotted Cut-worm has a series of elongated marks along the back (see fig. 2), the W-marked Cut-worm has a series of blackish W-shaped marks on the back, the striped Cut-worm has a pale stripe margined with dark brown down the centre of the back, the Black Cut-worm has a pale, yellow line down the back and three yellow lines along the sides.

The eggs of all species are laid on the leaves of shrubs and herbs. They are deposited in clusters, and a single female lays from a hundred to a thousand eggs. In most species they are laid in early summer or in mid-summer. After hatching, the larvæ feed and moult until they are full-grown, when they enter the soil, make earthen cells, and change to pupæ, emerging as moths usually in about two weeks.

Cut-worms may be combatted in three ways—pre-

vention, protection and destruction. The most effective method of prevention is the elimination of the eggs by burning all old tops and weeds in gardens and fields. The best method of protection for plants which are set out is to place a collar of stiff paper around each plant, allowing the collar to project two inches above the soil and to be embedded two inches in the soil.

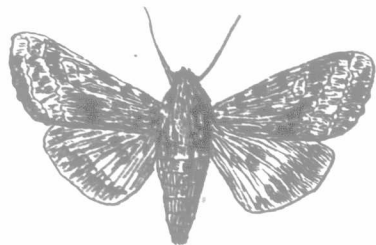


Fig. 1—Moth of yellow-headed cutworm. (Hadena arctica). Nat. size.

The most effective method of destruction is by poisoned bait. This bait is prepared as follows: Moisten fifty pounds of bran with two gallons of water in which half a pound of sugar has been dissolved. Mix in half a pound of lead arsenate, stirring very thoroughly. This bait must be scattered in the evening, since it is essential for success that the bait be moist, as otherwise the cut-worms will not touch it. The effectiveness of this poisoned bait has been clearly proved at the Central Experimental Farm, by Mr. Gibson, who found from eight to seventeen dead cut-worms round each plant, about which the bait had been scattered.



Fig. 2—Spotted cutworm full-grown larva. Nat. size.



Fig. 3—Spotted cutworm in characteristic curled-up attitude.

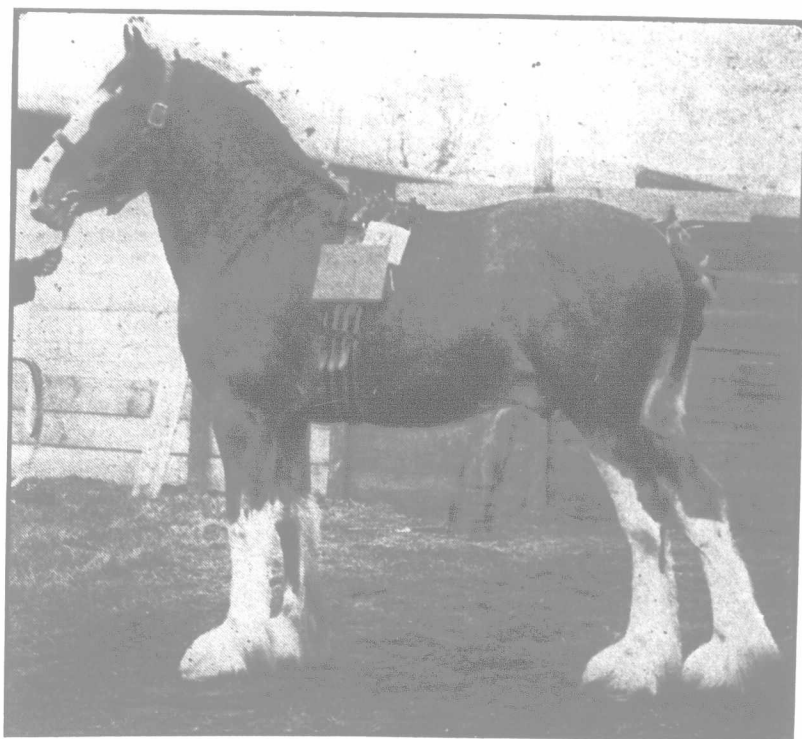
In the case of plants which have been cut down, if the soil is carefully turned over for about two inches round the plant, the perpetrator of the outrage will usually be found curled up in the characteristic attitude shown in fig. 3.

THE HORSE.

Veterinary Prescriptions for Farm Use.

Tonics.

Tonics are medicines that gradually, but reasonably permanently improve appetite and general vigor. They give tonic to the secretory glands of the digestive tract and the accessory organs of digestion, regulate the secretion, hence tend to aid digestion, which is ac-



Dunure Expression.

Three-year-old winner of the Glasgow premium, 1918.

complished or followed by increased appetite and general vigor. Tonics are indicated in a run-down state of the system, due to lack of appetite or non-assimilation of the food, or both, dry, staring coat, and general unthriftiness. Especially in horses, when symptoms of this nature are observed, it is wise to have the teeth examined by a veterinarian, and, if necessary, dressed. Even in quite young horses unthriftiness is often due to inability to properly masticate, and, while in such cases it is good practice to follow the removal of the cause with a course of tonics, it can readily be understood that the administration of such cannot be success-

ful until the cause has been removed. The cause of unthriftiness in colts between two and a half and three years, and between three and a half and four years of age, often is failure of the crowns of the temporary molars to shed. In the younger animals the first two in each row, and in the older ones the third tooth in each row, are those that are at fault. In older animals and rarely even in the young ones, the cause is sharp points on the molar teeth scarifying the tongue and the cheeks, or possibly a long tooth that requires shearing, or a decayed tooth that requires extraction. Allow us to repeat: "It is always wise to have the teeth of an unthrifty animal, especially a horse, examined and if necessary dressed." For horses and cattle, the following makes a good general tonic:

Powdered sulphate of iron,
Powdered gentian,
Powdered ginger,
Powdered nux vomica; of each, 3 ounces.

Mix and make into twenty-four powders. Give a powder three times daily. The results of the administration of tonics are not quickly noticed. It is generally necessary to continue their administration for two weeks or longer. The above prescription can be repeated as often as necessary. For the smaller animals the same prescription, given in doses proportionate to the size of the patient, can be used with success. Practitioners often use the tinctures of the various drugs, but for the amateur it is probable that the powders are the better.

Vermifuges and Vermicides.

Vermifuges are medicines that cause the expulsion of stomachic or intestinal worms, but do not necessarily cause their death, while vermicides cause the death of the parasites. As the action is practically the same we will not discriminate. For the removal of round worms from the digestive tract of horses and cattle, the following gives good results and is safe to use:

Powdered sulphate of iron,
Powdered sulphate of copper,
Tartar emetic; of each, 3 ounces.

Mix and make into twenty-four powders. Give a powder every night and morning, and follow the administration of the last by a purgative. Some add to this prescription, calomel in about forty-grain doses, which acts well, but the prescription usually gives good results without it, and, as it is not uncommon for drug-gists to refuse to put up the prescription when it contains this compound of mercury, telling the patron in some cases that "One dose would kill the horse," we usually now omit it, in order to prevent trouble of this kind.

The above prescription in proper doses also acts well in cases of round worms in sheep or pigs, but as it is usually hard to get each patient to consume its proper proportion, we usually prescribe oil of turpentine as a vermifuge for these. For the purpose, one part of oil of turpentine is mixed with seven parts of new milk and well shaken. The animals, having been starved for about sixteen hours, are then given two to four table-spoonfuls, according to size, and in many cases it is wise to repeat the treatment in ten days or two weeks, and

in rare cases the third treatment is necessary, as a fresh crop of worms may hatch out after all living ones have been expelled. This treatment is also effective in most cases of tape worm, even in the larger classes of animals, the dose being in proportion to the size of the patient. After treating for worms, it is good practice to keep the patients confined for a few hours, and gather and destroy all the worms that are expelled. This applies particularly to tape worms, as each segment contains very many larvæ, and, if these are consumed by an animal, there is great danger of further trouble at a later date.

For tape worm in dogs and cats, powdered areca nut is really a specific. Why this should give better results for this purpose in these than in other classes of animals, we cannot say, but our authorities on Veterinary Materia Medica tell us that it is so, and experience teaches us that they are correct. The dose is about two grains of the powdered areca nut to each pound of the patient's weight. The patient should be starved for about sixteen hours, the powder mixed with a little new milk, or put into a capsule, and administered. The patients should be confined for a few hours, and all worms that are voided should be gathered and burned.

WHIP.

No one can blame the laborer for going where he can get the best job. The point which must be remembered is that conditions should be such that farm work would appeal to him as strongly as city employment. Readjustment of wages and work would be necessary.