

and run the engine satisfactorily after a couple of attempts. They can be obtained in any power from one to 30-h.p., and as they use fuel in proportion to the power required, a six-h.p. machine can be used economically for a job requiring one-h.p. There are no fires to be kept going and boilers to keep on filling. When the gasoline and water reservoir are once filled, the engine will run for a long time without attention, and the water can be drained off when the work is over. They are lighter in proportion to the h.p. than steam engines, so they can easily be mounted on a skid or truck and moved around so that most of the machinery can be run on a direct belt. This is a great saving of energy over a line shafting. They can be started in a few seconds. There is no danger of fire if exhaust is properly placed. For running a grinder of say eight-inch plates a four-h.p. engine would do, but more satisfaction can be obtained from a six or eight-h.p. machine and there would be less danger of straining the engine.

Middlesex Co., Ont.

C.W.S.

Manuring for Corn and Wheat.

The passage following is from the new book on "Farm Manures", by Prof. C. E. Thorne, of the Ohio Experiment Station. The showing in support of applying the manure to the corn crop preparatory to wheat is forceful, and is the practice as followed in parts of Canada where the corn crop can be removed in time for sowing fall wheat, but that is not always practicable. One point is to be remembered, however, and that is the probable greater residual effect on subsequent crops in case of the manure applied directly to the wheat land. This, however, does not more than modify, certainly does not destroy—the argument for prompt application, secured by putting it out as made right on the land to be plowed for corn.

"In the Ohio station's experiments corn, which has received eight tons of manure per acre, has given an 11-year average yield of 58 bushels per acre, an increase of 23 bushels over the yield of the unmanured land alongside, and the wheat which has followed this corn without any further manuring or fertilizing, has yielded 19.7 bushels, an increase of 9.9 bushels over the unmanured yield; whereas, when the wheat land has been top-dressed with the same quantity of manure just before seeding, the manure having lain in the barnyard until drawn out for this purpose, the increase in yield has averaged but 11.1 bushels, or only one and one-fifth bushel more than that given by the wheat which has eaten at the second table after the corn.

"In other words, while this manure was lying in the barnyard waiting for wheat, it might have grown more than 20 bushels of corn without materially impairing its value for wheat production!

"Taking no account of the fact that much more than a ton of manure has to be thrown into the barnyard in the winter for every ton taken out in August, it seems evident that the proper way to handle the winter's accumulation of manure is to put it, as promptly as possible, upon the spring crops. Many farmers have learned this lesson, and the practice is steadily increasing, although there are too many who follow the old, wasteful methods."

Alfalfa and Tile Drains.

Editor "The Farmer's Advocate."

Complying with your request, re tile drains and alfalfa, I wish to say that I had alfalfa growing over three-inch tile drains continuously for about fourteen years, except two years that intervened, when I broke up the alfalfa to clean up and reseed, and I found no injurious effects from alfalfa roots. While I cannot say with certainty that the roots did not gather in the tile to any extent, they certainly did not prevent the tile from draining the field. I am of the opinion that where tile are used to conduct water away from a spring or springs where there is more or less water running practically all the time, the roots would cause trouble similar to the roots from willow or maple trees, etc., but I am sure that under average conditions, where the tile are three to three and a half feet and not less than three inches in diameter, the alfalfa will be all the better for the tile being there, and the tile will be none the worse for the alfalfa being there, and the farmer will be decidedly better off for having both.

Middlesex Co., Ont.

R. H. HARDING.

Hogs Fighting Bindweed.

Editor "The Farmer's Advocate."

I see that your are troubled with bindweed on your farm. If that is a weed that looks like morning glories, and winds about everything in sight, I have had some of it for years in my river flats.

Last year I was surprised to find that it had practically all disappeared. It had left, as it were, in the night. I do not mean that it all went in one night, but going across the field one day I did not see any of it, and then I began to

take notice. It is my practice to feed off a field of corn by turning in hogs, and as the flats are a convenient place to have them on account of being able to run to the river for water they are used for that purpose oftener than any other field on the farm.

I have them divided in three fields, and try to keep one for a hog pasture, one in small grain seeded down, and one in corn. This is the way I have worked that part of the farm for the last few years, and the weed has just about gone.

Kent Co., Ont.

ARTHUR FISHER.

An unprecedented outbreak of flies in Northern Texas last year was traced to the fact that unusually heavy rains in the early part of August soaked the new straw stacks to a great depth. These heated immediately, and formed attractive breeding places for flies.

THE DAIRY.

The Cow and the Milker.

Editor "The Farmer's Advocate."

The quantity of milk and butter fat produced by cows depends, in no small degree, upon the manner in which the cows are milked. Cows may be ever so good and ever so well fed, but if they are not properly milked, the results will be unsatisfactory. The reason why so much depends upon correct milking, is the fact that good dairy cows possess a highly-developed nervous system, with which the secretion of milk is very closely associated. Whatever, therefore, reacts upon the nervous system of the cow will, in like manner, react upon the secretion of the milk. In this connection it should be understood that the secretion and formation of milk takes place almost entirely during the process of milking. No matter how large an udder a cow may show previous to milking, it rarely contains more than

mals, and always avoid milking those he is not accustomed to milk.

It is undoubtedly due to the greater stimulation of the udder that fast milkers generally receive more milk than slow ones, no matter how thoroughly the operation is performed by the slow milker. One of the most important points in milking is to get all of the milk at each milking, that is, to milk the cow dry. Whatever milk is left in the udder is not only lost to the milker, but it acts as a check upon the further secretion, so that the habitual practice of not milking a cow dry results in the gradual lessening of the flow of milk, till, if followed long enough, it results in the drying up of the cow.

The first milk drawn from a cow contains less than one per cent of fat, while the strippings often contain as high as fourteen per cent butter-fat. Thus, in the practice of not milking a cow dry, it is always the best milk that is lost. To obtain the best results with a dairy, regularity must be the watchword. Cows should be milked at the same time morning and evening. Milking an hour sooner or later than the fixed time interferes with the flow of milk much more seriously than is commonly supposed. Irregularity in the feeding has also the same unsatisfactory effect upon the milk yield. If, for example, cows that have been accustomed to being fed prior to milking, are milked at times before receiving their feed, a marked reduction in the milk flow may result. This is just what is to be expected, as withholding the feed will make the cows restless and discontented, which will react on their nervous system sufficiently to cause a drop in the flow of milk.

Another matter to which every dairyman should pay attention, is to regulate the periods between milkings the same each day. This is especially important in the case of heavy milkers. If cows are being milked at six o'clock in the morning, they should preferably be milked at six in the evening. The more uniform the periods between the milkings, the more uniform will be

the secretion of milk, and consequently an increase in the milk produced. The time between milkings also influences the richness of the milk. If the two milking periods are of unequal length, the milk from the shorter period will be found to contain a higher percentage of fat than that of the milk from the longer period. Some milkers are cheaper at forty dollars per month than are others at twenty dollars. Some entertain erroneous belief that a cow is capable of holding back her milk "Holds it back" they say. The cow cannot hold back her milk. The udder is distended with blood, and, as the milking proceeds, a rapid secretion of milk goes on, and milk is filtered out of the blood that is in the udder during the milking period. If the cow is a nervous

one and the milker acts harshly towards her, she will frequently stop the secretion. This she has the power to do. Some well-bred cows of a highly nervous disposition, will form a dislike to the milker, and will stop the secretion until they dry up. It must always be borne in mind that the cow is a thinking, reasoning being, and not merely a machine for the manufacture of milk and cream.

A large percentage of those who milk cows "yank," squeeze and pull the teats; then, if the poor creature stamps or moves a foot, they yell and sometimes use the toe of their boot on the animal. These are the fellows who are always having trouble with their cows going dry. In the end kindness will and does pay, whether used on hogs or dairy cattle.

Cape Breton, N. S. JOHN H. MacDONALD.

With the Help of a Milking Machine

Editor "The Farmer's Advocate."

In reply to your enquiry about my milking machine, may say that I have been using it just a year now. It has not cost me anything for repairs yet, and I do not think it will this summer. The machine cost me \$420 with equipment to milk three cows at a time. The engine, a two-horse gasoline, cost me \$120, making \$540 altogether. The cost of gasoline per day for milking and pumping water for cooling the milk, is about twelve cents. I think the cows give just as much milk when milked by a machine as by hand, and they are much quieter. I could



Adelia De Kol Tensen.

As a junior two-year-old this heifer made in 12 months 824 lbs. of butter 12 months after freshening established a world's record by making over 19 lbs. of butter in 7 days. This heifer, three sisters and her dam are owned by D. C. Flatt & Son, Hamilton, Ontario.

a pint and a half of milk. The distension of the udder is due to the presence of blood from which the milk is elaborated during the time the cow is being milked.

It is owing to her great nervous development that a good dairy cow is so very sensitive to excitement, unkindness or other rough treatment. It is such abuses that have a large effect upon not only the quantity of the milk but also upon the amount of butter-fat it contains. Especially disastrous are abuses administered previous to or during milking. Yet how frequently are dogs allowed to chase cows to the stable, and many attendants are seen with clubs in their hands, which they freely use to increase the gait of the unoffending cow. The language and bustle which accompany all this, leave no doubt that the cows are treated as offending brutes.

A change of milkers also has an effect upon the flow of milk, and this is shown, in some cases, to a very marked extent. A cow that has become thoroughly accustomed to a certain milker, will feel restless and uneasy with a new milker, and nowhere is this more plainly shown than in the milk record. A change of milkers means a change in the manner of milking, and, therefore, a change in the stimulation of the udder. Since the stimulation of the udder by the milker is the cause of the secretion of the milk, it is evident that a change in the method of stimulation will affect the yield of milk and butter fat. It is always wise for the dairyman to avoid a change in milkers as far as possible. In a case where more than one person goes to milk a herd of cows, each should always milk the same ani-