two years ago. The total value of meat and dairy products exported last year was $121,716,871, compared with $164,216,275 the year before, and $199,692,011 of two years ago.

Reports indicate a great activity in sheep circles of many countries this year. Americans, Canadians, Argentinans and Australians have all been buying freely of England's best during the last few months. The high prices paid and the excellence of the purchases made at the Royal Show sale, at Liverpool, demonstrate a great confidence in the mutton-and-wool industries, and a determination to have the best. Oxfords, Hampshires, Shropshires and Southdowns prevailed in the purchases for North America; Romney Marsh, Lincolns and Leicesters being demanded largely in New Zealand, Australia and Argentina.

The life history of the warble fly is still a topic of keen debate among stockmen in the Old Country, just as Canadian farmers used to discuss the question whether wheat turns to chess. The respective positions of the debaters are defined this week by "Emerald Isle."

# THE FARM.

## The Sow-thistle Problem.

The sow-thistle problem is exciting a great deal of concern all over Ontario, and nowhere more than in those counties where the opportunity is greatest for forming an opinion as to its seriousness. It is a problem—a very real one—and not a mere exaggerated scare. I do not wish to take an alarmist attitude in regard to it, because I believe that it, like other problems which have preceded it, will find its solution, to the extent, at least, that we shall be able to help ourselves, but I do wish to express satisfaction at the interest which has been already aroused, and to say that, until such interest is shared by all concerned in the matter, there can be little hope of any substantial progress toward the solution for which we are hoping. From the nature of the case, it is evident that much will have to depend on widespread and intelligent co-operation, for, without this one man's efforts are perennially crippled by the neglect of his neighbor who allows the weed to grow and seed itself. It is, therefore, a prime essential to have the perennial sow thistle discussed wherever farmers come together, at the Farmers' Institute, in the Farmers' Club, on the farm itself, as well as in the papers, whether local or agricultural, which come into the farmer's home. Where district representatives of the Department of Agriculture are located, they can render good service in bringing the subject to the attention of those still-too-numerous individuals who are not reached by the agricultural press and meetings, if they will make frequent and judicious use of the local weekly as a medium for short articles and summaries of current information on the subject. These local sheets have a faculty for getting to all corners of the countryside, and are read omnivorously by many farmers who would not believe themselves equal to the perusal of an agricultural journal.

I have said that I believe there is hope that some kind of a solution will be found. There was a time when the Canada thistle was the occasion for much alarm and discouragement. Under the conditions prevailing, it also was a very real problem, but, thanks largely to changed methods of farming, its control has been got well in hand. More stock and less grain farming, which also involves more use of the land for hay and cultivated crops, and more or less regular and short rotation of crops, is the change which has taken place. It has reduced the proportion of the farm which is under those crops which allow the thistle to mature its seed and strengthen its rootstocks, and has increased the area under crops which can be cultivated. We shall probably always have the Canada thistle to contend with, but, in proportion as we practice thorough and approved methods of farming, we may expect to keep it in check. These same farming methods will help to keep the new foe, the perennial sow thistle, in check, if they are practiced; and it must be confessed that they are still far from being as generally practiced as they should be. The sow thistle will require more energetic handling, but the methods probably will not be so very different from those recommended for the Canada thistle. At all events, the farmer who keeps stock, grows hay, corn and roots, and cultivates at every opportunity while cropping, and also while the fields are bare, will be the farmer to profit most by any additional suggestions which can be made.

To give definiteness to the above remarks, it will not be amiss to outline some system of cropping which will give the greatest amount of opportunity to fight the weed, while at the same time allowing the use of the land to the best possible advantage for the purposes of a stock farm. We may begin when a crop of hay or grain has been removed. Plow immediately and fallow for the rest of the season, cultivating frequently to prevent any growth from appearing above ground, and ridging up the last thing in the fall. Fallow again the next spring until the middle of June, and then sow pasture rape in drills, at the rate of 1½ pounds to the acre, the rape to be kept cultivated until it shades the ground. The cultivation given in the fallow should weaken the plants enough that the smother crop of rape following it will usually be effective in bringing the weed under control. If necessary, the treatment can be continued through another year by using the land for corn or roots, when the weed can be better watched for, than with other crops. This treatment can be applied in part, or with variations to suit the conditions of each case, or a complete summer-fallow may be substituted, but in every case its effectiveness will depend to a great extent on the thoroughness and timeliness of the work. It must also be remembered that no amount of thoroughness will prevent the re-introduction of sow thistle, so long as it remains in the waste places and on neighboring farms and, therefore, the above treatment must be followed up by continual watchfulness, and by the adoption of such a rotation of crops that the land comes under cultivation frequently.

While sow thistle can be extremely troublesome on almost any kind or condition of land, it seems to be a fact that it is most difficult to deal with on low or poorly-drained fields. This may be due in part to a preference for moist conditions, but I feel sure that much of the responsibility lies in the less-thrifty and vigorous growth of the crop, which gives the weed an opportunity that it is not slow to take advantage of. Obviously, drainage is the first step where these conditions prevail. Drainage alone will not eradicate sow thistle, but if it will help, it becomes the height of folly to go on indefinitely without it, especially as the profits will be reaped in so many ways besides that of easier weed control.

Perennial Sow Thistle (Sonchus arvensis).

(Note—The flower is yellow, but this color, when reproduced in a half-tone, appears black.)

One other suggestion seems well worthy of consideration, namely, pasturing fields that are badly overrun. Henry Glendinning has found this completely successful in cases which have come under his management, and he recommends it strongly. Sheep, especially, are useful for this purpose, and where, for any reason, it is not possible or desirable to break up a field, no better plan could be found than to keep it closely pastured.

All the foregoing suggestions, it may be argued, have already been tried with more or less thoroughness, and yet only partial success. Is there nothing more which can be done? The successful use of chemical sprays, such as iron sulphate, for the destruction of wild mustard and some other weeds, has raised the hope that it might avail for sow thistle as well, but there seems little likelihood of this being the case. Experiments have not yet demonstrated its usefulness, at any rate.

The fact that much of the problem of the sow thistle arises out of the ease with which it spreads its seeds on the wind, brings up the question as to how much relief may be expected from weed laws. Our present laws, if properly enforced, would do some good, in so far as they are insufficient or impracticable of enforcement, they ought to be improved. This is another question, however, which cannot be entered into here. We must not make the mistake of expecting too much from legislation; but the existence of a public menace like the perennial sow thistle demands that something be done. The individual farmer must do his duty on his own farm, but he has a right to expect that the community will do its duty as well, and when he has the assurance that it is being done, there will be encouragement for him to do his best.

HERBERT GROH.
Central Exp. Farm.

## Alfalfa in Central Alberta.

Editor "The Farmer's Advocate":

Many of your readers may be interested to know with what success alfalfa has been grown in Central Alberta. In 1907 a block of alfalfa was seeded on the experimental farm at Lacombe. The land on which it was sown had been under grain crops for a number of years, without rest or fertilizers. The season previous it had been under oats, and was fall plowed. It was cultivated in the spring of 1907 with disks and drag harrows until June. By this means, a number of crops of weeds were destroyed before the alfalfa seed was sown, and the moisture was conserved, so that there was no lack of moisture to effect prompt germination of alfalfa seed. The seed was sown with the grass-seed attachment commonly available, with the ordinary grain drills, seeding being at the rate of about 15 pounds per acre. The variety used was the common alfalfa. Immediately after sowing, a part of the land was inoculated by means of soil from an alfalfa field where the alfalfa had been established for a considerable period. As growth progressed during the season, the alfalfa was clipped back with a mower, the cutting bar of which was tilted high. It is a fact that, with each clipping of the young plant the crown increases in size; thus, a plant which has been clipped two or three times during the season is in a much better condition to go through the winter successfully than a plant which has not been so clipped.

In 1908 two cuttings were made from both the inoculated and the uninoculated areas of alfalfa. The inoculated area yielded at the rate of 7,200 pounds of cured hay from the two cuttings, while the uninoculated yielded only at the rate of 2,320 pounds per acre. The difference in the alfalfa is not wholly represented by the figures given. The difference in the color of the crop growing on the areas was as marked in shade as was the difference in yield in pounds. The crop growing on the inoculated land was a rich dark color, while that on the other was pale and sickly. Chemical analyses showed that the hay produced from the inoculated area contained more than 2 per cent. more protein than the hay produced on the uninoculated area. Further, the inoculated alfalfa came through the hard spring of 1909 without great loss, while the uninoculated alfalfa was completely killed out.

In speaking of the hardiness of the different strains of alfalfa, the night frosts and sunny days of the spring of 1909 demonstrated that there is a great difference in the power of different strains of alfalfa to withstand trying conditions. Two areas were sown side by side in the spring of 1908, the common alfalfa being in one block, and the Turkestan strain in another. Both were given similar treatment. The Turkestan came through, while the common alfalfa was entirely killed.

It is important, in securing seed of alfalfa, that the hardier varieties be purchased, and that, in sowing it, some method of inoculation be used. The crop is of such importance that we advise every man who is interested in maintaining the fertility of his land, and in growing live stock, to try a small block of alfalfa. By beginning with an acre, and thoroughly inoculating that acre, he can in two years, if successful, from that acre as a beginning, inoculate his entire farm, if desired.

Speaking of the comparative feeding value of alfalfa, the figures given by Prof. Hart, of Wisconsin, are of interest. He says: "If upland prairie hay has a feeding value of $3.00 per ton, on the basis of its ability to produce milk or meat, then timothy hay would have a feeding value for the same purpose of $2.48, while alfalfa hay would be worth $9.08." He further makes a claim that "Five tons of well-cured alfalfa hay is equal in feeding value to four tons of bran." When we consider the market price of bran, and the fact that we can produce in Central Alberta from three to five tons alfalfa hay per acre, the enormous stock-carrying capacity of one-quarter section of land is brought into strong relief. Any land on which alfalfa can be grown successfully is upon the same basis as the corn-producing States, as far as its ability to carry stock is concerned. It is evident, therefore, that if in the central part of our Province alfalfa can be successfully grown, the land is bound to appreciate very rapidly in value.

A bulletin recently issued by the Department of Agriculture, at Washington, states that wherever alfalfa has been generally introduced into any state within three years the price of the land has doubled. With the rapid rush of settlers, and the annual restriction of the range consequent thereon, it is of utmost importance that a fodder