

Valuation of Farm Products According to their Chemical Composition.

We have frequently pointed out the injustice which progressive farmers were suffering from the existing methods of disposing of their milk to the creameries and cheese factories. When milk rich in casein is required, then that which has a large percentage is sold for the same price as that having a small percentage; and when butter fat is the desirable article, the milk containing a large percentage has the same market price as that which contains a small percentage.

The curd may vary from 10 to 25 per cent., and butter fat from 2½ to 10 per cent., there being also a great variation in the percentage of butter from the cream. If pay were given according to quality, it is now plain to be seen that the farmer with the superior cow would receive two or three times as much money per season as the farmer with the inferior cow, whereas his receipts are usually about the same, although the cost of production of high quality is much greater, so that the percentage of profit must be less. This system of injustice is in reality a premium awarded to slovenly, ignorant farmers.

Now, if this unfortunate system were confined to dairying alone, there would be some prospect of relief. In dairying the injustice is better known and more easily comprehended; but the loss sustained is equally great in all the products which are sold off the farm. Any production of the field may be divided into its constituent parts like the milk. The nitrogenous compound, called casein in the milk, is named albuminoids or protein when applied to field products, and in ordinary language is known as flesh formers, for its chief function as an article of diet is the formation of muscular tissue. Animal and vegetable fats are also the same; but plants have substances called carbo-hydrates, which include starch, sugar and woody fibre; milk, however, has also quite a percentage of sugar. These are carbonaceous substances, and are called carbo-hydrates because they are composed of carbon and the elements of water. As their function is the same as that of fat, they may be regarded as such, although their heat producing power is not so great. Plants, like milk, also contain saline matters which, though very important, we have not space to discuss here.

Now, it is well known that nitrogenous fertilizers are the most expensive, and as they are required to build up the albuminoids, which, in their turn, are the most valuable constituent of the plant, it follows that expensively manured plants are not only more costly to produce, but also more valuable, so that if the same market price is obtained the progressive farmer suffers the same injustice as the progressive milkman. In the case of the cow, the variations are the results of feed and breed; so in the plant; its composition depends upon the variety and the system of manuring. In both instances climate has also a modifying effect.

Let us now take our commonest grains and examine what variations are found. In the analysis of 57 samples of wheat, the albuminoids varied from 8.4 to 14.5 per cent. Take the same variety of wheat, viz., the Clawson, grown in the same State, viz., Michigan, and

the percentage varied from 10.9 to 12.4. In a large number of analyses of spring wheat, the percentage of albuminoids varied from 8.1 to 15.5, being about 1.3 per cent. more than the average of winter wheats, and so makes better flour. There is still a greater variation in the albuminoids of corn, but as corn is chiefly valued for its fat, let us add that the percentage of fat varied from 3.4 to 9.3 in the different varieties analyzed. In the same variety the fat varied from 7.88 to 13.65 per cent. for Flint, and 8.5 to 11.75 for Dent. In oats the variation in the albuminoids varied from 8 to 14.4 per cent.; and in different samples of barley grown in central New York, all graded alike, there being also no difference in the appearance, there was a variation from 8.6 to 15.7 in the percentage of albuminoids, and from 1.48 to 3.15 per cent. of fat.

We might continue in this strain through all the productions of the field: but enough has been said to show that wheat may sometimes be oats, and oats barley, etc. Nitre or salt-petre is a strongly nitrogenous salt, and experiments made with it upon wheat increased the albuminoids to 23½ per cent. The same effect is manifested when highly nitrogenous foods are fed to cows, the percentage of the valuable constituents of the milk being largely increased. These lessons prove that the business-like farmer will feed his highly manured grains to his family or his stock, instead of being cheated out of his rights on the market place. It must also be borne in mind that such products always produce the richest manure, so that there is a double loss in selling them.

The same principles apply, of course, to fruits and vegetables. Not only has the chemical composition of fruits been changed by certain methods of manuring and tilling, but also the color, size and flavor. This is especially an interesting and important field for investigators, and we should not work blindly any longer.

These thoughts have been suggested by the practice lately adopted in Germany of paying for milk according to its percentage of fat as ascertained by analysis once every two weeks or oftener. This practice will soon spread, and the time may come when it will be introduced into all the productions of the farm.

Treatment of Hog Cholera.

Prof. E. A. Grange, of the Michigan Agricultural College, writing to the *Prairie Farmer* on this topic, says: "Veterinarians, who had very extensive experience in the investigation of the disease, are of the opinion that treatment ought not to be resorted to except in the early state, but that the affected animals must at once be destroyed, and their bodies cremated. In those cases where treatment is deemed best, carbolic acid has gained a most favorable reputation. It may be given by allowing, say, 10 drops of a 95 per cent. solution, for every 100 pounds of the animal's weight, 3 times a day, in the animal's food, or largely diluted with water. The bowels should be kept open with laxative food, or a few ounces of castor oil, if necessary." [The carbolic acid solution of the prescribed 95 per cent. strength can be got of druggists.]

Stock.

A Chatty Letter from the States.

BY OUR CHICAGO CORRESPONDENT.

These seems to be no abatement of the swine plague in the west, or whatever it may be. As yet our veterinarians have seemed wholly incompetent to cope with this disorder which commonly goes by the name of hog cholera. There are scores of patent cures advertised, but, as a rule, men of experience depend upon charcoal, coal oil, tar and other simple remedies. In one instance a Nebraska cattle feeder who lost 700 hogs last winter which were following his cattle, has bought cooking and grinding apparatus, and this winter proposes to feed his cattle in stalls on boiled and ground corn, with chopped hay mixed in.

This mode of feeding, by the way, is growing in favor in the west, and the opinion of practical, experienced men is that the results will prove more satisfactory than where the cattle are fed whole grain, uncut hay and allowed to run around in the cold, requiring a large quantity of material to be consumed merely for keeping up animal heat.

While in Illinois and adjoining States some of the most successful feeders, as for instance, John Gillett and John Marriott, feed whole grain in the open air, reason would seem to argue in favor of sheltering the animals and leaving for their grinders and digestive organs as little to do as possible.

One large outfit, the Union Cattle Co., of Cheyenne, Wyoming, has just completed stalls and fixtures for feeding 5,000 cattle in Nebraska. The feed will be boiled and ground, and the cattle to be fed are Wyoming rangers, which the company has, heretofore, been marketing in the fall just off of wild grass for what they would fetch in the market. Each year this enforced marketing of range cattle within a prescribed time in the late summer and early fall, has been becoming less satisfactory to western ranchmen. This year there has been more dissatisfaction than any year yet, and no wonder, because seven-eighths of the western range cattle have not been in marketable condition, and western men, or at least a great many of them, are thoroughly aroused to the fact that something must be done to enable them to scatter their bees along through the months, and not crowd the entire crop upon the market in a few weeks.

Sheep have never been marketed more freely than this fall. It seems a little singular, but some of the very best sheep marketed have come from far off Montana. Prices have been low, however, and sheep husbandry is not in a very encouraging condition. The railroads of the northwest which formerly furnished double deck cars have now followed the example of the roads in the southwest, and refused to haul them. This places sheep shippers at a very great disadvantage.

The coming fat stock show at Chicago promises now to be a much greater success than the managers have heretofore dared to hope for. At an early date applications had been made for over 25,000 tickets to the opening night. The entries will be larger than ever, and the addition of the dairy and cheese departments will prove an important attraction.