

surest and cheapest of anything we raise. It has been definitely determined that thin seeding is the best, not to exceed $\frac{1}{2}$ bushel per acre, while with the large southern varieties 12 qts. is sufficient. For harvesting, any time between silking and the milk stage will do, although the latter period is best. If we want ripe ears, it will do to plant State corn, but if we want quantity we must plant the southern varieties. I adopt the practice of filling my silo very rapidly, and find by experience that I get a sweeter ensilage than by the slow method. (1). This season I put in 200 tons in a little less than two days, with four teams and eighteen men the first day, and seventeen men the second day. These were Friday and Saturday, and on Monday I examined the ensilage and found the temperature about right for covering. So I put on about 18 inches in depth of straw, covered with boards, and weighted with stone not exceeding 30 lbs. to the square foot. The essential point, after the mass is heated to about 130°, is to stop the fermenting process as quickly as possible, and I know of no better way than by applying pressure. My expenses for harvesting were \$67.50, or 33c. per ton. The crop was grown on 16 acres of land, including one-quarter southern white, one-quarter Kansas red cob, one-quarter State corn, and one-quarter gold drop. From the State corn I gathered 125 bushels of ears, besides 200 bushels that went into the silo. This would make about 14 lbs. of corn in every 400 lbs. of ensilage, or a little better than $1\frac{1}{2}$ lbs. to a ration of 50 lbs.

In concluding, Mr. Devendorf said that with the silo came a new era in dairying. It has made practical the production of milk during the winter season by reducing the cost to a minimum; and the time is near at hand when the silo system will become universal among dairymen, and be regarded as absolutely necessary to the success of their industry.

Prof. J. W. Sanborn continued the discussion of this subject. He compared the past of dairy products with the prices of the present. In the first quarter of this century it took two pounds of butter to purchase one yard of calico, while to-day a pound of butter will buy four yards of calico. One trouble is that in this country we do not produce one-half the butter per acre that we ought, or that they do in Scotland.

We should use the cow, our mac' ae, to the extent of its power. The maintenance ration of food is about 18 lbs. of hay per day for the average cow, and generally the cow that is producing 125 lbs. of butter will use 6 lbs. more. Now, if she is fed another 6 lbs. this will add another 125 lbs. of butter to her product. But how shall we induce her to eat this extra amount? Palatableness is the key to this question, and this alone will induce the cow to consume and digest an extra amount of food. This is the great value that especially attaches to ensilage. But I do assert that there is very little if any more digestibility in green food, than in the same food dry. Its value lies, however, in its palatableness. Instead of feeding 10 lbs. of hay at a meal, I would feed 5 lbs. first, then 3 lbs., then 2 lbs., because the cow will eat it up cleaner, and will give a better flow of milk from it. The professor positively asserted that there was no advantage, but a considerable loss, in husking or shelling corn for feeding. He denied that there was any advantage derived from cooking food for cattle. The nutritive ratio should comprise 1 lb. of protein to 5-10 lbs. of carbo-hydrates, according to the German theory, and this is practically accepted in America, although I do not accept it myself. That is, I do not believe that there is a fixed and inflexible ratio for the very best development of an animal. We should study the nutritive ratio only for the purpose of producing that which we desire to produce. Professor Ladd says that his experiments show that he can increase the ratio of fat to casein in milk by his

(1). It is surely time that this question were settled. A. R. J. F.

method of feeding, although most scientists assert that it cannot be done. The speaker offered as a substitute for the German ratio the statement that the value of food depends largely upon the purpose for which it is used or fed.

LIVE-STOCK.

FOODS FOR COWS. — Leaving the cowyard to-night, I amused myself by reading last number of your *Agricultural Gazette*. The articles about the "Dairy" and "Seasonable Notes" are always first looked for. In the latter I found recommended a pocket book published by Messrs. Bailliere, Tindal, and Cox. How, you would oblige me by letting me know the address of that firm, and, if known to you, the price of the book! Then I should like very much Professor Wrightson to be kind enough to tell me his opinion about root pulpers and root slicers. I have a root pulper that is used up. Now, I intended to buy a slicer, because it wants less power for the same quantity of work, and because less juice leaves the roots by slicing than by pulping. As next to long hay, cakes, bran and mangels, cut straw is fed to my milch-cows, a pulper was used, because the cattle were supposed to be more greedy for the cut straw when mixed with pulped than with sliced mangels. Which advantages now weigh more, those of the slicer or of the pulper?—HOLLAND. [My opinion is in favour of a pulper, and when a fair quantity of roots are pulped the loss of juice is inappreciable, as it all goes into the pulp just as in grinding apples for cider-making. I think it is a real advantage to have the pulp brought into contact with the cut straw chaff. The labour is of course a consideration, but if you cut your straw I think you ought to pulp your roots. There is, however, an alternative, namely, to mix the chaff with water and meal, or cake, and give the roots separately as a feed immediately after milking. As to which is the best system, you might find an equal number of men ranged on either side. My own practice is to pulp the roots and mix up the pulp with the chaff. I have, however, wintered milking cows without any roots.—JOHN WRIGHTSON]

How to Train Fruit Trees.

MR. A. DUTHOIT, in a letter to the *Times* on the question of fruit growing, gives the following instructions how to treat fruit trees from the time of planting:—"Trees should be purchased from the nursery one year old, and those will be found, according to my experience, the healthiest which consist only of one upright stem, having no shoots whatever. Holes, say 2 ft. square, should be dug a rod apart, care being taken not to disturb the clay subsoil (which should always be present in an orchard) and the roots. Each tree, when firmly planted, should then be subjected to its first pruning, this being effected by cutting off the greater part of the upright stem, leaving only about 12 in. above the soil. The portion remaining must possess at least five, or perhaps six, live buds or eyes. This treatment may appear to be somewhat ruthless, but given protection from blows from the cultivating instruments and from animals, it will ultimately bring success. The result of this first year's growth of a healthy tree will be that each eye left upon the short trunk referred to will throw out a shoot or branch from 4 to 6 ft. in height. These in the following autumn should be cut off to within, say, five buds of the trunk, which buds during the second year of the existence of the tree in the orchard become branches to be pruned in their turn. If the branches be always cut immediately above an eye pointing outwards the tree during the third year will already resemble an inverted half-opened umbrella, or, as it is usually termed, an inverted cone, being also kept quite free at this time from shoots growing inwards. From that period onwards the pruning must be left entirely