eaten by stock. (4) Sour silage, of a dark brown or olive colour and a pungent and very unpleasant smell due to the presence of butyric acid. It is formed when immature and succulent crops are ensiled which are closely packed, preventing rise of temperature and proper fermentation. (5) Musty silage, full of moulds due to the ensiling of over-mature crops and over-heating. Of these 5 kinds of silage, the authors perfer (2) and (3) and condemn (4) and (5). Experiments with oat and tare crops (with and without peas and beans) containing 26 to 34 % dry matter showed that acid-brown silage and sweet silage can be made in tower-silos with a loss of dry matter no greater than 8 % of that contained in the green crop. In the case of " green fruity " silage, the loss is slightly greater, due to use of crop at an earlier stage of maturity containing 23 to 26 % dry matter and consequent draining away of some of the juice; the loss in dry matter under favourable conditions amounts to about 9 %. About the same degree of loss was also obtained in hay making. Feeding trials showed that well prepared silage had about the same digestibility as green fodder or hay in regard to dry matter, protein and carbohydrate. The oil fraction shows highest digestibility in the case of silage; digestion coefficient of the fibre is almost the same for silage and hay (57 to 58 %), while it is lower for green fodder (47·6 %). Actual feeding trials show a superiority in favour of silage and 6 lbs. of silage are generally equivalent to about 10 lbs. of root plus some hay. The authors give full details for the making of different kinds of silos like tower silo, clamp silo, stack silo, pit silo etc., and of the different crops suitable for ensilage. (C. N.)

The Feeding of Dairy Cows (*Bull No. 42 of the Ministry of Agriculture and Fisheries*, London 1932, Price 9 d. net.):—This is a popular exposition of the important topic of the proper feeding of dairy cows and comes from the pen of Mr. James Mackintosh of the National Institute for Research in Dairying, Reading. The opening paragraphs deal with the principles of animal feeding like the nature of food constituents, digestibility coefficients, nutritive ratio etc. after which follows a brief exposition of feeding standards for maintenance and production of dry, in-calf and milch cows. The importance of mineral and vitamin supplies is stressed. The pamphlet is mainly intended for British farmers and its most valuable portion is contained in the later chapters, wherein the author deals with the suitable selection of rations from among the bulky foods and concentrates commonly used in England, with special reference to the nutritive ratio and the economics of feeding. Several bulky foods like hay, straw, roots, silage, sugar beet tops, potatoes and wet grains, are dealt with in detail and the concentrates are divided into three groups (I). Foods containing over 30 % protein like decorticated cotton cake and meal, decorticated and undecorticated groundnut cake and meal, soya bean cake and meal, linseed cake, sesame cake, dried yeast and fish meal; (II) Foods containing from 17 to 30% proteins like undecorticated cotton cake, palm kernel cake and meal, coconut cake, maize gluten feed, been meal, malt culms etc.; and (III) Foods containing below 17 % protein and rich in carbohydrate (over 50%) like oats, barley, wheat, maize rice meal, tapioca meal, treacle etc. A number of selected rations are suggested for dry and in-calf cows and cows in milk. A useful feature is the addition of tables giving the average live weights and maintenance requirements of the different English Dairy breeds, the production standards per 10 lbs. in respect of milk of varying qualities, and the composition of the common bulky and concentrated foods in terms of dry matter, starch equivalents and protein equivalents.

A similar consolidated pamphlet giving details of the maintenance and production requirements of Indian Dairy breeds, and the average composition and digestion coefficients of feeding stuffs and fodders commonly used in India is an urgent desideratum. (C. N)

Gleanings.

Effect of India's Sugarcane Policy on the Java Trade.—"India's action in directing fresh efforts to the enlargement of its output of white sugar has been interpreted in certain quarters as sounding the death-knell of Java's trade in that quarter. It is not so regarded by the proprietors of the Java Industry, although they appreciate that if the movement carries far enough it will result in a gradual reduction of their British Indian business. For the nearer future they hold, and this seems to be the sounder view, that the erection of modern factories in the interior of India is likely to result in a rapid expansion of local and internal demand for the products of these mills without greatly diminishing the demand in the principal ports for imported sugar. Thus, they anticipate the development of consumption in other parts of the Orient can be made to replace a gradual falling off in demand from British India. Nor do those who have in their charge the management of the Java sugar industry consider themselves eliminated as a factor in European sugar markets. They are content to look upon European business as the safety valve of their industry, an outlet for limited quantities unassimilated by their more important markets in the East, but to this extent they expect to retain their European trade" (*Facts about Sugar*. Vol. 27, No. 7, July 1932).

Bacteria Produce Vegetable Oils.—Bacteria that do the work of powerful pressing machines by liberating oil from Vegetable cells were described before a recent meeting of the American Chemical Society by Dr. John W. Backman. The newly discovered *Bacillus delbrueckia* attacks the tough cells of an oily vegetable, such as coconuts meats and by devouring the cell walls liberates the pure coconut oil which floats to the top of the vat, thus becoming available for industry's manifold uses at a lower cost than that incurred by any process involving mechanical pressing. The bacillus is obtained from brewer's malt. It is said that an infusion of this bacteria will remove all the oil from a vat of dry coconut meat in six days. The colour of the oil is said to be superior to that obtained by the usual pressure methods (A. E. B. *Scientific American*— August 1932).

Rubber Burned in British Grates. Raw rubber now selling for less than kindling wood is being used to light open fires in many British houses, Cut into strips, one pound of rubber costing about five cents (U. S.) will serve to kindle seven or eight ordinary fires. Although not generally realised, crude rubber burns easily without any offensive smell. The British owners of rubber plantation shares are encouraging the use of rubber in starting the coal fires of England in order to dispose off the excess of this material that has depressed the price below the cost of production.—Science Service. (*Scientific American*, August 1932).

Tea Tablets Exported From Java. The Bandoengsche Theefabriek (Bandoen Tea Factory), Bandoeng, Java, is now manufacturing and distributing Tea tablets. Exports of the new product are now being made to several countries, and the concern contemplates introducing them in the United States in the near future. The tablets are manufactured in two styles ; sweetened and unsweetened. They are made of pulverized Broken Orange Pekoe. The tablets will remain in good condition for many months when kept in air-tight containers. The company states that one pound contains about 330 pieces, sufficient for the same number of cups. To make a cup of tea, one piece is placed in boiling water, and allowed to brew three to five minutes. The tablet dissolves immediately and the granulated tea settles at the bottom of the cup. The tablets are packed ten in a package in tin-foil with outside printed wrapper. For export, a chest contains 6,000 packages divided into sixty small boxes.—*Planter's Chronicle* August 13, 1932.

Brown Coal as Fertilizer. The use of brown coal (lignite) as a fertilizer has been investigated in practical trials by German chemists who find that the productivity of many plants, such as potatoes, tobacco, and others, can be increased by the addition of controlled quantities in the soil (says a report in the "Scientific American"). By the use of large quantities of lignite, however, growth is reduced because its acid nature restricts the reducing and absorptive power of the plant. This deleterious effect, however, can be lessened by treating the coal with ammonia first. Thermally inferior coals are quite applicable to fertilization. The action depends on the presence of humic acids in the coal which influence the permeability of the plant cells for accepting nutrition: the nitrogen content, however, has no effect. The action of the normal fertilizer is greatly increased by the slight addition of humic compounds. It is believed that the soil exhaustion that accompanies the continued use of artificial fertilizer is due to the reduction in humic compounds within the soil and can be alleviated by replacing them. (*Hindu* August 19, 1932).

How to Store Honey. If honey is stored in a damp place and not thoroughly sealed up it will absorb moisture and if excessive moisture is so taken up the honey is liable to ferment and deteriorate in value. Do not leave the lid off the containers or leave honey exposed for any length of time during the late autumn and winter months. If kept in a dry place in a sound container honey will keep good for years; it may granulate, but that is not a sign of deterioration, and in such cases it may easily be liquified by immersion of the container in hot water. W. A. Goodacre, Senior Apiary Instructor. (*Agricultural Journal of New South Wales*, Vol. XLIII, part 8. August 1932).

A Garget Tip. *Dairy Farmer who is successful with Linseed Oil.* The uses of Linseed oil in correcting gargety conditions of the udder were described by a Cheshire dairy farmer, writes a correspondent. As soon as the inflamed, swollen or hard condition of a quarter is discovered, he gives the cow a quart of linseed oil and continues this for two or three days if required, then gradually decreasing to a pint and so on. Although having previously lost quarters of many cows he has not lost a quarter since adopting this linseed oil tip, the swelling, hardness and inflamation almost invariably disappearing after a day or so.

Curiously enough, although linseed oil in such doses would normally give a pronounced aperient action, it does not have any marked effect in this direction where the udder is inflamed. (*The Farmer and Stock Breeder* Vol. XLVI. No. 2236. August 15, 1932.)

An Effective Rat Trap. One of the best methods of trapping rats is to get a small barrel or a water tight chest and fill it rather more than half full of water. Over the top spread a sack or piece of canvass having a hole large enough to admit a full grown rat in the middle. Fasten it down taut all round. Spread a fairly thick layer of cork or chaff or both on the top of the water and suspend a lump of cheese, meat or a piece of fish from under the sacking or canvass and just to be on the reach of the rats. The stronger the scent of the bait the better. Scatter a handful of loose straw or hay on top of the box or barrel and place a board against it so that the rats may readily find their way to the top. The barrel, it need hardly be said, should stand in a shady corner near where the rats have their burrows or run. See that they are not disturbed by cats. A little bait on the top of the trap vessel will naturally induce them to search for more, and scenting the feast within the vessel they will plunge to their doom one after the other. As many as 38 rats have been trapped this way during a single night. Rats can swim of course but with the surface of the water within the barrel about a foot from the top they are unable to jump out and soon drown. (*Journal of the Jamaica Agricultural Society*, Vol. 36. No. 7 page 351).