

night frosts—even somewhat earlier if finishing for the Christmas market—and when once put in the stable should be kept there, as it is inadvisable to turn them upon the frozen grass during the day. The feeder should also have in mind some definite idea as to when his animals shall be ready for market, and regulate his feeding operations accordingly.

Great care should be exercised in feeding the animals regularly and liberally from the day they are housed, when they will soon know just when to expect their next ration. Much also depends upon the treatment they are given. The action of the profitable stock-feeder is always characterized by the pat of the hand in the stable, and giving the animals the padded path in the yard. We often hear of very different results being obtained from the feeding of similar rations, and experience teaches that almost as much depends upon the feeder as upon the food given. Thus far we may go in saying that satisfactory results will never be obtained from any ration unless supplemented with judicious care, and kind, gentle treatment. With these observations, the following ration and system of feeding may be outlined, for animals in good thriving condition and fair flesh, weighing, say, 1,200 lbs. when placed in the stable, and destined for the spring market: Silage, 40 to 45 lbs. per day; cut straw, 5 to 6 lbs. per day; meal, about 2 lbs. per day, composed of equal parts, by weight, of oats, barley, bran and shorts. The above ration of silage, cut straw and grain should be thoroughly mixed each morning, with a sprinkling of salt, from which is given the noon and evening rations, and still have left a small amount for a portion of the next morning ration, which is supplemented by a feeding of long clover hay. This ration, with the additions and changes which follow, is, of course, only approximate, as no one individual can tell another just what an animal will take, and thus practical, sensible judgment in the feed lot is always a leading requirement. Care must always be taken to give the animals at each meal just what they will eat up clean. After the animals become accustomed to their winter quarters, say in about a month or so, the grain ration should be gradually increased up to four or five pounds of meal per day, and when we come to within about two and one-half or three months of the shipping period, increased again to from eight to ten pounds per day, composed of corn meal, and, say, one pound per day of oil cake, in addition to the above mixture; cut clover hay should take the place of the cut straw, and, towards the finishing period, the amount of silage considerably reduced, and clover hay fed twice each day. The watering system should be such that the animals have access to it at all times.

In conclusion, we may well say the business of fattening cattle is a science in itself. Among farm animals there is none so difficult to handle, all things considered, as the fattening steer, and every successful herdsman must be a thinker, a reasoner, and a man of resource. The managers must be watched and kept clean, the condition and thrift of the animals observed, the droppings examined and taken away, the temperature of the stables noted, and the whole system of operation marked by a studied method and regularity.

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Preparing Foods.

The impression prevails in the minds of many people that time spent in cooking roots and other food for hogs is well spent. It is often interesting to notice in what directions different opinions run with relation to certain practices. Their actions, no doubt, are marks of men's judgment, and the extent to which they are in accord with true economy is the measure of a man's success. In the group of men we all know there is the one whose hobby it is to slice his turnips a certain way, another who believes it pays to scald feed for cattle or hogs, and another who will never be convinced that hogs do equally well on uncooked feed as upon cooked. Of course, these things are not done without good reason, but whether the extra labor each involves is repaid in the betterment of the fodder is the important question. Personally, we prefer to give food in its natural condition when there is any doubt about the advisability of grinding, cutting, cooking, etc. But there are cases where there is no doubt of the course to be pursued, and indications are always forthcoming from the stock themselves, in the way of refusal to eat certain foods, engorgement or waste. There is a law in nature, known as the law of atrophy, which means that if an organ or set of organs remain unused for extended periods they become useless or cease to exist. It is also noticeable that if organs are not constantly used they become of less use. Now, teeth were given to hogs, cattle and other stock to grind their feed, and, consequently, should be used for that purpose, if we are to continue breeding stock having a proper use of all their organs. In feeding, we should realize that it is well to assist nature, but unwise to supplant her, and the extent to which we can co-operate with her and conform to demands of time and custom will be the measure of our success.

Market Cattle of Poor Quality.

The burden of the weekly reports from our large cattle markets has been "too much stuff of poor or ordinary quality, best exporters and butchers' cattle in demand." This complaint, repeated week after week, should impress the men who raise steers which finally reach the large markets. The situation is serious. We cannot ignore these constant reflections upon the quality of our market cattle, nor can breeders and feeders afford to handle such cattle in competition with countries that are producing a better class of exporters. The source of these cattle that go begging on the larger markets is, no doubt, upon the farms where cows are kept for the dual purpose of raising a calf for beef and giving milk for the factory or creamery, and this practice has paid fairly well the past few years, in spite of the low price of such cattle for beef, and the comparatively small amount of milk given by many of the cows. The cows have been fairly good milkers, and have returned some revenue, while the young cattle have been raised upon the skimmed milk and cheap roughage. Young cattle can be raised upon such fare comparatively cheaply, but, with their hereditary tendencies to dairy form, and with the slim feed given, or in spite of better feed, they come up to the market in anything but good condition, and, unfortunately for the export beef business, the raisers of many of these market cattle are introducing more and more of the blood of the dairy breeds into their herds, in order that the returns from the milking cows may bulk larger. This condition at present puts the cattle-raising business into a transition stage. Later, when the herds which to-day are termed dual-purpose, but are tending toward the dairy type, have received a larger infusion of Holstein, Jersey or Ayrshire blood, their progeny will not be foisted upon the beef-consuming public, but will either be kept for breeding, fitted for veal, or destroyed. Such a result would also imply the development of other herds toward the beef-form type, and, ultimately, the reduction of the numbers of the so-called dual-purpose cows that are supplying so many poor-quality beef steers to the markets. Of course, it is objected to such a course that part of the revenue of the herd will be sacrificed, but it must be remembered that, for dairy purposes, very many of the popularly-known dual-purpose cows are only returning profit after the value of the calf as a stocker has been added to the value of the milk produced. Such cows are dangerously near being a dead loss, rather than a remunerative source of income. Very many such cows do well to give from three to five thousand pounds of milk per year, while in reality milking cows ought to produce from seven to ten thousand pounds, and when they do this their owners can well afford to make other disposal of the young stock than to market it for beef or feeding cattle. The same principle of specialization and increased returns will hold good with the herd that is being graded up to a better type of feeders at the expense of milk production. Taking the market reports, we see that the high-grade beef steer that goes on the market fit for export will bring, quite frequently, twice the figure that his brother of the dairy type will, even though both have roamed the same pastures and eaten from the same mangers. It's a demonstration of the principle of specialization for economy in production, a principle that is irrevocable, and that is operating in every branch of productive enterprise to-day.

There is one other possible reason why the big markets are flooded with such a large percentage of dairy-type steers, and that is that butchers in the local centers secure the best of the cattle in their neighborhoods for home consumption. This is as it should be, and as we hope always will be, but it is also to be hoped that, year by year, fewer steers of the dairy breeds, and those of other breeds, but of the dairy type, will find their way to the larger markets, and this must be the result if cattle-raisers bend their energies toward developing special-purpose herds, rather than to the maintaining of the less profitable dual-purpose cows so general throughout the country to-day.

Cleanliness Among Pigs.

A writer in an English paper has a word in defence of the pig, the aversion to which he says "is as general as the consumption of bacon at breakfast time." The sorry part of the matter, from the pig's point of view, is that the aversion is altogether without reason. "The pig is commonly charged with being an animal of filthy habits. This is a mistake. If pigs be filthy it is because man makes them so, and there is no more foundation for calling the porcine tribe filthy than that philosophic old rustic had for remarking, after gazing long upon half a dozen pigs wallowing in the mire of a sty that was a menace to the neighborhood with its noisomeness: 'Well, I do a-think as ole Adam couldn't have called them anything else but pigs.' Give a pig a chance, and he will be most scrupulous as to his bed. It is interesting to watch the painstaking efforts of a pig to make himself a cleanly com-

to repose in. But this comfort of cleanliness is impossible in many sties. Pigs certainly like a humid place, where they may cool themselves, and protect themselves from flies. But that is not to say they like no other place."

Early Maturity.

The term early maturity is one that is of late becoming more and more used, and its significance more general. At the forthcoming fat stock shows or winter fairs, one may expect to hear the words early maturing used almost hourly. Maturity in an animal means that a period has been reached in its life when it may be said to have reached complete physical development. Early maturity means the completion of development of form and function at a period earlier than is the usual case. Early maturity is one of the tendencies developed in all classes of domestic farm animals. With beef cattle, sheep and hogs, it has been brought about in answer to the demands of the market for more tender, juicy meat, and because the feeder has been compelled to produce beef, mutton and pork more economically as conditions have changed. With horses it has been developed in order that there may be a shorter period of idle colthood, and with the dairy cow the object was much the same, to get the animals at work early. Early maturity in dairy cows has reference more particularly to abundant production of milk at an early age rather than to complete development of form. Milk production with dairy cows begins at an earlier period than complete physical development, yet the latter is attained before the former function reaches its maximum proportions. Heavy feeding of dairy heifers would encourage early physical development, but in all probability it would at the same time tend to encourage a habit in the system of laying on fat, a tendency which would in time operate against the function of milk production. It is evident, therefore, that early maturity in dairy cattle cannot so easily be obtained as with beef cattle, and that it must be influenced less by feed than is possible with the beef stock.

The influences which operate to produce early maturity are principally these: Selection of animals for breeding purposes that display an aptitude for rapid growth when young; a plentiful supply of suitable food, and breeding at an early age. By the operation of these three influences, advance is continually made upon any previous tendency to maturity, and when continually operating may fix the tendency as a characteristic trait, which in time becomes so constant that it is regularly transmitted. Individual animals display very marked tendencies to this trait, and when noted should be carefully encouraged by those who wish to fix this characteristic in their flocks or herds.

Maturity or maximum development is the result of supplying a sufficiency of nourishment, and it, therefore, follows that if a plentiful supply of food is given, so that growth may go constantly forward without cessation, then the desired finish is reached in the least possible time, or, in other words, early maturity is secured. But if the food supply is limited or insufficient, then growth is retarded and prolonged, and late maturity results. This latter condition generally prevails when animals are left to gather most of their sustenance upon pastures or ranges, and conversely when animals are kept on cultivated lands and well fed, growth is most uniform and rapid. Breeding at an early age is one of the most certain agencies of producing early maturity, but the practice should be employed with considerable caution. If breeding is permitted at too early an age, it has a tendency to reduce size and weaken the stamina of the stock, and any gain toward early maturity secured at the expense of size and constitution may be of questionable advantage. The object, therefore, in breeding early to encourage maturity, should be to mate at an age just before complete growth is attained, but not so early so as to produce a runt, or dwarf growth too violently. One must be careful in this practice to avoid extremes.

It is no uncommon thing to hear some of the older breeders of beef cattle remark that Shorthorns or Herefords are not as large now as they were some years ago, and probably there is considerable truth in the statement, for in these breeds early maturity has been constantly encouraged, and this tendency is more or less antagonistic to great size. Not only is this true of individuals within the same breeds, but also of different breeds and classes. Small sheep and swine, for instance, mature earlier than the larger breeds, and this principle of development pervades all life, not only animal, but also vegetable. But whatever may be lost to the Shorthorns or Herefords in size is amply made up to them in compactness and early maturity, and while the most improved specimens of these breeds may not bulk so large in the eye, it is an open question if they do not weigh as heavily as the best of their ancestors did.

Early maturity of stock is one of the features of our more intensive methods of farming. We