the seed in rows, running east and west, at least a foot apart. I have found it a good plan to mix about one-quarter of radish seed with the onion seed. The radish having earlier sprouting tendencies than the onion, will act as guides in early cultivation. The seed must be sown very early in the spring, just as soon as the ground can be prepared. Freezing and thawing does not hurt onion seed as much as a great many other plants. If the seed does not show up for four weeks, do not be alarmed, it will be ready to sprout at the earliest opportunity; it starts very slowly.

Keep using the cultivator frequently, taking care not to stir the soil too deeply or to collect it about the growing bulbs. Never allow the weeds to get ahead of the young plants. When they are about two inches high, they should be thinned out, and the radish plants removed. This thinning should leave a good onion about every four inches in the row. Don't be afraid to leave so much space for they will require it every bit, unless you intend to sell them for green onions. Then, of course, you may leave, say, two inches apart and pull every second one for green ones, leaving the others to get ripe. Never allow them to get crowded, and do not leave a single weed. Always see to it that you do not draw the earth to them, or work in the garden while the ground is wet.

When the bulbs attain a good size, say, half grown, begin to roll down the tops with a hand roller or even a barrel, flat to the ground. See that every top is broken, laid flat and kept there. It is wonderful how those bulbs will enlarge after the tops are bruised. When full-sized, or the cold weather coming on, it is time to harvest them. Pull them and leave them in rows on the ground for a week or even longer, if the weather is favorable. Then cut off the tops close, nd leave them in wide-spreading piles, so they can be covered up at night and exposed to the sun in the day.

If you have a warm, dry floor upon which you can spread them, it would be all the better. They should be thoroughly dried before storing for winter. Open racks suspended in the air in a dry, cool room, that does not quite freeze, should be used. The onions should not be more than three inches deep on each shelf or rack, and the rack should be made of wire or wooden slats so that the air can pass freely through.

I dispose of all not required for home use in the fall.

Problems in Fattening Steers

C. W. Burkett

The steer that will fatten readily is set, deep, broad and compact rather than long-legged, gaunt, narrow and loosely put together. The broad, compact form indicates good constitution. Low-set animals are usually good feeders. The top and under lines should be nearly parallel. Prominent hips, tail, head and shoulders should be avoided as smoothness of outline is essential. Good quality is indicated in a smooth, refined head, fine bones, thin skin and silk-like hair. The skin should be loose and mellow. Strong constitution is indicated by wide, deep chest, long and well-sprung ribs, compactness of form and finess of bone.

It is obvious that lean-feeding animals that have depended on scanty pastures require a different ration at the beginning of winter when put in the feed lot than those in moderate condition. In the thin stock, the fibers of the flesh need development in order that fat may be stored in between and among them. Such animals require a feeding period of three to four weeks, in which a greater quantity of protein will be given than later on. After this preliminary feeding the proportion of carbohydrates and fats may be increased. When more than a couple of pounds of digestible fat are taken into the system the appetite and digestion are likely to be disturbed. Hence, the feeder must avoid an excess of fatty food.

Less Bulk as Fattening Advances

During the growing period and approach of fattening, the amount of roughage food may be considerable. This will decrease as the fattening period advances and more of the concentrates should be introduced. For intensive feeding, coarse feeds like stover and straw must give way to the legume hays and grain. The better the condition of the cattle when taken from pasture, the quicker the finishing period will be reached and consequently the greater profit. Even at best, finishing cattle is a risky business and needs to be watched with sharp eyes. Heavy feeding is desirable. To stretch out the fattening period is to increase the risk and to lesson the profit, unless favored by a rising market. Quick work in the feed lot is usually cheap fattening.

When calves are to be finished as baby beeves, their ration will take on more and more grain concentrates as winter passes. Corn should be fed in liberal amounts, from one-half to three-quarters of the grain portion consisting of it. In case legumes are largely supplied, the grain portion may consist largely of corn, with enough oil meal or bran to give a safe supply of protein.

In the absence of alfalfa, clover or other legume hay, one of the oil meals should be used to the extent of 20 per cent of the concentrate. The ration should be steadily increased to meet the steady growth and weight taken on during the several weeks of feeding. By spring, calves put in the feed lot for baby beeves should weigh from 800 to 1,000 pounds, and be in such good flesh that they may be marketed in a very short time after being put on a finishing ration. This means the roughage must be decreased and the concentrates properly increased.

For animals brought up to a marketable stage as baby beef, continuous grain feeding from birth to the end is necessary. Whether this is best is still an unsettled problem, even though many men are able to secure good profits by the plan. But the method has its limitations. While adaptable to certain lines of farming, the practice of carrying cattle along until within the range of two years of age is still the more popular practice. In the first place the steer is by nature a good instrument for converting large amounts of coarse or bulk feed into meat. This the pig cannot do. But compared with the pig, the baby steer renders a less satisfactory account of the grain it consumes. For this reason, doubtless, the pig competitor will limit the extent to which baby beef will be produced.

In feeding out steers, which are past two summers and a winter, during the second winter the grain should be rather liberal. So fed, by May or June such animals ought to be of a marketable finish if turned on good pasture and fed heavily on grain. Steers that have been pastured during the past summer and have had little or much grain, may be finished on new corn early in the winter, or carried on for several months longer. The corn can be hauled direct from the field and fed on pasture, on the stock, as is the custom on many farms, or other grain may be given in the feed lot. But in any case, as rapidly as may be done safely the corn should be increased for a month or two, when the steers may be placed on full feed. From now on they may refuse some of the roughage provender.

Snap may compose half the ration. As soon as removed from pasture, protein feeds must be used and some shelled or ground corn also provided. Pigs should now be permitted to follow the steers, else much valuable grain will be wasted. Not only will this method admit of rapid growth of the pigs, but these animals will practically grow to a marketable finish, giving a double chance of profit from the use of the grain.

Drainage Useful the Year Around

Prof. F. O. Fippin, N.Y. College of Agriculture

The cost of drainage depends on the character of the soil and the size of the tile used. Numbers of figures show that it runs from 25 to 30 cents a rod for lateral drains for construction of the ditch, to which must be added the cost of tile—about 25 cents for 3-inch size. With hard, stony land and larger tile, the total cost a rod may reach $1 or more.

The point in drainage is to get rid of the excess water in the best way with the least expense. In order to do this,