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**Feeding Beef Calves.**

(From an address of Mr. H. W. Crew, Before the Tennessee Farmers Convention).

As good breeding and good feeding are inseparable essentials in the production of choice beef before taking up the question of their feed. Scrub cattle or cattle receiving scrub treatment never top the leading markets or win rosettes at the International. The winners, without exception have woven through their carcasses and stamped on their exteriors the expression "well bred and well fed." Fortunately the term well bred from the feeders standpoint does not mean pure bred, as the farmers of the corn belt, who produce most of the high priced beef, depend almost entirely upon grade cattle for the feed lot. The first step in grading up from a herd of common cows is the use of a pure bred sire belonging to one of the beef breeds. The choice of a breed demands careful consideration, not that there is so much difference in the merits of the Shorthorn, Angus, Hereford and Galloway, but because no change can be made afterward without losing gain already made. None but good milkers, cows able on good grass or other feed to produce from three to five gallons of milk per day for a period of at least six months each year, should be selected in starting a grade herd, and the sires used must be out of heavy milking dams as well as of the proper beef form and size. The fact that it seems easier to meet these conditions with the Shorthorns is the basis for the writers preference for the "red white and roans."

It will soon be noticed that some of the cows used for foundation stock produce calves of better beef form and fleshing qualities than the others. These and their heifer calves may be retained while the poorer ones are sent to the block. In deciding which ones are to be kept to produce the future herd the size of the calves when dropped need not be considered. It is better to defer judgement till it can be based on their development. It takes about ten years of selection, weeding out, and constant use of pure bred sires of one breed, without inbreeding, to es-

tablish a good grade herd.

March, April and May is the best season for the main calf crop but some may come in January and February if warm, roomy sheds or box stalls can be furnished. It is desirable to have a few come late in summer in order to have at all times a cow or two giving a full flow of milk.

The calf should suck its dam within an hour of its arrival, being assisted by the herdsman if necessary, but it is usually better to defer the milking of the cow till the calf is five or ten hours old. However, if the udder is very full of milk, it may be emptied as soon as the calf has had his fill, and it is sometimes necessary to milk the cow once daily for a few days prior to calving to prevent excessive inflammation of the udder. During cold weather the youngsters should be kept with their dams in warm, clean box stalls for the first two weeks except for a few hours during the warmest part of the day, when the cows may be turned out and the calves given a sunning by themselves out of sight of the cows. In nice weather it is better to separate the calves from the cows after two days and let them suck all they want three times a day for the first week or two and then twice a day until they are about six months old. If some do not get about all the milk they want from their dams they may be allowed to finish other cows giving a surplus that have calves about the same age. To keep up the milking qualities of the herd it is necessary to strip the cows twice a day after the calves have had their fill, and when there are fresh cows throughout the year the family's supply of milk can be obtained in this way, although it may be a limited supply at times. When calves of different ages are fed together they learn to eat grain when from three to six weeks old and for best development, require all they will clean up twice a day. It is best to feed the grain before the cows are taken to the barn as they will not care for it when the time draws near for their milk ration and will be too full to eat after sucking their dams. They must be divided enough to prevent the older ones from crowding the little ones

away or all be chained to separate places. I prefer chaining them, as the feeder can then know just how much each one will clean up with relish and sooner detect any little indisposition. Equal parts by weight of ground oats, corn meal and bran mixed form one of the ground feeds and the very best whole grain mixture is shelled corn and oats. Sudden changes much be avoided, but as they soon tire of one ration it is to make frequent slight changes changing the proportion of the mixture a little, changing from an exclusive ground grain ration to ground grain in the morning and whole grain at night, mixing the whole grain with the ground, etc. Good grazing practically the year around is very desirable and greatly relished by the youngsters. Blue grass and white clover form one of the best permanent pastures for use at all seasons. Crimson clover is fine for spring use, and cowpeas broadcasted, or soja beans in drills furnish the summer and fall pasture. Soja beans in rows will be harvested by calves without waste of leaf or pod. Warm, clean and well ventilated quarters should be provided for nights and bad days during winter and cool, dark sheds as escape from the sun and flies during the middle of the day in summer.

□ The best mixed grass and clover or peavine hay should be used during the season when they have not an abundance of pasture. Instead of carrying calves through their first twelve months at the least possible expense I believe it profitable to induce them to eat to their utmost fill. Free access to pure water is an essential. At about six months of age they may be gradually weaned, at least one month being taken for the purpose and then kept out of sight of their dams. During this weaning period extra care should be taken to furnish them all they want of the choicest feeds especially feeds rich in protein. Good beef calves raised in this way will gain from seventy five to 100 pounds per month until seven months old, weighing from 500 to 750 pounds at that age, and will consume about \$5 worth of grain. From weaning time on they require more feed but can be made to gain from 50 to 75