

Agriculture.

Soiling in Midsummer.

BY PROF. L. E. ARNOLD.

Where land is cheap and sparsely settled pasture very naturally forms summer food for dairy cows. Where land is plenty labor is generally scarce and high, and a dairyman can better afford to furnish land for large pastures than to pay for extra labor to increase his summer feed by cultivated crops. But in dairy districts land is seldom cheap enough to make it profitable to furnish pasture for the entire summer support. There is a season in midsummer when growth ceases and grass becomes dry and comparatively innutritious, and the cows shrink in milk for so long a time that they will not recover from the shrinkage, and the mess remains smaller for all the remaining season than it would if a full supply of green food had been continuous. Flush feeding, after a long shrinkage, does not bring back the previous flow, and greatly diminished yields become inevitable. The loss entailed by shrinkage in midsummer from food too dry or too scanty, or perhaps both, very often makes the returns of the season end in loss instead of gain. The man who prevents shrinkage by continuous supplies of green food will easily make his cows give one-third more in a season than if they depended on grass alone. This will more than pay for the extra feed. The less dependence there is on pasture the more stock can be kept on a given area. The number of cows can therefore be increased to the extent soiling relieves the pasturage. Thus a considerable addition to the income of the farm is often made.

There is also a strong reason in favor of soiling, at least a part of the season, by reason of the uncertainty of the weather. There is always a liability to suffering by drought, against which it is prudent to provide. Drought often cuts down the products of the dairy one-half, occasioning a loss no farmer can afford. The man who does not secure himself against such losses is not discreet. Men think they can afford to pay a high rate of insurance to protect themselves against loss by fire, but the loss by drought is often greater than by fire, and it comes much oftener. Every few years a drought sweeps over the country and catches hosts of farmers unprepared for it, and the result is the loss of a season's work and perhaps a debt in the bargain. No considerate man will fail to guard against such a misfortune, especially as the insurance will cost him nothing but a little thoughtfulness and attention. The insurance will consist in growing fodder corn enough to carry him through any emergency, and then if the emergency does not come he will be well paid for his trouble in saving for winter use any surplus the necessities of the summer may not consume. Fodder corn is named not because it is supposed to be better milk-producing food than anything else, but because it is more certain of a heavy growth. There is no season so dry that if corn is sown upon well prepared ground that it will not produce a large crop.

Fed alone it is an imperfect food, being deficient in flesh-forming matter, but still stock will live on it some time and do well, and when fed exclusively upon it, will give milk somewhat low flavored and watery, but far better than none. They give much better milk and more of it when the corn is fed with clover, either green or dry, or with peas and oats, sown together, or with grass or millet, all of which are rich in flesh-forming food and make a good balance for fodder corn. If one has not a clover field that he can draw

upon for something to feed with green corn, it will pay to mow a piece of stout grass early—just as it begins to head out—and dry it to feed with corn in July and August, and cut a second crop for winter, or to sow a piece of peas and oats for that purpose. It is quite as well to feed such food dried as green when it is to be used with green corn, as it seems to be an offset for the excess of water in the corn. It is thought by many that the cows give richer milk and more of it when it is so fed. If all the soiling food is to be fed green, it will be found an improvement to cut it a day or two in advance of feeding, that it may be relieved from some of its extra water. Food of some kind should be prepared for the dry season, to be ready for use as soon as pastures begin to fail, that no shrinkage may occur, and whatever it is there should be enough of it to carry the flock through any emergency, and now is the time to prepare for it, while the arrangements for the season are being planned.

A Notable Crop of Corn.

RESULT OF THOROUGHbred SEED, FERTILE SOIL, ROOT-PRUNING AND GOOD CULTURE.

BY E. LEWIS STURTEVANT, M. D.

The past year Mr. E. F. Bowditch, of Massachusetts, raised, on seventeen and one-fourth acres of land, 3,474 bushel baskets of ears, and 52 32-100 tons of stover. This is 199 8-10 baskets per acre, or 99.8 bushels of shelled corn, farm measure, per acre, or probably 100 bushels sale corn per acre. This yield, well authenticated and reliable, will serve as a standard example of success attained through the judicious application of science to the farm practice.

The land for the crop was carefully prepared and well manured, though not heavily, but sufficient to give a good growth; the situation nor quality of the land were not the best for corn.

The foundation of this crop was laid the preceding year, by preparing the seed. It is well known by vegetable physiologists that the tendency of cross-breeding is to produce vigor in the offspring. If two seed corns, each of high character, be crossed, the produce will in all probability be a more fecund seed than either of the parents grown separately. The preceding year equal quantities of the Wauashakum and Longfellow corn were mixed together and planted. From the crop thus raised, the seed corn was selected, particular care being given to pick out ears of a uniform style, of small cob, and compactly arranged grains of a large size. This was the seed for last year's attempt, and thus was it produced. In repeating this seed selection for another year, Mr. Bowditch will not depend upon last year's crop for the whole of his seed, for if he did he would be propagating toward grade instead of thoroughbred, as the new variety, the half-bred, would doubtless tend to vary even more than toward the original types; by crossing again with the Wauashakum, he will secure a grain allied to that secured by the original cross, and thus diminish the future chance of loss which may come from the use of last year's crop for seed. Success in this method depends upon using for the parent seeds corn of similar types, of strong race peculiarities, and of fecund habit.

It is not difficult to find seed corns which, with good culture on rich land, will yield fifty bushels per acre. A better seed, of a fecund habit to be measured by a hundred bushel crop, may do no better under improper conditions of culture. It is only to the good farmer that the quality of the seed used assumes the highest importance. Of two seed corns, the one of a fifty-bushel power, the other of a hundred-bushel power, the same culture and care that will give the one crop will give the other. If the farmer then desires to improve his culture, he must improve the quality of his seed either by his own selection or by purchase from those who have given the proper care. No farmer can secure a large yield by any means so long as he uses a seed corn too infecund to bear the crop, as illustrated by an experience of my own some years ago, when two seed corns of similar appearance in the ear yielded the one fifty-five bushels per acre and the other just 110 bushels per acre, under as precisely similar conditions as ever can be obtained in farm practice.

This seed was planted in drills, and rather heavily seeded. As soon as the corn was up, a

smoothing harrow was used lengthwise of the rows, thus eradicating all the sprouting weeds without disturbing the more deeply rooted corn plants. After the plants were from one and a half to two feet high, the cultivator was used—one of those which straddle the rows, and whose disks cut deeply and lift the soil. This machine was run frequently, and as close to the plants as was possible and as deep as it would go. By this means the plant, whenever it obtained a rampant growth, was at once checked by the severe "root pruning," and reminded, so to speak, that its purpose was to grow grain and not leaf. This root-pruning was one of the secrets of the large crop. A neighbor, in friendly rivalry, using more manure and planting a smaller field, using more expense and greater labor in hand work, and no especial pruning, secured but seventy-eight and a half bushels of corn, and this gentleman of intelligence after careful investigation, ascribes his non-success to his not having full faith in this theory of obtaining crop through alternately stimulating and repressing growth during the cultivation of the crop.

We have, then, as an explanation and as a teaching from this success, but three leading factors: sufficient fertility, good seed, thorough and judicious cultivation with a purpose in view. Experiment and study of experience have convinced me that too much manure diminishes the merchantable crop; excessive manuring may have the excess turned to advantage through a cultivation so severe as to check each appearance of rampant crop; manure can never obviate the necessity of good seed, nor can good seed obviate the necessity for fertility of land; good seed, abundance of manure, and no cultivation will result in disappointment; good seed, sufficient fertility, and proper cultivation will always give a large crop on corn land. Of these factors, good seed assumes the greatest importance, because fertility of land and the process of cultivation are under the farmer's control, and good seed is a scarce article and difficult to obtain, and is further from his control. With good seed, the farmer can work with hope; with poor seed he seems the sport of adverse circumstances. It is with the recognition of the great importance of the character of the seed for influencing the crop that we are to hope for a general and extended improvement in quantity and quality of yield.

[We are aware many of our readers hold different opinions from Dr. Sturtevant, especially concerning root pruning. We will be glad to hear from any such; it is only by comparing our experiences with others that we can hope to come to right conclusions, and we have no doubt agriculture would make a much more rapid advance if farmers would tell their experience more freely on all agricultural topics.]

The Influence of Grass Culture on the Growth of Cereals.

To the attention given to the pasture lands of England is to be attributed much of the grain producing capability of her soil. The Americans are in this also beginning to profit by her example. A writer in the *Prairie Farmer* urges his readers strongly to increase the area of their pastures and to sow a judicious selection of grasses as the best means of preventing the impoverishing of the soil. He says:—

"The vast increase of manures (if fed on the farms,) which will result from the consumption of this augmentation of the herbage grasses must wonderfully increase the productions of the cereals. Millions of dollars will be thus added to our income. The influence of grass culture on the growth of the cereals is very strikingly exemplified by a comparison of the agricultural statistics of France and England. France has 53 per cent. of its cultivated area under cereal cultivation, while England has but 25 per cent. Those who read this statement for the first time will be surprised to learn that notwithstanding this disparity between the areas of the grain lands in the two countries England produced five and one-ninth bushels of grain for every individual of her population, while France only produced five and a-half bushels for every individual of hers. Thus with less than one-half of the proportional area under cultivation England produces within seven-eighths of a bushel per head of what France does."