

in the fall, and prepared as if the seed was then to be sown — which latter clause is absurd, if Mr. Stewart means that the autumn furrow should be disturbed. Then," continues he, "in the spring, sow directly upon this soil as soon as the upper four inches are free from frost and dry, and use the harrows across the furrows to cover the seed."

Oats, as every one knows, or ought to know, need the longest possible growing season; they love cool weather, and moist, well drained land. And it is on account of this proclivity that, whereas the potato-oat grown in Scotland weighs, on an average, 43 lbs., grown in England it rarely exceeds 38 lbs. The Mr. Henry Stewart, whom I quoted above, must by no means be confounded with Mr. Elliott W. Stewart, author of "Feeding Animals."

A mellow seed-bed and sow early is the main point, I put all my grain in thus:

Wheat sown on autumn furrow, and grubbed in across ridges; harrowing till enough.

Barley and oats, furrows grubbed across; seed sown and grubbed in across the former grubbing, harrowing till enough.

Barley wants just as much harrowing as you can manage to give it; oats will do with less than barley; and wheat requires least of all grain.

*Celery seed.*—Always a trouble to grow. It should be sown in rich, mellow soil, and not covered, but merely pressed into the soil with the foot. Water with a very fine rose until up.

*Mr. Bowker on artificial manure.*—This gentleman, be it remembered, is a dealer in as well as a manufacturer of artificial manures; so, I fear his evidence as to the utility of fine-ground phosphatic minerals must be taken with an allowance. The "leading experimenters" have not by any means come to consider that "it is far wiser to dissolve it than to apply it in the raw state." What we all say is this: If you depend upon artificials alone for your root-crop, use, say, 2 cwt. of dissolved phosphate of lime to start the plant, and with it mix 2 cwt. of fine-ground Carolina-rock, coprolite, or other non-crystalline form of phosphate to support the plant in its maturing state.

Mr. Curtis is perfectly right in his idea that the greatest usefulness of artificials is when they are employed to aid barn-manure. Where I come from, the smallest farmer never dreamed of sowing roots without a mixture of dung and superphosphate. In this case, as the artificial is used expressly to help the plant in its youthful state, the mineral should be invariably dissolved in sulphuric acid.

Mr. Bowker's analogy between the calf and our cultivated plants will not bear inspection: nobody would dream of dressing fall-wheat with artificials until the arrival of spring; so, if that crop is invariably stunted, not only for 30 or 60 days, but from September to April—say 210 days—and survives the neglect, Mr. Bowker's argument is out from under him. Analogy is one of the most dangerous of weapons in discussions.

"Mr. BOWKER, in another part of his address, said that there is no farmer to-day who will not admit that in raising a calf, if it is stunted for the first six weeks of its existence, it is stunted for life; so if a crop is stunted for the first 30 or 60 days, it is stunted for the rest of its growth. That being the case, it seems to him we should have plant-food in the most favorable condition, so that if the weather shall be right the crop will make the best possible growth during the first few weeks. This should be one reason in favor of commercial fertilisers....."

SPEAKING of S. C. rock, he said that it is urged by many that if we applied South Carolina rock, in a fine ground condi-

tion, directly to the soil, and it will give good results; but he thinks that after a long trial the leading experimenters have come to consider that it is far wiser to dissolve it, especially for hoed crops, than to apply it in its raw state, for nearly all hoed crops make the greater part of their growth in 60 days, and plant food, to be of any value to these crops during this period, must be in a condition ready for them to absorb.....

Mr. CURTIS (Glidden & Curtis) said that he had the idea that the greatest usefulness of commercial fertilisers was when employed in connection with barn-yard manure. Where barn-yard manure is applied, it is necessary to cultivate the soil thoroughly. It is so done, and the soil is very carefully pulverised. It is natural to suppose that if a chemical fertilizer is used after that careful cultivation of the soil, it will have a great deal more effect, and a quicker effect, than if it is put upon soil that is not so carefully cultivated.....

Ex.

"An old Sussex (Eng.) farmer affirms that the season of seeding wheat is a month or six weeks later than it was fifty years ago." And he is quite right. One of my earliest recollections brings back to me a first of September, when I was trotting alongside of my eldest brother out partridge-shooting, and the farmers were sowing their wheat—broadcast—on every side. This must have been at least fifty four years ago. When I left England, in 1858, no one sowed until about the 10th October, except on the Cotswold Hills in Gloucestershire, and the High Peak, Derbyshire, where the unharvested wheat might, and still, I believe may, be seen standing alongside of the newly sown grain. Both these districts are bleak, backward spots.

#### HOP MARKET.

The hop market continues to be in quite a demoralized condition, and prices are really settled by just what can be obtained for the offerings. If a brewer wants to buy a lot of good hops he would probably have to pay about 80; whereas if a grower wanted to sell his hops, he might get anything he could, from 40 and upwards. The market is suffering severely from over-production, and stocks are still equal to more than a whole year's consumption. It is likely that a considerable acreage of hop gardens will be ploughed up this year and turned to other crops, as any price below 100 is said to leave the grower with a loss. It is reported that some growers are endeavoring to contract for the sale of their next year's crop on a basis of 100, so as to avoid all speculation in growing and to make sure of getting back their own cost.

Hops at 10 cents a pound are a losing business. At fifteen cents, a living profit may be made, but not too much considering what a speculation the whole thing is. I remarked in this publication some three years ago: "I have, I regret to say, been asked for information as to the cultivation of hops by many people"; v. Journal of Agriculture, vol 4, p. 163—I still hold that, except when the soil is peculiarly adapted to the plant, the capital large, the supply of purchasable manure infinite, and labour cheap and abundant, to plant hops means ruin to the farmer. Well, I wrote four or five longish articles on the subject, but I trust—in fact, I know—few new plantations were made. In 1883, hops of fair quality brought the grower 50 cents a pound. An enticing price, I admit, but look at the present price!

Mr. Howard's essay on hay making, p. 95 is correct in every point except in that awful heresy of a chimney! All the best hay in England is made within a radius of 30 miles or so from London, and I should like to see any rash