GROWTH OF CEREALS.

At the last meeting of the British Association, Mr. F. F. Hallett read a paper on the "Law of Development in Cereals." His experience showed him several years ago, that grain and especially wheat, was injured by being planted too closely. He found a wheat plant would increase above the ground in proportion as its roots had room to develop, and that the roots might be hindered by being in contact with the root of another plant. He continued a series of experiments, planting one kernel of wheat only, and succeeded so well in improving the method of cultivation as to raise wheat whose ears contained 123 grains In the course of his investigations Mr. Hallett made other discoveries with regard to the growth of cereals, which he sums us as follow :

1. Every fully developed plant, whether of wheat, oats, or barley, presents one ear superior in productive power to any of the rest on that plant.
2. Every such plant contains one grain, which upon trial, proves more productive than any other.
3. The best grain in a given plant is found in its best ear.
4. The superior vigor of its grain is transmissible in different degrees to its progeny.
5. By repeated careful selection the superiority is accumulated.
6. The improvement which is first raised gradually after a series of years is diminished in amount, and eventually so far arrested, that practically speaking, a limit to improvement in the desired quality is reached.
7. By still continuing to select, the improvement is maintained, and practically a fixed type is the result.

WOOD ASHES.

Ashes may be sown at any time, even in winter. As they are a mineral they will cling to the soil. They may be applied on meadows (the best place for them) any time between mowing and an advanced growth in the spring; but the nearer the mowing time the better, and if applied immediately after the crop is removed, the best of all. The potash and soda will at once do their work. The other ingredients are more laggard and work more slowly; they, therefore, have their benefit extended. As to the amount to be applied, this is variable—variable with the soil. If the land is old and much run, the probability is that ashes will benefit it, and that they may be applied largely, say 50 to 60, and even more bushels to the acre. We have known the latter figure to work almost a miracle on meadows Indeed, we have never known ashes applied plentifully, fail to have a good effect—the effect generally corresponding with the amount sown — Any land but new land burned over, we think will be benefited by the application of this mineral fertilizer. The difficulty is, we never apply enough. Five bushels, and even ten, show but little effect. The readily soluble ingredients, which are but a small part, cannot, therefore, be expected to make much difference, and the rest are slow and less evident. The effect of ashes is immediate, and continues for years. We would by no means use chip manure for wheat unless the soil lacks vegetable or carbonaceous materia . Wheat thrives well in a soil where the mineral or inorganic matter prevails. It wants a compact soil which humus does not make. But for fruit trees chip manure is excellent. It comes under the head of leaves, forest mould, and such like material from vegetable decay.—*Cultivator.*

USEFUL RULES FOR FARMERS.

Sometimes we are short of hay, or that article is too valuable in the market to be fed to cattle. It may be useful to know in what proportions we may feed other articles in the place of meadow hay.

Taking as our hypothesis that we feed 40 pounds of good meadow hay, with nothing else, per day to a fatting beast, the following table will closely approximate the quantity of each different kind of new feed that will form a substitute for *one pound* of hay withdrawn.

	Lbs.
WINTER FOOD.	
Oat straw, cured like hay	1½
Chopped oats, peas or barley, from	1-30 to 1-35
White turnips	8
Swedes, parsnips, carrots or beets	6
Potatoes	2½
SUMMER FOOD.	
Vetches	3 to 1-15
Grass	4

LIVE WEIGHT.

To find the carcass weight of cattle by measurement of the live animal. Measure for *length* from a slight hollow which will be found just in front of the withers, to the point on the tail exactly over the hindermost part of the buttock. Measure the *girth* immediately behind the elbow.

Now multiply the *girth* by itself, and this product by the *length*, then multiply the product last found by the decimal multiplier to meet the case required, according to the following table, and the result will be the carcass weight in pounds :—

Condition of Beast.	Decimal Multiplier.
Half fat	3.22
Moderately fat	3.36
Prime fat	3.58
Very fat	3.66
Extraordinarily fat	3 85

Example—A short-horn steer, in good order for the butcher—or prime fat—measures 4 feet 9 inches in length and 7 feet 6 inches girth. Required to find the carcass weight.

The girth, 7 feet 6 inches, or 7.5 feet, multiplied by itself, gives 56.25; this multiplied by 4 feet 9 inches, or 4.75, gives 267.1875; this again multiplied by 3.5, the beast being prime fat, gives 935.15.

Therefore, the carcass weight of this animal is 935 lbs. From this deduct the usual proportion for hide, horns, offal and tallow, and we have the amount of beef.—*Ex.*

ROTATION A LAW IN AGRICULTURE.

The farmer grows a certain variety of potato year after year, until it fails to produce the same good crops it once did. He sends a few hundreds of miles for new seed of the same variety, and it will at once, and without adding anything to the soil, produce as good crops as it ever did. We have heard agriculturists denny the possibility of this,