"ash-constituents," forming so prominent a part of the food necessary for plants, must either already exist in the soil, or be supplied from artificial sources, and are called "ash-food." Some plants require more of one substance than others. Thus, there are potash plants, as corn, beets, turnips, potatoes, and root crops generally, whose "ash" contains more than half its weight of potash; lime plants, such as beans, peas, clover, etc., having their ash composed chiefly of lime and magnesia. Plants absorbing more or less of silica from the soil—wheat, oats, rye and barley. In all these different ashes, no matter what the class may be, phosphoric acid forms a large proportion, and is usually united with the predominent bases of the ash.

It appears then, from the foregoing, that the roots of plants absorb from the soil, some ammonia, phosphorus (or phosphoric acid), potash, lime, soda, magnesia, silicic acid, and some other substances not necessary to enumerate in this article, but which, together with the magnesia, silica, and a good deal of the soda, exist native in most soils in sufficient quantities. What remains, together with any lack of sulphur, should be furnished in the composition of all high grade fertilizers, but are not considered of sufficient importance to appear in analyses, unless specially designated. Eliminating these, we have to consider the four principal essentials, as they are called, in the composition of what are termed "complete manures," viz.: ammonia, phosphoric acid, potash and lime; and, in the incomplete fertilizers, or "chemicals for composting" as many of these essentials as are given by the analyses. A fertilizer is called "complete" when it furnishes a given number of these principal constituents, such as will act of themselves in such a manner as without the aid of other ingredients a crop will be perfected; "incomplete," when they are prepared to coöperate with the product of the stock yard or farm pen. Each is valuable only as its constituents appear in harmony with the crops for which they are intended, and are soluble for use in the natural acids of the soil, and in water, for without such solubility they are not available for the processes of nature's laboratory.

In purchasing fertilizers then, consider specially these two main points, viz.: The character of the crop to be planted, and the description of land where it is to be grown; the best fertilizer adapted to the crop, and the amount of soluble and available elements it contains,—for if the per centage of insolubility is high, and the available acid low, the slow action of the goods will produce dissatisfaction in results, and, more than probable, a hastily formed opinion that commercial fertilizers fail to meet your wants. It should also be borne in mind that all of the responsible companies furnish an ananlysis of the goods manufactured by them, and, in purchasing an article, the analysis made by the proper Provincial authorities, should always be produced for reference.

In the United States, the different State and Corporation chemists and inspectors have settled down to a basis of valuation, averaging about as follows:

Soluble phosphoric acid...	16	cts. per lb.
Reduced " " ..	16	" "
Insoluble " " ...	5	" "
Potash (actual)	6½	" "
Nitrogen	22	" "
Ammonia (from sulphate)	25	" "
" In nitrogen of blood,	8½	"

These are average rates, and vary somewhat with amount of freights, charges, etc., packages, and state of the markets.

To find the commercial value of any fertilizer, first find by the percentage in the analysis the number of pounds of any given ingredient, remembering that the commercial ton is of 2000 pounds net weight; then multiply the number of pounds by its price. The sum of the individual values will approximate closely to the value of the goods."

CONTROLLING SEX.

Eds. *Country Gentleman.*—When we consider how much is written and published by practical farmers and others on the best methods of raising stock, from their birth to maturity, and of crops best adapted for such purposes, one might well be pardoned for thinking that no more could be learned on either subject, than is already known, and that there need be no further search after knowledge in that direction. There are many practical farmers, good ones too, who differ in opinion as to the best methods of raising the various crops; also in the raising of stock, to say nothing about different breeds. If these differences of opinion lead to a careful consideration of the subject by those who advocate them, good must result eventually from such differences—if not to those who hold them, there will certainly to those inquirers after the best methods, who endeavor to profit by the practices of their neighbors.

In your paper of Nov. 29, page 766, Mr. Franklin Sherman has a letter on the subject of "Sex Breeding," in which he says: "To control, or even greatly influence the production of sex, would be a power of such great value to the human race that time and space devoted to the discussion of this obscure question is not misused." Mr. Sherman also says, if there is a truth to be discovered, he thinks the "search for it will be helped, not so much by combatting the ideas of others, as by seeking additional evidence in support of one's own." I like Mr. Sherman's letter, as he seems to be seeking after the truth in the art of breeding, rather than theory or the support of a theory. Having had some experience in breeding farm stock, and having a theory of my own (or perhaps I should say, noticing practical results in my own herd), I will state them, so that if any person who is engaged in the breeding of cattle can derive any benefit therefrom, my time in writing will not be lost; and if not, it may be the means of causing some one better qualified to give his experience.

In 1842, I purchased my first Short-Horn bull to improve my dairy stock, and, as was natural to most young farmers, I was desirous of raising as many heifer calves as possible, but how to accomplish it I did not know—and I might add that I do not know even now. The bull came on the farm June 14th, having been on the road four days on foot, consequently he had been reduced in flesh and vigor during that time, although perhaps scarcely perceptible in his appearance. On his arrival at the farm there was a cow in heat, and they were coupled; the cow being fresh, the bull tired. The result was a heifer calf. The bull had been kept up and fed meal before I purchased him, but being a very quiet animal, although three years old, I turned him into the pasture with the cows, and did not have any grain fed him during the remainder of the season. He fell off somewhat in flesh, which decreased his vigor, while the cows were of course increasing in vigor, especially the heifers that were not giving milk. The following spring I had ten heifer calves and two bull calves. The bull served some forty cows in 1842, a large proportion of which were heifers. This bull was kept on the farm for a number of years, and during the winter, with ordinary feeding, he would invariably gain in flesh, while in the working season on grass he would fall off in flesh, but in no year so decidedly as the first year he came on the farm. During the years he was kept I always had more heifer calves than bulls. My theory since has been, that to breed heifers, the cows must be well fed and in full vigor, while the bull should not be so well fed, but be gradually reduced in flesh during the serving season. In no case however has there been any absolute certainty what the sex would be, and as already stated, no definite knowledge has been obtained that could be relied on, but in many cases the sex produced was in direct opposition to the theory.

The theory that in order to produce a female, the cow should be served as soon as she comes in heat, has been tested very thoroughly by the writer, and after years of persistent trial I have been forced to