

summer decorative plants, usually about the first week in June. They should then be lifted carefully with the top growth on, and should be heeled in thickly in a shallow trench and covered with four or five inches of soil. The tops only should be above the ground. Any out of the way corner of the garden will do to heel in the bulbs. It is best to mark the spot with a label or stake.

About the end of July or early in August the bulbs should be again lifted

from where they have been heeled in, the tops removed, and the bulbs dried a little in the sun for a day or two. They should then be laid in shallow boxes and put in a rather cool cellar or room until planting time in October. By treating bulbs such as hyacinths, tulips and crocus in this way, a majority of the bulbs can be used for several years successively, where they have to be dug up for summer plants.

Fertilizers For The Garden

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FERTILIZER formulæ might be multiplied almost indefinitely. Enquiries are almost daily received for mixtures suited for special crops, and fertilizer manufacturers pander to this demand by putting on the market a host of brands labelled for the different crops. It is quite true that there are types or classes of crops and that these differ as regards their food requirements, that each class has its dominant fertilizer. Thus, as already remarked, vegetables and leafy crops generally, clover, peas and other legumes, respond more particularly to potash while the cereals more especially require phosphoric acid with nitrogen. But too much confidence should not be placed in these special trade names, and it will be much more to the point to study the guaranteed analysis of the brands, at the same time keeping in mind the especial functions of the elements, the character of the soil and the predilections of the various classes of crops.

In furnishing—to meet the popular demand—the following formulæ for special crops, the writer does so with no little hesitancy, since they are apt to be accepted as the best mixtures under all conditions, and such, if we have made clear the principles underlying this art of supplying plant food, could not be possible. Fertilizers, like many other things, must be mixed and applied with brains if the best results are to be secured. There is no royal road, nothing that will take the place of knowledge and experience. While, therefore, all these formulæ have been used, and used successfully, no claim is made that they will everywhere and on all soils prove the best that could be devised. They are rather to be considered as suggestive in character.

Perennial Flower Border.—Bone meal, five to ten pounds; superphosphate, four to eight pounds; sulphate of potash, one to two pounds; and nitrate of soda, one to four pounds, per forty square yards. The superphosphate may be replaced by basic slag if the soil is naturally deficient in lime.

Annuals.—These have a short season of growth and therefore require large amounts of plant food. However, if the

soil is rich, half of the following minimum amounts will suffice: Superphosphate, ten to twenty pounds; sulphate of potash, one to five pounds; and nitrate of soda, ten to twenty pounds, per forty square yards.



Phlox in Bloom in Mr. MacKendrick's Garden

Roses.—These are usually planted in soil that has been well enriched with manure. In such cases phosphate only will be necessary to induce blooming: Bone meal, ten to twenty pounds; superphosphate or basic slag, ten to twenty pounds, per forty square yards.

Lawns.—The preparation of the ground for lawns is all important; it is better to defer seeding a year than to sow on soil that is in poor mechanical condition and deficient in available plant food. It should be plentifully supplied with humus-forming material. Before seeding, the following mixture may be worked into the surface soil: Ground bone, five to ten pounds; muriate of potash, one to two pounds, per forty square yards. The grass may be top dressed with nitrate of soda at the rate of a half pound for forty square yards two or three times during the season if the growth is poor and yellowish.

Potting Soil and for Use in Green-houses.—For potting soil, house plants, and so forth: Bone meal, four pounds; sulphate of potash, one pound. To be thoroughly mixed with five hundred to seven hundred and fifty pounds of the potting soil. If the growth lacks vigor, nitrogen can be applied as nitrate of soda to the pots. This will be most readily done by dissolving three-quarters of an ounce of the nitrate in one gallon of water and applying say two ounces of the solution every fortnight or three weeks, for a six-inch pot. It should be borne in mind that excess of nitrogen will give a leafy development and suppress blooming.

For soil in greenhouses, frames, and so forth, two pounds of the above mixture of bone meal and sulphate of potash can be used for each one hundred square feet thoroughly incorporating the fertilizer with the soil. If available nitrogen is thought desirable, follow with one-half to three-quarters of a pound of nitrate of soda for a hundred square feet.

When the soil has not previously been enriched, it may be found convenient to apply the fertilizer in liquid form. For house plants, garden flowers and vegetables, the following may be used: Nitrate of soda, three parts; sulphate of potash, one part; and superphosphate, three parts. Dissolve the mixture in water at the rate of one ounce in three gallons of water (there will be slight insoluble residue from the superphosphate that may be neglected) and use rather sparingly once every two or three weeks. If the soil is very rich (as from additions of well rotted manure) and the plants run to foliage, omit the nitrate of soda from the above formula.

No attempt has been made in this article to discuss the fertilizing question in all its bearings, but merely to give in as concise a form as possible some of the more important principles upon which a rational use of fertilizers is based, together with certain formulæ which may be found helpful in ordinary garden practice. In the mixtures suggested, only the more commonly used and easily obtained ingredients have been employed, thus simplifying the matter for those who have yet to gain their experience with fertilizers.

In conclusion, it might be stated that not all garden soils stand in need of fertilizers or will repay their use. It is true, however, that wherever the amount of stable manure available is inadequate to supply the full measure of the plant food demanded by this intensive form of agriculture, fertilizers may be employed with very considerable profit, and, further, that by their judicious use the excess of available plant food so desirable in the garden soil may be kept fairly well balanced and therefore the best results in root, stem, leaf and fruit obtained.