

by tomato-growers. In some cases blood-and-bone is used; this should be much safer, as bone is a phosphate, though it does contain a modicum of nitrogen, and the blood-content is considered to be in a milder form than in pure blood.

The position as it appears to the writer is as follows: Blood manure is used because it is thought to be a quick-acting fertilizer that will push young plants into rapid growth and bring the crops along early. This is a mistake: blood has to undergo a change in the soil before it is available, and it is comparatively slow in action. The opinion is expressed that if it were quickly available it would induce a soft growth that might result in harm, because during the early part of the season there is usually a fair amount of rain. Every one knows that blight is most prevalent after a spell of wet weather; the weather is blamed, but the part the fertilizer may have had in the trouble is not considered. The fact seems to be that during the early part of the season the blood is not available, not having undergone the necessary change. After that time there is seldom a great amount of rain, and as a fertilizer can be taken up only in solution and in a dissolved state the plants get only a moderate amount of it. If, however, a period of wet weather occurs the plants will get all they can absorb of the blood, which will then be in an available condition. The case may be summed up in this way: If the fertilizer were available a little at a time and all the time it might do no harm. When a dry season is experienced it does no harm, because most of the blood remains in the soil. If the season is a wet one, or if a spell of wet weather occurs, the blood is taken up and damage is caused. Similar results follow the use of fresh stable manure, but the effect is felt early in the season, as its elements are more readily available. It appears logical that the bulk of the fertilizer for tomatoes should be of a phosphatic description, particularly as phosphates tend to promote early maturity, and the lateness of the open-air crop is its chief drawback.

The practice of manuring for garden crops is different from that of the farm. In the latter case all that usually is wanted is sufficient fertilizer to give the young plants a start, as the period of cropping the land is comparatively short, and fertility is maintained by means other than the application of fertilizers. On the other hand, garden-soil is subject to continuous and intensive cropping, and the crops are mainly dependent on the fertilizers applied, consequently much larger quantities must be used, and they must be of a fairly complete character. Amounts much beyond the requirements of the current crop should not, however, be used. The effect of an overdose would in some cases be immediately harmful, while in others the effect, though in the direction sought, might be altogether too pronounced. For example, nitrate of soda has so powerful an influence on growth that quite small amounts produce the effect desired, while large amounts would set up such strong growth as to seriously delay maturity, prevent such plants as lettuces from hearting, and render a plant, by reason of its soft texture, particularly liable to disease. Authorities state that an oversupply of potash can stop growth altogether. The case of stable or farmyard manures is different. These are largely composed of organic matter, which rarely can do harm, while the fertilizing properties are of a different character from those in artificials.