

of the property. Among all these thousands of plants there was not the slightest sign of disease. No stable manure is used here, the fertilizers used being blood-and-bone and sulphate of potash.

Surely this is convincing evidence; and, further, it may be noted that the owner of this property is considered to be one of the best tomato-growers in the Hutt Valley, and that he has never in many years' practice had any more than trifling losses from disease of any kind. The evidence is clear that stable manure is bad for tomatoes, unless a crop such as cabbages is taken before the tomatoes are planted. Also blood manure is bad, being solely nitrogenous; but blood-and-bone is safe, the bone being a phosphate, and the blood-content being of a different character to pure blood.

One of the difficulties that have to be contended with in a propaganda of this kind is that it can be said that the very things we hold should not be done are often done and no ill effects follow. That, however, is an aspect of the case that has not at any time been overlooked. The effect of high feeding or of the use of the wrong material may not be felt in a dry season, because only a part of it becomes available. It is when heavy or unseasonable rains occur—and that may be at any time—that bad effects are experienced. The rainfall or muggy weather is then blamed, and the real cause is not recognized.

Quite recently reports from other countries have come to hand which support the views we have long been promulgating. One of these on "Black-stripe of Tomatoes," by Dr. R. E. Stone, O.A.C., Guelph, in the *Canadian Horticulturist*, may be here usefully reproduced (slightly abridged), as follows:—

*Character of the Disease.*—The first symptoms of the disease are a decided curling and twisting of the upper leaves and youngest portion of the stem, together with a hard, harsh, leathery feel of the older leaves. Suddenly brown sunken lines appear in the young vigorously growing stems, and these lines increase in width until the whole upper part of the stem may appear brown. At first the browning seems to be on the surface only, but becomes deeper-seated, and in bad cases involves wood-ring. At the same time that these streaks appear on the stem brown angular spots appear on the leaves between the veins, and these brown spots increase in size until the whole leaf is involved. Brown streaks also appear on the veins and leaf-stalks. The fruit sets very sparingly, often not setting at all on the first three or four trusses. The fruits that do set are commonly scabby, deformed, and of poor flavour and colour. So far, the disease has been noted in plants that had been growing very rapidly. Such plants very generally had thick, sappy stems and very large sappy leaves. If the bases of the stem were hard and small the trouble became much more serious.

*Experimental Work.*—Preliminary experiments showed that the trouble bore some relation to the soil, and it was thought that steaming the soil might prevent the disease, but this has proven unsatisfactory. Since the disease very frequently appeared on tomato-plants grown on soil that had never produced tomatoes before, and since it was always very bad on plants grown in very rich soil, it appeared that the plants were not properly fed, and that the disease might be controlled by the use of proper fertilizers. It was found possible to produce the disease at will by using fertilizers very rich in nitrogen, such as barnyard manure in excess, and ammonia or nitrates. If acid phosphate or potash was used in addition the plants made healthy growth. Even in those cases where the plants already showed a large amount of winter blight it was found that by applying acid phosphate and potash the plants recovered and made healthy growth within ten days after the application. Furthermore, the fruit set as the disease showed, and a fair crop was borne. When acid phosphate and potash were applied at the time of transplanting, or before the disease appeared, the plants were strong, vigorous, and healthy, and set a crop nearly twice as heavy as plants in the same house not receiving such fertilizer. It thus becomes evident that the trouble lies in improper feeding of the plants.