

Physically, the mere presence of the large pieces of organic matter helps to keep the soil porous.

Organic matter does contain mineral nutrients necessary for plant growth, differing from the chemical soil conditioners. And when it is broken down by bacterial action in the presence of nitrogen, it adds to the supply of soil humus in your garden.

On the debit side, pound-wise it takes much more organic matter to do a job on soil structure similar to the soil conditioners. And because of bacterial decomposition of the natural resins, organic matter must be added regularly to preserve soil structure.

Advice on Fertilizers

Concerning fertilizers for your soil, you will have to use them if you expect to get the best results from your garden. Organic material alone is not enough. For general gardening purposes, the best fertilizer formula you can use is an old favorite, 5-10-5. One to two pounds per 100 square feet is often a suitable rate of application. The first figure in a fertilizer formula indicates the percentage of nitrogen present; the second, available phosphoric acid; and the third, potash.

Commercially prepared liquid fertilizers have recently become popular on the market. But Dr. Anderson suggests that there

is no especial advantage in buying fertilizer in liquid form for gardening purposes. If for some reason you want liquid fertilizer, just add your 5-10-5 to an appropriate amount of water and shake well before using. That is the secret of liquid fertilizers.

Highly concentrated fertilizers for dilution with water by the consumer, and properly labeled as such, are often useful because of the convenience of putting a lot of fertilizing material in a small package. These are mostly for use with house plants.

Besides the nutrients and minerals used in large quantities by growing plants, there is a group of minerals called the "trace elements" which must be present in the soil, though in very minute amounts, to insure proper plant growth.

The most important trace elements for plants are iron, boron, manganese, copper, zinc, selenium and molybdenum.

A new class of commercially prepared chemical mixtures has come into existence to supply trace elements in deficient soils. These substances release trace elements by dissolving very slowly in the soil water. This insures a constant supply of trace elements while preventing too high a concentration of them free in the soil at any one time.

Now you have a well-fertilized soil of good tilth. It's time to plant your seeds.

Science News Letter, April 11, 1953

ELECTRONICS

Transistors of Al, Ga, In

► THE REVOLUTIONARY transistor itself may soon be revolutionized. Newly-developed, low-cost materials, revealed for the first time at the American Physical Society meeting in Durham, N. C., may do it. The materials have electrical properties similar to the expensive germanium now used in transistors.

Transistors are the most likely devices to replace fragile vacuum tubes in radios, television sets, hearing aids and giant electronic computers. They are pea-sized chunks of germanium that can be harnessed to amplify radio signals with practically no power consumption. They are lightweight, long-lived, rugged and small. These qualities are all much sought after by manufacturers of electronic equipment, particularly those who make military equipment.

The new materials are compounds of aluminum, gallium and indium with arsenic and antimony. They are now being tested by scientists at Battelle Memorial Institute, Columbus, Ohio, at Bell Telephone Laboratories and at the National Bureau of Standards. They have already been successfully used to change small amounts of alternating current into direct current. To the various scientists working on the new compounds at these three laboratories, this means that the material may be suitable for transistors.

Costwise, the compounds are less expensive than hard-to-get germanium. Both

aluminum and antimony, for example, sell for less than 50 cents a pound. Germanium costs \$350 a cent.

Scientists speculate that the aluminum-antimony compound may even be better than germanium where high operating temperatures are met. Such conditions often appear in military equipment.

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AERONAUTICS

Flying Repair Shop Fixes Plane Gunsights in Korea

► A FLYING repair shop now is being used in Korea to fix electronic gun sights on the Air Force's F-84 Thunderjet and F-86 Saberjet fighters.

The shop, a specially equipped trailer that can be hauled in transport planes, was designed and built at Wright-Patterson Air Force Base, Dayton, Ohio, in less than 30 days. It is designed to give on-the-spot emergency repairs to radar-controlled gun sights that otherwise would have to be shipped elsewhere for fixing, a costly and time-consuming process.

Manned by a team of specialists, the trailer is to augment regular maintenance shops in the field. It will be available anywhere in the combat zone on an emergency-call basis.

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