

The Parts of A Plant and Their Functions

There are many different kinds of plants. Some are small like grasses, and some are big trees like breadfruit, pines, and Sequoias. Some plants have no stems, only leaves; some have no true leaves, only stems; some never have flowers or true seed. But altogether, plants are characterized by having roots, stems, leaves, flowers, and seeds.

To understand the lessons that follow it is vital that this chapter be well understood.

ROOTS (Fig. 8:1)

The first root to grow when a seed is germinated is called a *radicle*. The radicle keeps on growing down into the ground and can become the *taproot*. At the top of the taproot, where it joins the seeds, two or more roots grow out that are called *side roots* or *lateral roots*. When the taproot enlarges, lateral roots grow out from its sides. Lateral roots often also grow out from the stem above the seed. These are called *adventitious roots*.

For dicot seedlings the taproot and its lateral roots are very important, but for the monocot seedlings the adventitious roots are more important because the taproot does not become as strong as it does in dicots.

The growing point of the root, called the *root tip*, keeps pushing its way down into the soil. Just behind the root tip, if it is healthy, numerous fine white

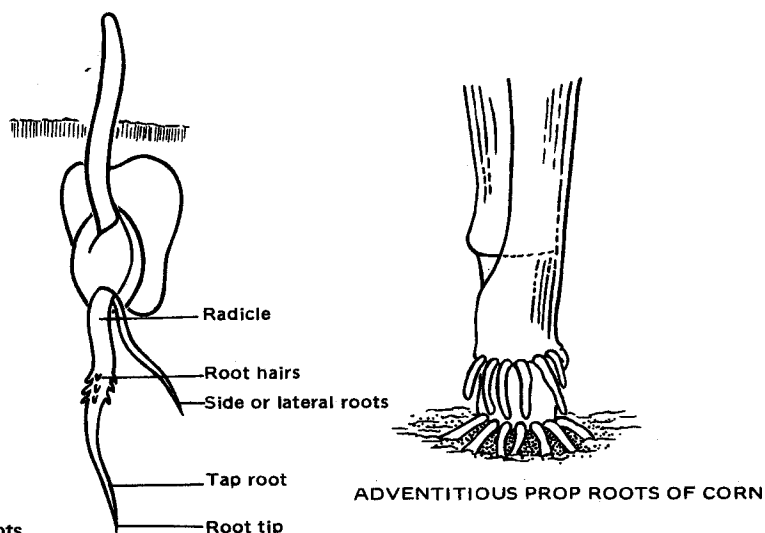


Figure 8:1—Roots.

hairs grow out from the root. These root hairs help the plant secure food and water from the soil and can easily be seen on examining newly germinated corn or bean plants.

Along the sides of the larger roots, little swellings called *root eyes* can be seen. These are the places where lateral roots are forming. If a root becomes broken, one of the root eyes will grow a new root to take the place of the broken end.

ROOT FUNCTIONS

The root is the portion of the plant axis that is normally below the surface of the soil. It functions both as the primary absorbing organ of the plant and as an anchor for the support of the *aerial stem* (the part above ground), together with the numerous appendages. In general, the absorption of mineral nutrients and water takes place through the walls of the root hairs. These root hairs are similar to the above-ground hairs found on the stem and leaves of the plant. Root hairs may be lacking in certain kinds of plants or in cuttings. In this case, water and mineral salts in solution enter directly through the thin root epidermis. The roots also serve as the chief food storage regions in certain plants. (Fig. 8:2) For example, the sweet potatoes are swollen roots, but they also serve as a means of propagation. (The Irish potato is a tuber, however, growing on an underground stem.)

The functions of the root may be summarized as follows:

1. To store food for the plant.
2. To hold the plant firmly in the ground.
3. To take up plant food and water from the soil.
4. To propagate certain species.