

## WHAT PLANTS FEED ON.

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Plants obtain part of their nourishment from the air and part from the soil. If a plant is burned the greater part is consumed and passes off in the form of a gas ; but there is still left a small quantity of ash. No difference how great the heat applied, or how complete the combustion, the ash cannot be driven off. The same thing happens if the plant is allowed to slowly decay on the soil. In the end, that part of the plant that came from the air returns to the air, and that part that came from the earth returns to it.

The dry constituents of plants may thus be conveniently divided into two classes—the combustible, and the incombustible, or the organic and the norganic. The combustible part of plants is always made up of four chemical elements—carbon, oxygen, hydrogen and nitrogen. Without these no plant is ever produced.

Of these, oxygen and hydrogen, in the form of water, comprise the most abundant ingredients of a living plant. Many vegetables contain more than 90% of water. Timber felled in the driest time seldom contains less than 40%. Carbon generally forms more than half of the dry constituents of a plant. Nitrogen seldom exceeds 4% of the dry matter, and generally much less. The incombustible part of plants always contains six chemical elements—potassium, magnesium, calcium, iron, phosphorus and sulphur. These elements, although forming a small part of the plant, are essential to its existence. In seeds free from husk the total ash varies from 2-5% in the straw ; of cereals, 4-7% ; in farm root, 4-8% ; in hay, 5-9%.

Besides these essential elements just named, an ash will generally contain sodium, silicon, chlorine, manganese, and perhaps minute particles of other elements. These are not essential to plant life, although some of them may discharge useful functions in the plant.

The following elements are found in meadow hay :—Carbon, hydrogen, nitrogen, sulphur, oxygen, potassium, sodium, calcium, magnesium, iron, phosphorus, chlorine, silicon.

It is well to remember that the above named elements do not exist in the plant in their simple or elementary state, but in combination with one another. Hydrogen and oxygen occur in combination as water ; nitrogen in combination with potassium, or sodium in the