



## Type of fertilizers

Soil fertility is the quality of a soil that enables it to provide compounds in adequate amounts and proper balance to promote growth of plants when other factors (such as light, moisture, temperature, and soil structure) are favourable. Plants need at least 16 elements, of which the most important are carbon, hydrogen, oxygen, nitrogen, phosphorus, sulphur, potassium, calcium, and magnesium. The plant obtains carbon and hydrogen dioxide from the atmosphere; other nutrients are taken up from the soil. Where fertility of a soil is not good, natural or manufactured materials may be added to supply the needed plant nutrients; these are called fertilizers. These are natural or artificial substances containing the chemical elements that improve growth and productivity of plants. Fertilizers enhance the natural fertility of the soil or replace the chemical elements taken from the soil by previous crops. The use of **manure** and composts as fertilizers is probably almost as old as agriculture. Modern chemical fertilizers include one or more of the three elements that are most important in

plant nutrition: nitrogen, phosphorus, and potassium. The elements sulphur, magnesium, and calcium are of secondary importance. Most nitrogen fertilizers are obtained from synthetic **ammonia**; this chemical compound ( $\text{NH}_3$ ) is used either as a gas or in a water solution, or it is converted into salts such as ammonium sulphate, ammonium nitrate, and ammonium phosphate, but packinghouse wastes, treated garbage, sewage, and manure are also common sources of it. Phosphorus fertilizers include calcium phosphate derived from phosphate rock or bones. The more soluble superphosphate and triple superphosphate preparations are obtained by the treatment of calcium phosphate with sulphuric and phosphoric acid, respectively. **Potassium fertilizers**, namely potassium chloride and potassium sulphate, are mined from potash deposits. Mixed fertilizers contain more than one of the three major nutrients – nitrogen, phosphorus, and potassium. Mixed fertilizers can be formulated in hundreds of ways.

**Manure** is organic matter used as organic fertilizer in agriculture

### ACTIVITIES

#### 1 Find suitable questions for the following answers.

- 1 .....  
The quality of a soil that enables it to provide compounds in adequate amounts and proper balance to promote growth of plants.
- 2 .....  
At least sixteen elements.
- 3 .....  
From the atmosphere.
- 4 .....  
Natural or manufactured materials that may be added to supply the needed plant nutrients.
- 5 .....  
No, they can also be artificial.
- 6 .....  
Nitrogen, phosphorus, and potassium.
- 7 .....  
They are obtained from synthetic ammonia.
- 8 .....  
Potassium fertilizers.

#### 2 Translate the following words into Italian.

- 1 Proper .....
- 2 Enhance .....
- 3 Crop .....
- 4 Sewage .....
- 5 Namely .....
- 6 Potash .....

#### 3 What is the main function of fertilizers? What are they made of? Write a short text (80-100 words) to describe them.

#### 4 Are fertilizers and pesticides the same? What is the difference between them? Discuss it in groups.