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King Saud University
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Fundamentals of Soil Science

2. Soil Genesis and Morphology .

2.1. The Earth's Crust . .

2.1.1. Chemical and Mineralogical Composition . . .

... About 92 chemical elements are known to exist in the Earth's crust. ...
... Approximately 98 percent of the crust of the earth is composed of eight elements (Figure 1). In fact, two elements, oxygen and silicon, compose 75 percent of it. Many of the elements important in the growth of plants and animals occur in very small quantities. Needless to say, these elements and their compounds are not evenly distributed throughout the Earth's surface. For example, in some places phosphorous compounds are so concentrated that they are mined; in many other areas there is a deficiency of phosphorous for maximum plant growth. ...

... Most of the elements of the Earth's crust have combined with one or more other elements to form compounds called **minerals**. The minerals generally exist in mixtures to form the **rocks** of the earth. The mineralogical composition of igneous rocks and sedimentary rocks (shale and sandstone) are given in Table 1. Limestone is also an important sedimentary rock and is composed largely of calcium and magnesium carbonates, with varying amounts of other minerals as impurities. The dominant minerals in these rocks are feldspar, amphibole, pyroxene, quartz, mica, clay minerals, limonite (iron oxide), and carbonate minerals.

References

Foth, H. D. 1978. Fundamentals of Soil Science. John Wiley & Sons, New York, USA

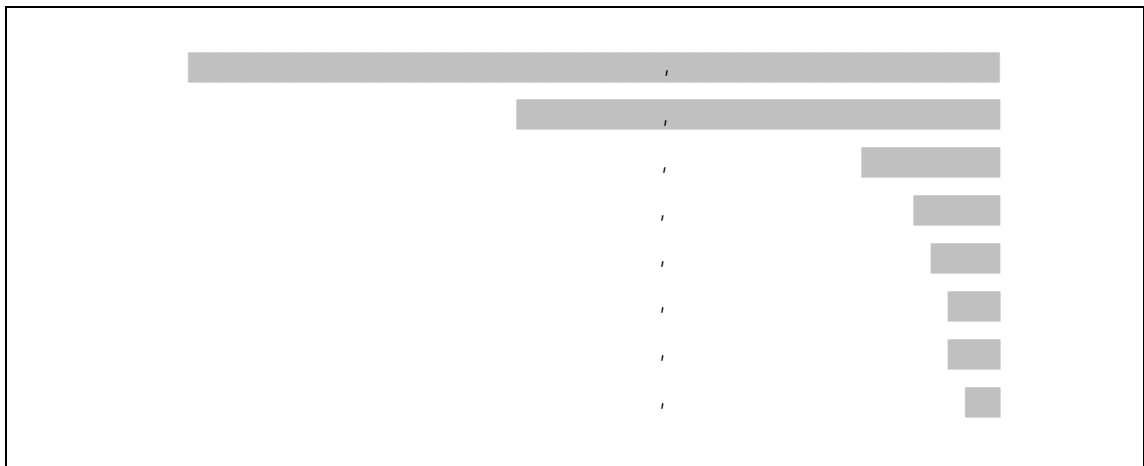


Figure 1 The eight elements in the earth's crust comprising over 1 percent by weight. The remainder of elements make up 1.5 percent (Source: Foth, 1978).

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