



When you see Cornie van Huyssteen digging in the soil you can be sure he's not gardening. *The Water Wheel* asked this senior lecturer and researcher at the Department of Soil, Crop and Climate Sciences, University of the Free State, about his career as a soil scientist.

WHAT IS SOIL SCIENCE AND WHAT DO SOIL SCIENTISTS DO?

Soil science is the study of the physical, chemical and biological properties of soil. Among others, it involves the management of soils to promote crop growth and protect the environment. We focus on the role of soil as a medium for plant growth, water flow regulation and purification, a habitat for organisms, a recycling system for nutrients and organic wastes and an engineering medium. Knowledge about the properties of the soil tells us, for example, whether the soil has the potential to store enough water to keep plants growing through a drought, to withstand a flood, and provide the right combinations of chemicals to plants so that they will grow properly, for example.

Soil scientists are regularly consulted on a wide array of environmental issues, particularly related to the relationship of soil and water. Soil scientists work in fields such as the conservation of wetlands, non-point source pollution and erosion control; or assessment, environmental monitoring and sample analysis, land use, and waste management.

WHAT RESEARCH ARE YOU INVOLVED IN AT PRESENT?

The Department of Soil Science was

established in 1958 and research regarding the role of water in soil has been undertaken continuously since 1974. My current research focuses on the relationship between how soils look and the way water moves in it. Interestingly, my colleagues are researching the application and efficient use of agricultural water to soil (i.e. how much, how often, the risks involved, e.g. the effect of water quality on soils and crops).

WHY WOULD SOMEONE WANT TO STUDY SOIL SCIENCE?

Soil plays a prominent role in the ecosystem. Knowledge in this regard is therefore important to ensure the correct management and conservation of this natural resource. Soil scientists work in- and outdoors, so a passion for nature and its ecosystems and for agriculture would motivate someone to study soil science.

WHAT ARE THE MOST INTERESTING ASPECTS OF SOIL SCIENCE?

Studying a natural entity that most people ignore, yet is of such vital importance for our continued existence on earth, is really exciting. So are the possibilities that are opening up in multi-disciplinary research, because soil has an impact on almost all natural systems.

HOW DOES SA'S KNOWLEDGE WITH REGARDS TO SOIL SCIENCE COMPARE WITH THE REST OF THE WORLD?

South Africa has some of the oldest soils in the world, while the region is also among the driest in the world. Local soil scientists have had to adapt to these challenges and, for this reason, compare to the best in the world. We are also at the forefront of an exciting new discipline in soil science called hydopedology, an intertwined branch of soil science and hydrology that encompasses multi-scale basic and applied research of interactive soil and water processes and their properties in the unsaturated zone of the soil.



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