Abstract

This report provides an overview of the agroecological characteristics of the Arabian Peninsula.

The Arabian Peninsula is a vast plateau bounded by mountainous terrain. It can be subdivided into 15 geomorphological regions. Its main characteristic is aridity, due to low and erratic rainfall, and high temperatures. As a result, productivity of rangelands and agriculture is variable and poor. The interaction of temperature and precipitation gradients leads to a great diversity of climatic conditions, which is evidenced by 22 distinct agroclimatic zones, of which eight comprise 95% of the region.

The soils of the Arabian Peninsula reflect the general aridity of the climate. Most are poorly developed, shallow, or are enriched in lime, gypsum, or salts. Transported materials, such as sand dunes and sheets, cover large areas. That said, there is no shortage of good agricultural soils. The obvious limitation to put them into production is water availability. Where irrigation water is available, standard fertility management practices are required, and, if provided, allow maintenance and enhancement of soil quality.

Cropped areas are very limited in the Peninsula and most are irrigated, although substantial rainfed areas exist in Yemen and in Saudi Arabia. Between 1980 and 1996, area under irrigation more than doubled, aided by modern irrigation technology, such as center-pivot and drip irrigation. This use of fossil groundwater, however, is not sustainable.

The Arabian Peninsula is perceived as having limited heterogeneity, poor agricultural potential, and low population densities, and, therefore, it has generated limited interest with regard to global biodiversity. This view is oversimplified. The region has great agroecological diversity and much potential as a source of genetic diversity and of abiotic stress resistance. To achieve this goal there is a clear need to integrate existing thematic datasets into agroecological frameworks for development. Specific methodologies, models, and decision-support systems must be developed to achieve and make use of this integration.

Priority should be given to the regional assessment of crop water requirements with a view to enhancing water use efficiency, and agroecological zoning for biodiversity conservation, rangeland rehabilitation, abiotic stress identification, and development planning. Underpinning these research goals should be a strengthening of climate monitoring networks.