

<<灌溉排水工程学>>

图书基本信息

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前言

面向21世纪的创新型人才培养,已使双语教学成为高等教育改革的重点。为了应对经济全球化和科技革命的挑战,培养“面向现代化、面向世界、面向未来”的新世纪科技人才,开展应用学科的双语教学任务紧迫。

在国际环境中,交流能力十分重要,为学生提供更多交流能力训练是双语教学的主要目标之一。

水利是农业的命脉,旱灾和涝灾是农业面临的主要自然灾害。

《灌溉排水工程学》是农业水利工程专业的核心专业课之一,主要讲授灌溉排水原理与技术。因此,开展《灌溉排水工程学》课程的双语教学,不仅有利于课程建设本身,更为重要的是有利于提高学生的英语应用能力,使学生能同时利用母语和外语在专业知识领域进行思维、学习和交际,有利于学生学习国外先进的专业知识,以培养学生掌握世界最新科技成果和对外学术交流的能力,培养国际竞争意识,形成国际化视野和开放型思维,对实现农业水利化和确保粮食安全具有十分重要的意义。

双语教学的成败在很大程度上取决于是否有一本合适的英文教材。目前国内还没有出版过《灌溉排水工程学》英文教材,国外没有合适的原版教材可以引进应用。鉴于此,编写组根据最新专业规范《灌溉排水工程学》的教学大纲,参考大量国外相关教材,编写了这本英文版《灌溉排水工程学》。

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内容概要

本书是根据最新专业规范《灌溉排水工程学》的教学大纲而编写的英文版教材，用于该课程的双语教学。

主要内容包括：农田水分状况和土壤水分运动，腾发量和作物需水量，灌溉技术，灌溉水源和引水工程，灌溉渠道系统，灌溉管道系统，排水要求及排水系统，政策与管理。

为学习方便，本书附录给出了有关灌溉排水方面的主要专业词汇英汉对照。

本书不仅可用于本课程的双语教学需要，还可以用于相关专业的专业英语教材，也可供从事农业水利及其相关专业的工程技术人员、管理人员和教师学习使用。

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The field capacity concept is more applicable to coarse—than to fine—textured soils because in coarse soils most of the pores empty soon after irrigation and the capillary conductivity becomes very small at relatively high potentials. In fine-textured soils, with a narrower range of soil pore sizes, the hydraulic conductivity will not change so rapidly with time and the drainage can continue for weeks or months. Soil characteristics that have greatest influence on field capacity are soil texture and layers within the profile that impede water flow. Fine soils retain more water than coarse soils as well as drain longer at significant rates. Any layer interface will inhibit water movement across the interface and thus restrict redistribution and increase field capacity. Other factors that may influence field capacity are organic matter content, depth of wetting, wetting history, and plant water use.

(2) Wilting Point. The permanent wilting point or percentage is the soil water content below which plants growing in that soil remain wilted even when transpiration is nearly eliminated. It represents a condition where the rate of water supply to the plant roots is very low. The water content corresponding to the wilting point applies to the average water content of the bulk soil and not to the soil adjacent to the root surfaces. The soil next to the root surfaces will usually be drier than the bulk soil, because water cannot move toward the root surfaces fast enough to supply plant demands and a water content gradient develops near the root.

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