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Titolo	Engineering Nitrogen Utilization in Crop Plants // edited by Ashok Shrawat, Adel Zayed, David A. Lightfoot
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Soggetti	Plants Plant genetics Plant physiology Plant anatomy Plants - Development Plant diseases Plant breeding Plant Systematics/Taxonomy/Biogeography Plant Genetics and Genomics Plant Physiology Plant Anatomy/Development Plant Pathology Plant Breeding/Biotechnology
Lingua di pubblicazione	Inglese
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Nota di contenuto	Developing Crop Varieties with Improved Nutrient Use Efficiency -- Part I. Molecular and Physiological Aspects of Nutrient Use Efficiency -- Improving Nitrogen Use Efficient in Crop Plants Using Biotechnology Approaches -- Transcription Factor-Based Genetic Engineering to Increase Nitrogen Use Efficiency -- Modeling Plant Metabolism: Advancements and Future Capabilities -- Molecular Targets for Improvement of Crop Nitrogen Use Efficiency: Current and Emerging Options -- From Arabidopsis to Crops: The Arabidopsis QQS Orphan

Gene Modulates Carbon and Nitrogen Allocation Across Species -- Part 2. Nutrients as a Key Driver of Nutrient Use Efficiency -- Tackling Nitrogen Use Efficiency in Cereal Crops Using High-Throughput Phenotyping -- Nitrogen Partitioning and Remobilization in Arabidopsis Under Sufficient and Depleted Conditions -- Field Testing for Improved Nitrogen Use Efficiency of Corn--From Whole-Plant Physiology to Agroecosystem Scales -- Legume Nitrogen Utilization Under Drought Stress -- Exploiting Genetic Variability of Root Morphology As a Lever to Improve Nitrogen use Efficiency in Oilseed Rape -- Genetic Improvement of Nitrogen use Efficiency in Oilseed Rape -- The Importance of Organic Nitrogen Transport Processes for Plant Productivity and Nitrogen use Efficiency -- New Screening Strategies for di-nitrogen Fixation in Soybean.

Sommario/riassunto

This book discusses and addresses the rapidly increasing world population demand for food, which is expected to double by 2050. To meet these demands farmers will need to improve crop productivity, which relies heavily on nitrogen (N) fertilization. Production of N fertilizers, however, consumes huge amounts of energy and the loss of excess N fertilizers to leaching results in the pollution of waterways and oceans. Therefore, increasing plant nitrogen use efficiency (NUE) is essential to help farmers produce more while conserving the environment. This book assembles some of the best work of top researchers from academic and industrial institutions in the area of NUE and provides valuable insight to scholars and researchers by its comprehensive discussion of current and future strategies to improve NUE through genetic manipulation. This book should also be highly valuable to policy makers, environmentalists, farmers, biotechnology executives, and to the hard-core researchers working in the lab.
