

1. Record Nr.	UNINA9910261132403321
Autore	Richard R. Belanger
Titolo	Role of Silicon in Plants
Pubbl/distr/stampa	Frontiers Media SA, 2017
Descrizione fisica	1 online resource (186 p.)
Collana	Frontiers Research Topics
Soggetti	Botany & plant sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>Silicon (Si) is gaining increased attention in the farming sector because of its beneficial effects observed in several crop species, particularly under stress conditions. The magnitude of benefits is predominantly observed in plant species that can accumulate Si above a certain threshold. Therefore, deciphering the molecular mechanisms and genetic factors conferring a plant ability to take up silicon is necessary. Along these lines, several efforts have been made to identify the specific genes regulating Si uptake and distribution in plant tissues. This information finds its usefulness in identifying Si-competent species, and could eventually lead to improving this ability in low-accumulating species. The successful exploitation of Si in agriculture depends highly on the understanding of different Si properties including plant-available Si from the soil, transport within tissues, deposition in planta, and Si effect on different metabolic and physiological processes. In addition, a better comprehension of external factors influencing Si uptake and deposition in plant tissue remains important. A plant can take up Si efficiently only in the form of silicic acid and most soils, despite containing high concentrations of Si, are deficient in plant-available Si. Consequently, soil amendment with fertilizers rich in plant-available Si is now viewed as an affordable option to protect plants from the biotic and abiotic stresses and achieve more sustainable cropping management worldwide. Articles compiled in the present research topic touch upon several aspects of Si</p>

properties and functionality in plants. The information will be helpful to further our understanding of the role of Si and contribute to exploit the benefits plants derive from it.

---