

dispersive solute transport equations and other transport models (combined models, stochastic models).

The rational, logical structure of the book, the well-selected, expressive illustrations (figures, tables), the precise list of symbols and their definitions, and the subject index make the high-standard scientific content clearly understandable and relatively easily applicable, which is particularly important in the case of a comprehensive source book.

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P. STEFANOVITS, G. FILEP, G. FÜLEKI: Talajtan (Soil Science)
Mezőgazda Kiadó, Budapest, 1999.
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Soils are the most important conditionally renewable natural resources in Hungary. Consequently, their rational utilization and conservation, and the maintenance of their multi-functionality are priority tasks for the national economy and environment protection.

A scientifically-based plan of action for efficient soil management requires comprehensive information on the physical, chemical, biological and agronomic properties of the soils and on their complex ecological and environmental functions, as well as on soil processes (mass and energy regimes; transport, abiotic and biotic transformation, biogeochemical cycles of various elements), the factors which determine, influence and modify them, and their mechanisms. This knowledge provides alternative possibilities for any soil-related activity and for the efficient control of soil processes, which is the primary task of up-to-date soil science.

In spite of the fact that in Hungary numerous soil science textbooks and university lecture notes (by Z. Fekete, L. Hargitai, F. Zsoldos, P. Stefanovits, I. Szabó; and by J. Dömsödi, J. Fekete, G. Filep, G. Pántos, I. Szabó, respectively); general soil monographs (P. Stefanovits) and handbooks on particular disciplines of soil science (S. Arany, D. Fehér, G. Filep, J. di Gléria, A. Klimes-Szmk, P. Stefanovits, I. Szabolcs) have been published during recent decades, a comprehensive textbook covering all aspects of soil science was not available. The present book on "Soil Science" intends to satisfy

these needs and to present a well-structured, clearly-written, easily readable and understandable book for a large number of people: scientists, teachers and decision-makers at various levels, agronomists, extensionists, land use planners, environmentalists, practical farmers, land users, and any soil-loving member of society.

The 470-page book includes 21 chapters. The text is supplemented by 49 tables and illustrated by 131 figures and 32 colour photographs on 8 plates (soil profiles, landscapes and soil management/amelioration practices). The list of references (as Chapter 22) recommends 22 books and selected publications for further study.

The 21 chapters are as follows (after the title of the chapter the author's name is given, followed by the number of pages, tables and figures, respectively):

1. Soil and soil science (Stefanovits; 3; 0; 1): short and precise definitions, disciplinary subdivision, connections with other soil-related sciences and practical applications.

2. Mineral soil components (Stefanovits; 11; 1; 4): primary and secondary minerals with particular attention to clay minerals, their characteristics and role in soil processes.

3. Soil-forming factors (Stefanovits; 21; 1; 3): brief description of the 5 main factors of soil formation (geological conditions and relief, climate, biological factors, time, human activities); introduction of the main rocks, sediments and other parent materials according to their geological chronology, as well as the role of hydrological conditions in soil formation processes.

4. Weathering processes (Stefanovits; 9; 5; 0): brief summary of physical, chemical and biological weathering.

5. Living organisms in the soil (Füleky; 12; 3; 1). Annotated list of soil macro- and micro-organisms, with their favourable and unfavourable effects on soil development and biological soil processes.

6. Soil organic matter (Füleky-Filep; 15; 1; 9). Short but concise summary of the decomposition of biomass (especially plant) residues and on the formation and characteristics of humus substances.

7. Chemical properties of soils (Filep-Füleky; 45; 7; 23). Well-structured description of the soluble salt content, soil colloids,

surface phenomena and phase interactions, absorbed cations, cation and anion exchange processes, soil acidity and salinity/alkalinity, redox processes and the buffer capacity of soils.

8. Physical properties of soil (Filep; 60; 11; 29). Richly illustrated information on soil texture (particle-size distribution; soil structure; water, air and heat regimes). Particular attention is paid to hydrophysical soil characteristics and the soil moisture regime.

9. Plant nutrients in soil (Füleky; 34; 1; 18). Systematic information on the macroelements (N, P, K, S, Ca, Mg) and micronutrients (Fe, Mn, Cu, Na, Cl, B, Si, Se, Co, Mo) and on their main functions in plant nutrition.

10. Soil formation processes (Stefanovits; 45; 2; 8). Clear summary of humus accumulation, leaching, *in situ* clay formation, clay illuviation (lessivage), clay destruction (podzolisation), "kovárvány" formation (alternating thin layers of clay), gley formation and salinization.

11. Soil classification (Stefanovits; 9; 1; 3). Theoretical concepts of genetic soil classification (as introduction to the next chapter).

12. Major soil types, soil types and subtypes (Stefanovits; 73; 1; 20). Richly illustrated and concise description of Hungarian soils, their main characteristics, and the possibility of subdividing them into lower taxonomical units (→ local varieties).

13. Soil degradation (Stefanovits; 26; 3; 3). The main reasons for and factors influencing water and wind erosion are presented, and the susceptibility of soils to erosion processes are analysed. Other soil degradation processes are not discussed.

14. Soil amelioration, reclamation, improvement (Filep; 16; 2; 3). The limiting factors of soil fertility are described and the most important physical, chemical and biological soil reclamation of acid soils, salt-affected soils and sandy soil.

15. Soil pollution, soil remediation (Filep; 19; 5; 9). The main soil pollutants are introduced, their potential sources are analysed and the main soil detoxication/remediation technologies are summarized.

16. Soil aspects of irrigation (Filep; 15; 3; 2). Concise compilation of the impacts of irrigation on soils and the soil and water

quality criteria for efficient irrigation without undesirable side-effects.

17. Measures against water and wind erosion (Filep–Stefanovits; 9; 1; 0), including both technical and agronomical technologies.

18. Soil regions of Hungary (Stefanovits; 33; 1; 2). Clear and illustrative description of the main Hungarian soil regions with their traditional and up-to-date land use practices.

19. Soil quality, soil fertility and land evaluation (Stefanovits; 6; 0; 1). A short review of the history and present status of soil/land evaluation in Hungary.

20. History of Hungarian soil science (Stefanovits; 11; 0; 0).

21. FAO World Soil Map and soil classification system (Michéli; 14; 3; 1). Short but concise summary of the system, with precise definitions of the major soil groups, the main diagnostic horizons and diagnostic properties, and a short description of the main soil groups and their characteristic features.

The sequence of chapters follows a logical concept. It is not difficult or risky to predict that the simple, easily understandable and memorizable text with its rational typography-hierarchy and the illustrative, self-explanatory figures will make the book popular among a wide range of readers and potential users.

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D. DUDITS, L. HESZKY: Plant Biotechnology and Gene Technology (Növényi biotechnológia és géntechnológia) Agroinform Kiadó, Budapest, 2000, 312 p., ISBN: 963 502 697 8)

The 2nd, enlarged and revised edition of the book was published 10 years after the 1st edition (Plant Biotechnology, Budapest, 1990, Mezőgazd. Kiadó), with a modified title and completely new appearance. This is really a new book, consisting of two, well-amalgamated "subunits", one on plant cell/tissue biotechnology and the other on plant gene technology.

The contents are divided into five main sections and 16 chapters (instead of ten sections and unnumbered chapters in the 1st edition):

1. Introduction (fundamentals, history, plant-cell-plant system)