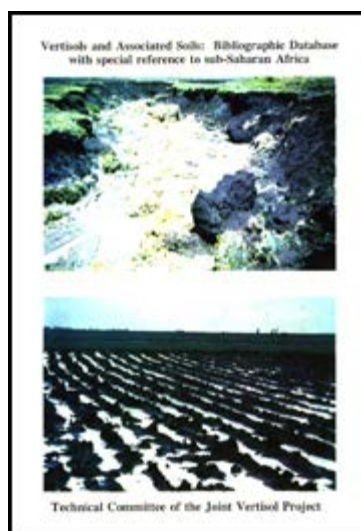


Vertisols and associated soils: Bibliographic database with special reference to sub-Saharan Africa



[Table of Contents](#)

I Haque; P Pathak; N Z Lupwayi

Tsige Amare & Asgelil Dibabe

1994

Technical Committee of the Joint Vertisol Project
Addis Ababa, Ethiopia

AUTHORS

I Haque	Soil Science and Plant Nutrition Section, ILCA, Addis Ababa, Ethiopia
P Pathak	Soils and Agroclimatology Division, ICRISAT, Patancheru, AP, India (Consultant, May to Sep 1994, Joint Vertisol Project, Addis Ababa, Ethiopia)
N Z Lupwayi	University of Malawi, Bunda College of Agriculture, Lilongwe, Malawi. Post Doctoral Associate in Soil Science and Plant Nutrition Section, 1992-1994, ILCA, Addis Ababa, Ethiopia
Tsige Amare	Training and Information Department, ILCA, Addis Ababa, Ethiopia
Asgelil Dibabe	Institute of Agricultural Research, Holletta, Ethiopia

Correct Citation:	Haque I; Pathak P; Lupwayi N Z; Tsige Amare; Asgelil Dibabe (1994) Vertisols and associated soils: Bibliographic database with special reference to sub-Saharan Africa . Technical Committee of the Joint Vertisol Project, Addis Ababa, Ethiopia. 83 pp.
-------------------	--

This electronic document has been scanned using optical character recognition (OCR) software and careful manual recorection. Even if the quality of digitalisation is high, the FAO declines all responsibility for any discrepancies that may exist between the present document and its original printed version.

[Table of Contents](#)

[Foreword](#)

[Acknowledgements](#)

[Abbreviations/Acronyms](#)

BIBLIOGRAPHIC INDEX

Documentation

[Books](#)

[Bibliographies](#)

[Conferences](#)

[Reports, bulletins and project documents](#)

[Reviews](#)

[Thesis](#)

Agroclimatology, physiography and vegetation

Soils

[General](#)

[Soil morphology, survey, classification, land use systems and planning](#)

[Soil physics](#)

[Soil chemistry and mineralogy](#)

[Soil microbiology](#)

[Soil fertility and plant nutrition](#)

[Soil and water management](#)

[Traction and tillage](#)

[Watershed management](#)

Crops

[General](#)

[Cereals](#)

[Root and tuber crops](#)

[Grain legumes](#)

[Tree and fruit crops](#)

[Cash crops](#)

[Forages and pastures](#)

[Cropping systems](#)

[Crop and livestock interaction](#)

[Farming systems](#)

[On-farm-research](#)

[Economic assessment](#)

[Technology transfer and impact assessment](#)

[Networks](#)

[Subject index](#)

[Documentation](#)

[Agroclimatology, physiography and vegetation](#)

[Soils](#)

[Crops](#)

[Cropping systems](#)

[Crop and livestock interaction](#)

[Farming systems](#)

[On-farm research](#)

[Economic assessment](#)

[Technology transfer and impact assessment](#)

[Networks](#)

[**Author index**](#)

[**Appendix - Joint vertisol project**](#)

Foreword

Sub-Saharan Africa is endowed with vast areas of vertisols. Of the 311m ha of vertisols found in the world, about 105m ha exist in Africa. Although vertisols are extensively found their full agricultural potential has not been exploited due to their characteristic features of being hard when dry and plastic when wet. Therefore, vertisols are soils with large but under exploited agricultural potential.

Recognizing the need for a coordinated effort to improve the productivity of Ethiopian vertisols, a Joint Vertisol Project (JVP) run by a consortium of national and international research and development organizations was established in 1986. The project has been successfully implemented during the past several years and the efforts are now directed to transferring the plot-based experience to a watershed context. One of the causes for the success of the project may be its organization, where a Technical Committee (TC) composed of scientists of participating institutions follows the progress of the project.

Documenting relevant literature on vertisols of sub-Saharan Africa was identified as one of the priorities in the project activities. Therefore the TC encouraged a group of scientists to compile a bibliography on vertisols. The authors efforts in performing this task is quite appreciated. The information will be very useful, not only for scientists engaged in improving the productivity of vertisols in the region, but also for anyone interested in the sustainable development of agriculture in the developing world.

Tekalign Mamo
Chairman, Technical Committee - JVP

Acknowledgements

We are grateful for assistance we received in compiling the references especially from Mr. J. Haravu Senior Manager, Library & Documentation Services of ICRISAT, India; Ato Afework Temteme of ILCA's Library and Documentation Services who supplied considerable references quoted in the document.

Special mention must be made of the dedicated efforts of W/t Kokeb Ta-ame in the preparation of many drafts of this bibliography.

Finally we would like to thank the chairman and members of the Technical Committee of the Joint Vertisol Project (JVP) and Dutch Government for their assistance in making the bibliography available to those who are working to increase crop-livestock productivity on vertisols of sub-Saharan Africa.

Authors

Abbreviations/Acronyms

AAU	Addis Ababa University (Ethiopia)
ACIAR	Australian Centre for International Agricultural Research
AFr	African
AFRC	Agricultural and Food Research Council (UK)
Anon	Anonymous
Ar	Arabic
AP	Andhra Pradesh (India)
ASA	American Society of Agronomy
AUA	Alemaya University of Agriculture (Ethiopia)
CAB	Commonwealth Agricultural Bureau (UK)
CIMMYT	International Maize and Wheat Improvement Centre (Mexico)
CSIRO	Commonwealth Scientific and Industrial Research Organization (Australia)
CTVM	Centre for Tropical Veterinary Medicine (UK)
De	German
Dept	Department
Ed	Editor
En	English
FAO	Food and Agriculture Organization (Italy)
Fr	French
FSSP	Farming Systems Support Project
IAR	Institute of Agricultural Research (Ethiopia)
IBSRAM	International Board for Soil Research and Management (Thailand)
ICAR	Indian Council of Agricultural Research
ICARDA	International Centre for Research for Dry Areas (Syria)
ICRISAT	International Crops Research Institute for semi-Arid Tropics (India)
ICSS	International Congress of Soil Science
ILCA	International Livestock Centre for Africa (Ethiopia)
ILRI	International Land Reclamation and Improvement Institute (The Netherlands)
IRCT	Institut de Recherches du Cotton et des Textiles Exotiques (Togo)
IRRI	International Rice Research Institute (Philippines)
ISSS	International Soil Science Society
ISTRO	International Soil Tillage Research Organization
JVP	Joint Vertisol Project (Ethiopia)
K	Potassium
MOA	Ministry of Agriculture (Ethiopia)
MOVUSAC	Management of Vertisols under Semi-arid Conditions
N	Nitrogen
NCIC	National Crop Improvement Conference (Ethiopia)

NGO's	Non Governmental Organizations
NY	New York (USA)
OAU	Organization of African Unity (Addis Ababa, Ethiopia)
P	Phosphorus
Ru	Russian
PhD	Doctor of Philosophy
PUDOC	Centre for Agricultural Publication and Documentation (The Netherlands)
SAFGRAD	Semi-arid Food Grain Research and Development (Nigeria)
SCIR	Central Soil Institute for Research (South Africa)
Sd	Sine datum (no date)
SI	Sine loco (no place)
SIDA	Sweedish International Development Agency
SMSS	Soil Management Support Services (USA)
Sn	Sine nonime (no name)
SSSA	Soil Science Society of America
UAR	United Arab Republic (Egypt)
UK	United Kingdom
Univ	University
USA	United States of America
VP	Various Pages

Documentation

- [Books](#)
 - [Bibliographies](#)
 - [Conferences](#)
 - [Reports, bulletins and project documents](#)
 - [Reviews](#)
 - [Thesis](#)
-

Books

0001	Buringh P (1979) Introduction to the study of soils in tropical and subtropical regions (En) PUDOC., Wageningen, The Netherlands. 124 pp.
0002	Charreau C (1974) Soils of tropical dry and dry-wet climatic areas of west Africa and their use and management (En) Cornell Univ., Ithaca, NY, USA.
0003	Wilding L P; Puentes R (eds) (1988) Vertisols: their distribution, properties, classification and management (En) SMSS Technical Monograph no. 18, Texas A & M Univ., Texas, USA. 203 pp.

Bibliographies

0004	CAB Slough UK (1986) Soils of east Africa (Kenya, Uganda, Tanganyika, Zanzibar), (1932-58) (En) CAB Annotated Bibliography no. S220R.
0005	CAB Slough UK (1977) Soils of Kenya, Uganda and Tanzania (1958-1975) (En) CAB Annotated Bibliography no. SG1818, 12 pp.
0006	CAB Slough UK (1986) Soils of South Africa (1920-62) (En) CAB Annotated Bibliography no. S708R.
0007	CAB Slough UK (1986) Soils and agriculture of the Sudan republic (1935-64) (En) CAB Annotated Bibliography no. S913R.
0008	CAB Slough UK (1986) Black tropical soils (1924-57) (En) CAB Annotated Bibliography no. S153R, 24 pp.
0009	CAB Slough UK (1986) Black tropical soils (1957-1965) (En) CAB Annotated Bibliography no. S763, 12 pp.
0010	CAB Slough UK (1986) Clay soils: irrigation and drainage (1944-65) (En) CAB Annotated Bibliography no. S948R, 9 pp.
0011	CAB Slough UK (1986) Clay soils: properties and management (1964-74) (En) CAB Annotated Bibliography no. S1756, 14 pp.
0012	CAB Slough UK (1976) Clay soils: properties, classification and genesis (En) CAB Annotated Bibliography no. S1786.
0013	CAB Slough UK (1986) Vertisols (including grumusols, regur, smonitsas, black clays etc.) (1969-1970) (En) CAB Annotated Bibliography no. S1446, 13 pp.
0014	CAB Slough UK (1986) Vertisols (including grumusols, regur, smonitsas, black clays etc) (1967-65) (En) CAB Annotated Bibliography no. S1447, 16 pp.
0015	CAB Slough UK (1986) Vertisols: properties, classification and genesis (En) CAB Annotated Bibliography no. S1786, 8 pp.
0016	CAB Slough UK (1986) Vertisols (including grumusols, regur, smonitsas, black clays, etc):

	properties, classification and genesis (1970-74) (En) CAB Annotated Bibliography no. SA1786.
0017	CAB Slough UK (1986) Shrinking, swelling, subsidence, heaving and cracking in soils (1969-77) (En) CAB Annotated Bibliography no. S1950, 18 pp.
0018	CAB Slough UK (1987) Shrinking, swelling, subsidence, heaving and cracking in soils (1956-69) (En) CAB Annotated Bibliography no. S1407, 28 pp.
0019	Gefu J O; Otchere E O; Gwani E S; Ahmed H U (1988) Draught animal power research and development in Nigeria: a bibliography (En) National Animal Production Research Institute, Ahmadu Bello Univ., Shika, Nigeria. 23 pp.
0020	Goe M R; Michael Hailu (1983) Animal traction: a selected bibliography (En) ILCA, Addis Ababa, Ethiopia. 42 pp.
0021	Haque I; Desta Beyene; Marcos Sahlu (1985) Bibliography on soils, fertilizers, plant nutrition and general agronomy in Ethiopia (En) ILCA, Addis Ababa, Ethiopia. 55 pp.
0022	Haque I (1988) Bibliography on micronutrients in soils, plants and animals of sub-Saharan Africa (En) Plant Science Division Working Document no. B8, ILCA, Addis Ababa, Ethiopia. 138 pp.
0023	Starkey P; Sirak Teklu; Goe M (1991) Animal traction: an annotated bibliographic database (En) ILCA, Addis Ababa, Ethiopia. 203 pp.
0024	Tregenza G A (1973) Bibliography of cracking clay soils (En) Soil Conservation Service of New South Wales, Sydney, Australia. 280 pp.
0025	Willcocks T J; Browning J (1986) Vertisols ("black" cracking clays): a bibliography with some abstracts/extracts, content analysis and comments (En) Overseas Division, AFRC, Bedford, UK. 121 pp.

Conferences

0026	Abate Tedla; Srivastava K L; Tekalign Mamo (1993) Training, workshops, conferences and publications (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 171-188.
0027	ACIAR (1983) International workshop on soils: research in the tropics (En) Proceedings of a workshop held in Townsville, Australia, 12-16 Sep 1983, 189 pp.
0028	Ahn P M; Elliot C R (eds) (1989) Vertisol management in Africa (En) Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, 421 pp.
0029	Anon (1985) Vertisol symposium (En) Meeting of American science association and soil science society of America held in Chicago, USA, 1-5 Dec 1985.
0030	Bouma J; Raats P A C (eds) (1984) Proceedings of the ISSS symposium on water and solute movement in heavy clay soils (En) ILRI Publication v. 37. Wageningen, The Netherlands.
0031	Burford J R; Sahrawat K L (eds) (1985) Management of vertisols for improved agricultural production: an IBSRAM inaugural workshop . ICRISAT, Patancheru, AP, India, 18-22 Feb 1985, 278 pp.
0032	Desta Beyene (ed) (1988) Soil science research in Ethiopia (En) Proceedings of the first soil science research workshop held in Addis Ababa, Ethiopia, 11-14 Feb 1986, 190 pp.
0033	IBSRAM (1987) Management of vertisols under semi-arid conditions (En) Proceedings of the first regional seminar on management of vertisols under semi-arid conditions held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM Proceedings no. 6, 344 pp.
0034	IBSRAM (1992) Reports and papers on the management of vertisols (IBSRAM/AFRICALAND) (En) Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, 210 pp.
0035	IBSRAM (1993) Report of the 1992 annual meeting of Africaland: Management of vertisols in Africa held in Accra, Ghana, 11-13 June 1992 (En) IBSRAM Network Document no. 3, 195 pp.
0036	ICSS (1982) Vertisols and rice soils of the tropics (En) Transactions: symposium paper II. 12th international congress of soil science held in New Delhi, India

0037	Jones C A; Gerik T J (eds) (1990) Vertisol management workshop (En) International collaboration in research, training and extension held in Texas A & M Univ., College Station, Texas, USA, 25-29 June 1990, 121 pp.
0038	Jutzi S C; Haque I; McIntyre J; Stares J E S (eds) (1988) Management of vertisols in sub-Saharan Africa (En) Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, 435 pp.
0039	McGarity J W; Hoult E H; So H B (eds) (1984) Properties and utilization of cracking clay soils (En) Proceedings of a symposium held at the Univ., of New England, Armidale, New South Wales, Australia, 24-28 August 1981. Reviews in Rural Science (Australia) no. 5, 386 pp.
0040	National Bureau of Soil Survey and Land Use Planning, Nagpur, India (1988) Classification, management and use potential of swell-shrink soils (En) Transactions of International workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, 967 pp.
0041	Soil Survey Administration, Khartoum, Sudan (1985) Taxonomy and management of vertisols and aridisols. part I: papers (En) Proceedings of the fifth international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, 450 pp.
0042	Tanner D G; Mwangi W (eds) (1991) Seventh regional wheat workshop: far eastern, central and southern Africa (En) Proceedings of a workshop held in Nakuru, Kenya. 16-19 Sep 1991, 520 pp.

Reports, bulletins and project documents

0043	AUA (1991) AUA vertisol project progress summary (En) Internal review of the joint vertisol project. Addis Ababa, Ethiopia.
0044	Getachew Asamenew; Asfaw Yemegnuhal; Abebe Mesgina; Wagnew Ayalneh (1986) Notes on the study tour of the Ethiopian delegation to the International Crops Research Institute for the semi-Arid Tropics, India (En) ILCA, Addis Ababa, Ethiopia. 20 pp.
0045	Haque I; Tsige Amare (1991) Soil science and plant nutritional annual reports: 1983-1990 and projects protocols: 1991-1993 (En) Plant Science Division Working Document no. B16, ILCA, Addis Ababa, Ethiopia. 62 pp.
0046	ILCA/ICRISAT/IBSRAM (1987) Joint ILCA/ICRISAT/IBSRAM/Gov. of Ethiopia project progress report year 2 (1987) and project plans year 3 (1988) (En) ILCA, Addis Ababa, Ethiopia.
0047	ILCA/ICRISAT/IBSRAM (1988) Animal power for improved management of deep black clay soils (vertisols) in the Ethiopian highlands: outreach sub-project Wereta (Gonder province) (En) Final report. ILCA, Addis Ababa, Ethiopia.
0048	ILCA/ICRISAT/IBSRAM (1989) Animal power for improved management of vertisols in high rainfall areas of highland Ethiopia (En) Report on phase 1 (1986-1988) and program for phase 2 (1989-1991). ILCA, Addis Ababa, Ethiopia.
0049	ILCA/IAR/AUA (1990) Joint vertisol project. 1989 report (En) ILCA, Addis Ababa, Ethiopia.
0050	ISSS (1982) Review of soil research in India (En) Part I and II. 12th international congress of soil science, New Delhi, India. 751 pp.
0051	Jutzi S C; Haque I (1985) Management of deep black clay soils (vertisols) in sub-Saharan Africa: ILCA/ICRISAT/IAR/AUA/MOA research, training and outreach project (En) ILCA, Addis Ababa, Ethiopia. 23 pp.
0052	Jewitt T N (1955) Gezira soils (En) Bulletin no. 12, 83 pp. Ministry of Agriculture, Khartoum, Sudan.
0053	Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) (1993) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92 (En) Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. 199 pp.

Reviews

0054	Acquaye D K; Owusu-Benuah E (1990) Current state of utilization of vertisols in Ghana (En)
------	---

	In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration on research, training and extension held in Texas A & M Univ., College Station, Texas, 25-29 June 1990, p. 107-116.
0055	Adu S U (1985) Vertisols and acrisols in Ghana: their physical and chemical properties and their management (En) In: Laredec, Ahinsan, (Kumasi), 55 pp.
0056	Ahmad N (1983) Pedogenesis and soil taxonomy II. the soil orders (En) Developments in Soil Science (Netherlands) v. IIB, p. 91-123.
0057	Ahmad N (1984) Tropical clay soils, their use and management (En) Outlook on Agriculture (UK) v. 13(2), p. 87-95.
0058	Ahmad N (1985) Acid vertisols of Trinidad (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 141-151.
0059	Ahmad N (1986) Soil and agronomic factors influencing fodder production in the Ethiopian highlands of east Africa (En) Plant Science Division Working Paper no. B4, ILCA, Addis Ababa, Ethiopia. 58 pp.
0060	Asgelil Dibabe (1990) Ethiopian vertisol management research (En) IAR Newsletter(Ethiopia) v. 5(4), p. 1,9&10.
0061	Azevedo A L; Botelho C J V da (1954) The black earths of Angola (En) Transactions of the fifth international congress of soil science v. 4, p. 149-154.
0062	Babiker I A (1988) An overview of vertisol use in the Sudan (En) In: Transactions of international workshop on swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 202.
0063	Babiker I A (1990) An overview of vertisol use in the Sudan (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration on research, training and extension held in Texas A & M Univ., College Station, Texas, 25-29 June 1990, p. 71-81.
0064	Barro S E (1988) State of knowledge and critical analysis of the use and management of vertisols in Burkina Faso (En) In: Jutzi S C; Haque I; McIntyre J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 337.
0065	Berhanu Debele (1985) The vertisols of Ethiopia: their properties, classification and management (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 31-54.
0066	Bunting A H (1957) Agricultural research at the Sudan central rainlands station-1952-56 (En) Empire Cotton Review (UK) v. 34, p. 21-24.
0067	Burford J R; Sahrawat K L (1985) Improved management systems for vertisols in India (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 275-283.
0068	Buxton B P; Berry R H (1978) Clay plain and geomorphic history of the central Sudan: a review (En) Catena (Netherlands) v. 5, vp.
0069	Clark N G; Clay E G; Jackson A C; Singh R P (1983) Evaluation of INDO-UK dryland farming operational research project, Indore, Madhya Pradesh, India (En) Evaluation Dept. Overseas Development Administration, London, UK. 160 pp.
0070	Comerma J A (1985) Hydromorphic vertisols (En) In: Proceedings of workshop on wetland soils: characterization, classification and utilization. IRRI, Laguna, Philippines. p. 407-420.
0071	Comerma J A (1985) Vertisols of Venezuela (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 153-161.
0072	Desta Beyene (1988) Soil fertility research on some Ethiopian vertisols (En) In: Jutzi S C; Haque I; McIntyre J; Stares J E S (eds) Management of vertisols in Sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 223-231.
0073	Desta Beyene; Hailu Regassa (1989) Research work on the management of vertisols in

	Ethiopia: Experience of IAR (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 165-179.
0074	Diallo M (1989) The vertisols of Mali (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 209-215.
0075	De Datta S K; Raymundo M E; Greenland D J (1988) Managing wet vertisols in rice-based cropping systems (En) In: Wilding L P; Puentes R (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18 Texas A & M Univ., College Station, Texas, USA. p. 117-127.
0076	del Villar E H (1944) The tirs of Morocco (En) Soil Science (USA) v.57, p. 313-339.
0077	Dudal R (1965) Dark clay soils of tropical and sub-tropical regions (En) FAO Agricultural Development Paper no. 83, 161 pp.
0078	Dudal R (1980) Soil-related constraints to agricultural development in the tropics (En) In: Priorities for alleviating soil-related constraints to food production in the tropics, IRRI, Los Banôs, Philippines. p. 23-40.
0079	Dudal R; Eswaran H (1988) Distribution, properties and classification of vertisols (En) In: Wilding L P; Puentes R (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18, Texas A & M Univ., College Station, Texas, USA. p. 1-22.
0080	El-Sarrag G; Nourai A H (1983) A review of research on lentils (<i>Lens culinaris</i>) in Sudan (En) LENS Newsletter (ICARDA) v. 10(1), p. 1-12.
0081	El-Swaify S A; Pathak P; Rego T J; Singh S (1985) Soil management for optimized productivity under rainfed conditions in the semi-arid tropics (En) Advances in Soil Science (USA) v. 1, p. 1-64.
0082	Eswaran H; Cook T (1988) Classification and management-related properties of vertisols (En) In: Jutzi S C; Haque I; McIntyre J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 64-84.
0083	Eswaran H; Kimble J; Cook T (1988) Properties, genesis and classification of vertisols (En) In: Transactions of International workshop on swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 1-22.
0084	Finck A; Venkateswarlu J (1982) Chemical properties and fertility management of vertisols (En) Symposium papers 11. Transactions of the 12th international congress of soil science held in New Delhi, India, p. 61-79.
0085	Folorunso O A; Ohu J O (1990) Current uses of Nigerian dark clay soils with special emphasis on future research and training needs (En) In: Jones C A; Gerik J (eds) Vertisol management workshop: International collaboration in research, training & extension held in Texas A & M Univ., College Station, USA 25-29 June 1990, p. 102-106.
0086	Gama B M; Mowo J G (1992) The management of vertisols in western Tanzania (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 139-146.
0087	Getachew Asamenew; Mohamed-Saleem M A (1992) Concepts and procedures for the development of improved vertisol technology development in Ethiopia (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 75-86.
0088	Haider G (1986) Review of soil and water management research conducted at Melka Werer Research Station, 1966-1985 (En) IAR Technical Communication no. 1, Melka Werer Research Center, JAR, Addis Ababa, Ethiopia.
0089	Hailu Regassa; Asgellil Dibabe (1992) Properties and management of Vertisols in the central zone of Ethiopia (En) In: Natural resources management for conservation and development: 2nd conference on natural resource conservation held in Addis Ababa, Ethiopia, 10-13 May 1990, p. 26-33.
0090	Haque I; Jutzi S C; Nnadi L A (1986) Management of Vertisols for increased and stabilized food and feed production in Ethiopian highlands (En) In: Desta Beyene (ed) Soil science research in Ethiopia: Proceedings of the first soil science research workshop held in Addis Ababa,

	Ethiopia, 11-14 Feb 1986, p. 120-127
0091	Haque I; Tekalign Mamo; Abiye Astatke (1992) Nutrients and soil surface management on highland Vertisols of Ethiopia (En) Plant Science Division Working Document no. B21, ILCA, Addis Ababa, Ethiopia. 31 pp.
0092	Haque I; Mesfin Abebe; Tekalign Mamo; Asgelil Dibabe (1993) Nutrient management (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of Vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 51-73.
0093	Haque I; Powell J M; Ehui S K (1995) Improved crop-livestock production strategies for sustainable soil management in tropical Africa (En) Advances in Soil Science (USA)
0094	IAR (1979) Summary of research activities at Sheno sub-station, 1968-1978 (En) JAR, Addis Ababa, Ethiopia.
0095	Jutzi S C; Mohamed-Saleem M A; Tekalign Mamo (1990) Vertisols and related clay soils in eastern Africa: their use and management, research and training needs (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration in research, training and extension held in Texas A & M Univ., College Station, Texas, USA June 25-29, 1990, p. 41-53.
0096	Mesfin Abebe (1980) State of soil science development for agriculture in Ethiopia (En) Ethiopian Journal of Agricultural Sciences v. 2(2), p. 139-157.
0097	Mesfin Abebe (1990) Vertisols of Ethiopia: utilization and management with reflections on research and development prospects (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration in research, training and extension held in Texas A & M Univ., College Station, Texas, USA, 25-29 June 1990, p. 82-91.
0098	Murthy R S (1981) Distribution and properties of Vertisols and associated soils (En) In: Proceedings on the management of deep black soils for increased production of cereals, pulses and oil seeds held in New Delhi, India, 21 May 1981, p. 9-16.
0099	Murthy R S; Bhattacharjee J C; Landey R J; Pofali R M (1982) Distribution, characteristics and classification of Vertisols (En) In: Vertisols and rice soils of the tropics. Symposia papers 2: Proceedings of the 12th international congress of soil science held in New Delhi, India, 8-16 Feb 1982, p. 3-22.
0100	Murthy R S; Bhattacharjee J C; Landey R J (1985) Vertisols and associated soils of India-distribution, morphology, chemistry, end taxonomy (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 205-219.
0101	Murthy A S P (1988) Distribution, properties and management of vertisols of India (En) Advances in Soil Science (USA) v. 8, p. 151-214.
0102	deleted
0103	Purnell M F (1988) The sub-Saharan vertisols - an overview (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1987, p. 85.
0104	Probert M E; Fergus I F; Bridge B J; McGarry D; Thomson C H; Russell J S (1987) The properties and management of vertisols (En) CABI, Wallingford, UK.
0105	Randhawa N S; Venkateswarlu J (1980) Indian experience in the semi-arid tropics: prospect and retrospect (En) In: Proceedings of the international symposium on development and transfer of technology for rainfed agriculture and the SAT farmer held at ICRISAT 28 Aug - 1 Sep 1979. ICRISAT, Patancheru, AP, India. p. 207-220.
0106	Sant'Anna R A (1989) African vertisols: their characteristics, extent and some specific examples of development (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 17-28.
0107	Some L; Barro S E (1989) Vertisol utilization in Burkina Faso: present knowledge and research priorities (En) Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 269-281.

0108	Abboud S M A (1973) The relation between available and extractable phosphorus in some soils of the central clay plain of the Sudan (En) Faculty of Agriculture, Khartoum Univ., Sudan. 83 pp.
0109	Abiye Astatke (1984) The use of animal power in water conservation works (En) MSc thesis, Cranfield Institute of Technology, Bedford, UK. p. 46.
0110	Ali Yimer (1992) Nitrogen transformation in some Ethiopian highland vertisols (En) PhD thesis, Univ., College of Wales, Aberystwth, UK. 174 pp.
0111	Anketse Berhan Kifle (1980) A comparative study of the effect of <i>guie</i> in three areas: Sendafa, Debre Berhan and Fitche (En) MSc thesis, Addis Ababa Univ., Addis Ababa, Ethiopia.
0112	Blokhuis W A (1993) Vertisols in the central clay plain of the Sudan (En) PhD thesis, Wageningen Agricultural Univ., Wageningen, The Netherlands.
0113	Bradshaw P N (s d) The properties and genesis of the black cotton soils of the lower shire valley, Malawi (En) MSc thesis, Soil Science Dept, Univ., of Aberdeen, UK
0114	Bursink J (1971) Soils of central Sudan (En) PhD thesis, Utrecht Univ., The Netherlands
0115	Daniel Dauro (1994) Contribution to the regeneration and agronomy of the annual clovers of the Ethiopian highlands (En) PhD thesis, Montpellier, France.
0116	Eylachew Zewdie (1987) Study on phosphorus status of different soil types of Chercher highlands, south-eastern Ethiopia (En) PhD thesis, Justus-Liebig Univ., Giessen, Germany. 168 pp.
0117	Fisseha Itanna (1992) Macro-and micronutrient distribution in Ethiopian vertisol landscapes (En) PhD thesis, Univ., of Hohenheim, Germany. 202 pp.
0118	Goe M R (1987) Animal traction on smallholder farms in the Ethiopian highlands (En) PhD thesis, Cornell Univ., Ithaca, NY, USA. 380 pp.
0119	Hadad M A (1981) Effect of inoculation and fertilizers on groundnut nodulation in the Sudan (En) MSc thesis, Iowa State Univ., Ames, USA.
0120	Hussein J (1981) An investigation into soil water relationships of some irrigated vertisols derived from basalt in Zimbabwe (En) MSc thesis, Stellenbosch Univ., South Africa.
0121	Kowal J M L (1963) The agricultural development of black soils of the Accra plains (En) PhD thesis, London Univ., UK.
0122	Larbi A (1979) Effect of seed treatment on germination and depth of sowing on seedling emergence on tropical black earth (Akuse soils) (En) Ghana Univ., Legon., Ghana. 57 pp.
0123	Pabs-Garnon O M (1980) A study of application of phosphorus to potential paddy soils of the Accra plains and its interaction with other plant nutrients (En) Ghana Univ., Legon, Ghana. 230 pp.
0124	Sahelamedhin Sertsu (1987) Investigations on the effects of a soil burning practice ("<i>guie</i>") in Ethiopia on soil properties and barley yield (En) PhD thesis, Justus-Liebig Univ., Giessen, Germany. 210 pp.
0125	Samuel Geleta (1981) Uptake and response of durum wheat (<i>Triticum durum</i> desf) to nitrogen and phosphorus fertilization on Koticha and Gombore soils of Ada plains (En) MSc thesis, Addis Ababa Univ., Ethiopia.
0126	Schulthess U (1992) The impact of vertisol management system on wheat production in the Ethiopian highlands (En) PhD thesis, Swiss Federal Institute of Technology, Zurich. 145 pp.
0127	Selamyihun Kidanu (1992) Hydrophysical characterization end soil-water-air interaction of Ethiopian highland vertisols (En) MSc thesis, International training centre for postgraduate soil scientists, Univ., of Gent, Belgium. 102 pp.
0128	Tamirat Tsegaye (1992) Vertisols of the central highlands of Ethiopia: characterization, classification and evaluation of the phosphorus status (En) MSc thesis, Alemaya Univ., of Agriculture, Alemaya, Ethiopia.
0129	Weise S F (1989) Growth and symbiotic nitrogen fixation of an east African highland clover (<i>Trifolium steudneri</i>) (En) PhD thesis, Swiss Federal Institute of Technology, Zurich, Switzerland.
0130	Yerima B P K (1986) Soil genesis, phosphorus and micronutrients of selected vertisols and associated alfisols of northern Cameroon (En) PhD thesis, Texas A&M Univ., USA.

Agroclimatology, physiography and vegetation

0131	Belay Simane (1990) Agroclimatic analysis to assess crop production potentials in Ethiopia (En) Department of Plant Science, Alemaya Univ., of Agriculture, Ethiopia. 51 pp.
0132	Bull T A (1988) Agroecological assessment of Ethiopian vertisols (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 89-105.
0133	de Pauw E (1988) Assessing the agroclimatic potential of vertisols (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of Vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1987, p. 106-107.
0134	Edelman C H; Brinkman R (1962) Physiography of gilgai soils (En) Agricultural Univ., Wageningen, The Netherlands. p. 366-380.
0135	Hailu Regassa; Huda A K S; Virmani S M (1987) Agroclimatic data analysis of selected locations in deep black clay soil regions of Ethiopia (En) Internal report, ICRISAT, Patancheru, AP, India.
0136	Huda A K S; Pathak P; Rego T J; Virmani S M (1988) Agroclimatic considerations for improved soil and water management and efficient fertilizer use in semi arid India (En) Fertilizer News (India) v. 33(4), p. 51-57.
0137	Morison C G T; Hoyle A C; Hope-Simpson J F (1948) Tropical soil vegetation catenas and mosaics: a study in the south-western part of the Anglo-Egyptian Sudan (En) Journal of Ecology (UK) v. 36, p. 1-84.
0138	Prescott J A (1952) The soils of Australia in relation to vegetation and climate (En) CSIRO Technical Bulletin (2 ed) no. 52, CSIRO, Melbourne, Australia.
0139	Purnell M F (1985) Relationships between vertisols and lengths of growing period in the developing countries (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 69-75.
0140	Takar A A; Dobrowolski J P; Thurow T L (1990) Influence of grazing, vegetation life-form and soil type on infiltration rates and interrill erosion on a Somalian rangeland (En) Journal of Range Management (USA) v. 43(6), p. 486-490.
0141	Virmani S M (1988a) Agroclimatology of the vertisols and vertic soil areas of Africa (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 44-63.
0142	Virmani S M (1988b) Agroclimatology of vertisols: A study of the moisture regime for dryland cropping (En) In: Transactions of International workshop on swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. P. 246-256.
0143	Wagnew Ayalneh; Huda A K S; Virmani S M (1987) Analysis of agroclimatic data of ILCA stations, Shola, Debre Zeit (En) ILCA Highlands Research Site and ICRISAT Resource Management Program. ILCA, Addis Ababa, Ethiopia. 95 pp.
0144	Wagnew Ayalneh; Hailu Regassa; Huda A K S; Virmani S M (1988) Agroclimatic data analysis of selected locations in the vertisol regions of Ethiopia (En) ICRISAT, Patancheru, AP, India.
0145	Williams M A J; Adamson D (1973) The physiography of central Sudan (En) Geographical Journal (UK) v. 139, vp.

Soils

[General](#)

[Soil morphology, survey, classification, land use systems and planning](#)

[Soil physics](#)

[Soil chemistry and mineralogy](#)

[Soil microbiology](#)

[Soil fertility and plant nutrition](#)

[Soil and water management](#)

[Traction and tillage](#)

[Watershed management](#)

General

0146	Abdulla H H (1985) Vertisols in Sudan: their properties, management and classification (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983. FAO World Soil Resources Reports no. 56, p. 12-21.
0147	Abdulla H H (1989) Vertisols in the semi-arid region of Sudan (En) In: Vertisoi management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM Proceedings no. 9, p. 283-296.
0148	Adam A I; Fadul H M (1985) Some views on classification and management of vertisols in Sudan (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 155-158.
0149	Ahmad N (1988) Occurrence, properties and management of vertisols in the Caribbean (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 286-287.
0150	Ahn P M (1988) Some observations on vertisol properties relevant to management (En, Fr) In: Site selection and characterization: conference of first training workshop on site selection and characterization held in Ibadan, Nigeria, 22 Feb-4 March 1988. IBSRAM Technical Notes no. 1, p. 11-20.
0151	Andrew G (1952) The development of the Sudan plain in the Quaternary (En) First Pan-African congress on prehistory, Nairobi, Kenya.
0152	Ashaye T I (1988) Nigerian dark clay and associated soils (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug - 4 Sep 1987, p. 338.
0153	Ashaye T I (1972) Vertisolic pedogenesis on dioritic material under humid tropical conditions (En) Nigerian Agricultural Journal v. 21, p. 5-16.
0154	Ayele Bekerie; Tamirie Hawando (1975) Comparative characterization of some Ethiopian black clay soils (En) In: Proceedings of the fifth annual research seminar held in Addis Ababa, Ethiopia, 30 Oct - 1 Nov 1974, p. 129-152.
0155	Beavington F (1978) Studies of some cracking soils in the lake Chad basin of north-east Nigeria (En) Journal of Soil Science (UK) v. 29, p. 575-583.
0156	Beinroth F H (1966) Three occurrences of vertisols in central Sudan: their properties, classification, genesis and agricultural capability (De) sn, no. 49, p. 115.
0157	Blokhuis W A; Ochtman L H S; Peters K H (1964) Vertisols in the Gezira and Khasham el Girba

	clay plains (En) Transactions of the 8th international congress of soil science held in Bucharest, Rumania, p. 591-601.
0158	Brammer H (1959) Black soils of the tropics and subtropics (En) s.n., s.l., 32 pp.
0159	Brammer H (1967) Soils of the Accra plains (En) Soil Research Institute of Ghana Academy of Sciences, Accra, Ghana. 146 pp.
0160	Bunting A H; Lea J D (1962) The soils and vegetation of the Fung, east central Sudan (En) Journal of Ecology (UK) v. 50, p. 529-558.
0161	Buringh P (1969) Sodic vertisols in central Sudan (Fr) Symposium on reclamation of sodic, soda-saline soils, Yerevan, 1969, Suppl. Agrokem. Talajt () v. 18, p. 100-102.
0162	Calton W A (1954) An experimental soil map of Tanganyika (Fr) Transactions de 2eme Conference Intrafricaine des sols v. 1, p. 237-240.
0163	Calton W E (1963) Some data on a Tanganyika catena (En) East African Agricultural and Forestry Journal (Kenya) v. 29, p. 173-177.
0164	Dabin B (1951) Contribution to the study of soils in the central Niger delta (En) Agronomie Tropicale (France) v. 6, p. 606-637.
0165	de Costa J V B; Azevedo A L (1947) The balck soils of the north of Angola (En) Committee report of seminar of agriculture at Yangambi v. 2, p. 554-607.
0166	de Marchand B C (1924b) The origin of black turf soils in the Transvaal (En) South African Journal of Science v. 21, p. 162-181.
0167	Dudal R (1963) Dark clay soils of tropical and subtropical regions (En) Soil Science (USA) v. 95(4), p. 264-270.
0168	Durand J H (1961) The black or dark soils of Algeria as compared with black tropical clays and chernozems (Fr) Bull. Ass. Franc. Et. Sol no. 12, p. 477-513.
0169	Greene H; Snow O W (1939) Soil improvement in the Sudan Gezira (En) Journal of Agricultural Science (UK) v. 29, p. 1-34.
0170	Hailu Regassa; Asgelil Dibabe (1990) Vertisol: the challenging soil (En) IAR Newsletter (Ethiopia) v. 5(4), p. 2.
0171	Hoore J D (1955) Soils and black tropical and subtropical clays of Africa (En) African Soils (Nigeria) v. 3, p. 366-377.
0172	Ikwa H (1985) The vertisols of Hawaii (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 125-139.
0173	Jewitt T N (1955) Gezira soils (En) Sudan Ministry of Agriculture Bulletin no. 12, 83 pp.
0174	Jewitt T N (1959) Black soils of the Sudan (En) s.n, s.l, 15 pp.
0175	Jutzi S C (1990) The Ethiopian vertisols: a vast natural resource, but considerably under utilized (En) In: Proceedings of the first natural resources conservation conference. IAR natural resource conservation conference held in Addis Ababa, Ethiopia, 8-10 Feb 1989, p. 41-46.
0176	Kamara C S; Haque I (1987) Characteristics of vertisols at ILCA research and outreach sites in Ethiopia (revised) (En) Plant Science Division Working Document no. B5, ILCA, Addis Ababa, Ethiopia. 87 pp.
0177	Kamara C S; Haque I; Desta Beyene; Ibarra F P (1988) Characteristics of soils at the IAR sub-centre Sheno (En) ILCA, Addis Ababa, Ethiopia. 33 pp.
0178	Kanwar J S (1982) Problems and potentials of vertisols and alfisols: the two important soils of SAT ICRISAT (En) In: Hayashi K (ed) International symposium on distribution, characteristics and utilization of problem soils: Symposium on tropical agriculture research held in Tsukuba, Japan. 19-26 Oct 1981, p. 119-138.
0179	Kerkhoven G J; Jelly R M (1964) The Kafue pilot polder agricultural research on a tropical black clays (En) World Crops (UK) v. 1, vp.
0180	Klinkenberg K; Higgins G M (1968) An outline of northern Nigerian soils (En) Nigerian Journal of Science v. 2, p. 91-115.
0181	Kunze G W; Oakes H; Bloodworth M E (1963) Grumusols of the coastal prairie of Texas (En)

	Soil Science Society of America Journal no. 27, p. 412-421.
0182	Laplante A (1954) Dark-colored tropical soils of basaltic origin in the Cameroons (En) Transactions of the fifth international congress of soil science v. 4, p. 144-148.
0183	Leneuf N (1954a) The black earths of Togo (En) Transactions of the fifth international congress of soil science v. 1, p. 131-136.
0184	Leneuf N (1954b) Les sols du secteur cotonnier de Haute - Volta (Fr) Transactions de 2eme Conference Interafrique des sols v. 2, 971 pp.
0185	Lobova EV (1960) The soils of Ghana (Ru) 7th international conference of west African countries. Puchvovedonie () v. 1, p. 47-55.
0186	Lozet J (1955) Tropical black soils (En) Bulletin of Agriculture (Congo/Belgium) v. 46, p. 251-260.
0187	Luzio L W (1985) The vertisols of Chile (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 163-171.
0188	Maignien R (1961) Sur les sols d'argiles noires tropicales d'Afrique accidentale (The tropical black clay soils of West Africa) (Fr) Bull. Ass. Franc. Etude Sol no. spec., p. 131-144.
0189	Mamadou Kabirou N'Diaye (1990) Vertisols in Mali: distribution and utilization (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration on research, training and extension held in Texas A & M Univ., College Station, Texas, June 25-29, 1990, p. 98-101.
0190	Mandiringana O T; Hussein J (1989) Properties and management of the Chisumbanje vertisols (En) Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 119-132.
0191	Mandiringana O T (1990) Vertisols in Zimbabwe: their nature, distribution & utilization (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration in research, training and extension held in Texas A & M Univ., College Station, Texas, USA. 25-29 June 1990, p. 92-97.
0192	Materechera S A (1989) Vertisols of the lower Shire valley of Malawi: their management for rainfed crop production (En) Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 315-323.
0193	Mathieu C (1988) Vertisols in Burundi: their importance, use and potential (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of Vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug - 4 Sep 1987, p. 339.
0194	Maufe H B (1928) Formation of red and black vlei soil from dolerite at Salisbury, Southern Rhodesia (En) South African Journal of Science v. 25, p. 156-167.
0195	McGarity J W (1985) Vertisols of Australia (En) In: Taxonomy and management of Vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 173-190.
0196	Middleton K R (1954) A suggested name for certain Sudan clay soils (En) Transactions of the 5th international congress of soil science v. 4, p. 181-184.
0197	Mohamed H A (1989) Vertisols in the seasonally dry central clay plain in the Sudan (En) In: Management of Vertisols for improved agricultural production: An IBSRAM inaugural workshop. ICRISAT, Patancheru, AP, India, 18-22 Feb. 1985, p. 45-53.
0198	Mowo J G (1989) Some properties of the Vertisols of western Tanzania (En) Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 159-164.
0199	Mueller Haude P (1991) Problems of conventional soil utilization in the Sudan area: examples of some sites in southeastern Burkina Faso (De) Tagung der Deutschen Bodenkundlichen Gesellschaft. Bayreuth (Germany). 7-15 Sept. 1991. In: Deutsche Bodenkundliche Gesellschaft, Oldenburg (Germany). Proceedings German Society for Soil Science. Referate Tagung der Deutschen Bodenkundlichen Gesellschaft. Oldenburg (Germany). Deutsche Bodenkundliche Gesellschaft. p. 1161-1164.
0200	Musa S B (1991) Soils of the Gabub agricultural area, Gedaref region, eastern Sudan (En) Nile-Geographer (Sudan) v. 1. p. 10-18.
0201	Nxumalo E M (1988). The extent and utilization of Vertisols in Swaziland (En) In: Jutzi S C;

	Haque I; McIntire J; Stares J E S (eds) Management of Vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1987, p. 340.
0202	Oxenstierna A (1992) Soil mining in the Sudan (En) In: Jirstroem M; Rundquist F M (eds) Physical, social and economic aspects of environmental degradation. Lund, Sweden. p. 49-58.
0203	Panje P P (1988) Studies on soil productivity in the Makande Plain, Shire Valley (En) In: Research highlights and constraints to crop production: Proceedings of 1986 research and extension workshop held at Bvumbwe Agricultural Research Station, Limbe, Malawi. p. 57-65.
0204	Pias J (1968) Contribution to the study of Tertiary and Quaternary sedimentary formations in the Chad basin and of the soils derived from them (Fr, En) Cah. Pedal. Orstom (France) v. 6, p. 367-377.
0205	Purnell M F; de Pauw E; Khodary O (s d) Soil resource regions of blue Nile, white Nile, Gezira and Khartoum Provinces, Sudan (En) Soil Survey Administration, Wad Medani, Sudan. 47 pp.
0206	Retuer G (1991) Problems of soil science in Iraq and Ethiopia (De) in: Proceedings of German Society for Soil Science held at Oldenburg, Germany, 7-15 Sep 1991, p. 1181-1184.
0207	Simon A B; Biblio G; Liautaud G (1975) On the black cotton soils of north Cameroon (En) Eng. Geol () no. 9, p. 351-357.
0208	Swindale L D (1985) Constraints to agricultural development in the tropical arid and semi arid regions of the world (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Wad Medani, Sudan, 2-11 Nov 1982, p. 1-14.
0209	Sys C (1959) Black tropical soils of Belgian Congo (Fr) 3rd Inter-African soils conference, p. 209-214.
0210	Theron J J; Niekirk P R van (1934) The nature and origin of black turf soils (En) South African Journal of Science v. 31, p. 220-246.
0211	Thorp J; Bellis S E (1960) Soils of Kenya highlands in relation to land forms (En) Transactions of 7th international congress of soil science v. 4, p. 320-334.
0212	Tomlinson P R (1965) Soils of northern Nigeria (En) Samaru Miscellaneous Paper (Nigeria) v. 11, p. 51-62.
0213	Tothill J D (1946) The origin of the Sudan Gezira clay plain (En) Sudan Notes v. 27, p. 153-171.
0214	van der Merwe C R (1949) The sub-tropical black clay soils (En) CAB, Slough (UK), p. 43-45.
0215	van der Merwe C R (1950a) Sub tropical black clays (En) Transactions of the 4th international congress of soil science v. 2, p. 191-193.
0216	van der Merwe C R (1950b) Vlei soils (En) Transactions of the 4th international congress of soil science v. 2, p. 178-180.
0217	van der Merwe C R (1959) The black soils of the tropics and sub-tropics (En) s.n, s.l, 10 pp.
0218	van de Weg R F (1985) Vertisols in eastern Africa (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO Soil Resources Reports no. 56, p. 45-50.
0219	Vijarnsorn P (1985) The vertisols of Thailand (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 191-203.
0220	Virmani S M; Pathak P; Singh R (1991) Soil related constraints in dryland crop production in vertisols, alfisols and entisols of India (En) Bulletin of the Indian Society of Soil Science v. 15, p. 80-95.
0221	Wilson M J; Mitchell B D (1979) Comparative study of a vertisol and an entisol from the blue Nile plains of Sudan (En, Ar) Egyptian Journal of Soil Science v. 19(2), p. 207-220.
0222	Worrall G A (1957) Features of some semi - arid soils in the district of Khartoum I: the high level dark clays (En) Journal of Soil Science (UK) v. 8, p. 193-202.
0223	Youssof I (1989) The vertisols of Benin: characteristics and management (En) Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 217-238.

Soil morphology, survey, classification, land use systems and planning

0224	Adam A I (1976) Semi-detailed soil survey report of Kenana sugar project, white Nile province (En) Soil Survey Administration, Khartoum, Sudan.
0225	Berry R H (1964) Some notes on the relationships between geomorphology and soils in central Sudan (En) In: Proceedings of international geographic union congress held in Liverpool, UK.
0226	Blokhuis W A (1982) Morphology and genesis of vertisols (En) Transactions of the 12th international congress of soil science held in New Delhi, Symposia papers v. II, p. 23-47.
0227	Brammer H (1955) Detailed soil survey of the Kpong pilot irrigation area (En) Memoir no. 1, Dept. of Soil and Land Use Survey, Kumasi, Gold Coast.
0228	Brink A B A (1955) The genesis and distribution of expanding soil types in South Africa (En) Transactions of South African Institute of Civil Engineers v. 5, p. 267-272.
0229	Bunyolo A M; Magai R; Veldkamp W J (1985) Properties, management and classification of vertisols in Zambia (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 55-69.
0230	D'Costa V P (1980) The characteristics, distribution and irrigation suitability of vertisols of Kano plains of Kenya (En) The 4th annual general meeting of the soil science society of east Africa held in Arusha, Tanzania.
0231	D'Costa V P; Wamicha W N (1986) Soil survey: the extent, characteristics, classification and land use of important vertisols in Kenya (En) In: Transactions of the XIII congress of international society of soil science held in Hamburg, Germany, 13-20 Aug 1986, p. 1083-1084.
0232	D'Costa V P; Gatahi M M; Gachene C K K (1988) The characteristics, classification and land use significance of swell-shrink soils east of lake Victoria, Kenya (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 48-51.
0233	Dahab O A (1988) Characteristics, classification and distribution of vertisols in the eastern region of Sudan (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 30.
0234	El-Abedine Z; Robinson G H; Commisoris A (1971) Approximate age of the vertisols of Gezira, central clay plain, Sudan (En) Soil Science (USA) v. 111, p. 200-207.
0235	Esu I E (1983) Characteristics and classification of the dark clay sols of Biu plains, Nigeria (En) Nigerian Journal of Soil Science v. 4, p. 80-91.
0236	FAO (1970a) Reconnaissance soil surveys of parts of the central clay plain - Sudan (En) FAO Technical report no. 2, vp, Rome.
0237	FAO (1970b) Semi-detailed soil survey of parts of the central clay plain - Sudan (En) FAO Technical report no. 3, vp, Rome.
0238	Finck A; Ochtman L H J (1961) Problems of soil evaluation in the Sudan (En) Journal of Soil Science (UK) v. 12(1), p. 87-95.
0239	Finck A (1961) Classification of Gezira clay soil (En) Soil Science (USA) v. 92, p. 263-267.
0240	Fitzpatrick E A (1980) Soil classes of the world: vertisols (En) In: Soils, their formation, classification and distribution. Longmans, London, UK.
0241	Folorunso O A; Njoku E A; Kwakye P K (1986) The role of soil spatial variability investigations in the management of the Chad basin vertisols of north east Nigeria (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 125-126.
0242	Folorunso O A; Ohu O J; Adeniji F A (1988) The role of soil spatial variability investigation in the management of the Chad basin vertisols on N E Nigeria (En) Soil Technology v.1 (2), p.

	149-156.
0243	Grossman R B; Nettleton W D; Brasher B R (1985) Application of pedology to plant response prediction for tropical vertisols (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 97-116.
0244	Greene H (1928) Soil profile in eastern Gezira (En) Journal of Agricultural Science (UK) v. 18, p. 518-530.
0245	Guthrie R L; Nichols J D (1985) Distribution and classification of the vertisols of the US (En) In: Taxonomy and management of vertisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 117-123.
0246	Hagenzieker F (1963) Contribution to the agropedological knowledge of the tropical black earths of southern Ghana (En) Netherlands Journal of Agricultural Sciences v. 11, p. 54-65.
0247	Hagenzieker F (1964) The tropical grey and black earths of the Accra plains, Ghana: their environment, characteristics and air-photograph mapping (En) Journal of Agricultural Science (Netherlands) v. 12, p. 123-131.
0248	Isbell R F (1988) A proposed new classification of Australian swell-shrink soils (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 25-26.
0249	Kaigama B K; Mordi R I; Omeje M U; Nwaka G I C; Folorunso O A; Ohu J O; Bababe B; Esu I E; Ogunsola O A (1992) Soil characterization at the IBSRAM vertisol management project, Ngala, northeastern Nigeria (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 117-137.
0250	Kass D L; Bryant R B (1988) The occurrence, classification and mineralogy of swell-shrink soils in countries of the central American Isthmus (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 33-35.
0251	Lugo Lopez M A; Carnelli J P; Acevedo G (1985) Morphological, physical and chemical properties of major soils from Calagua in northwestern Uruguay (En) Soil Science Society of America Journal v. 49, p. 108-113.
0252	MacMillan R A; Ngoma A (1985) Vertisolic soils of the Hanang wheat complex, Tanzania: characteristics, distribution, use and management (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO Soil Resources Reports no. 56, p. 131-154.
0253	Mermut A R; Senegal J L; Stoops G (1988) Micromorphology of swell-shrink soils (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 127-144.
0254	Moberg J P; Msanya B M; Kilasara M (1982) Pedological and edaphological properties of the soils of two soil associations in the Morogoro area of Tanzania (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 139-148.
0255	Muchena F N; Gachene C K K (1988) The distribution, characteristics and classification of swell-shrink soils in Keyna (En) In: Transactions of International workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 54-58.
0256	Muir A; Anderson B; Stephen S D (1957) Characteristics of some Tanganyika soils (En) Journal of Soil Science (UK) v. 8, p. 1-18.
0257	Nettleton W D; Sleeman J R (1985) Micromorphology of vertisols (En) In: Soil micromorphology and soil classification. SSSA Special Publication no. 15, p. 165-196.
0258	Nichols J D (1985) Using soil survey interpretations for vertisols in land-use planning (En) In: Management of vertisols for improved agricultural production: An IBSRAM inaugural workshop held at ICRISAT, 18-22 Feb 1985. Patancheru, AP, India. p. 221-233.
0259	Owusu-Benuah E; Duah-Yentumi S (1989) Reports on a survey of current land-use and

	cropping systems on the vertisols of the Accra plains (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 399-406.
0260	Pagel H; Unamba Oparah I; Ramadan H (1966) Studies on the nutrient status of important soils in the humid tropics I. characteristics and classification of the soil studied (En, Gr, F, S.) Beitr trop Landw. VetMed (Germany) v. 4, p. 243-264.
0261	Pfeiffer D; Khalil A; Blume H P (1991) Importance of the soil parent material for ecological properties of vertisols in Sudan (De) In: Proceedings of German Society for Soil Science 7-15 Sep 1991, Oldenburg (Germany), p. 1173-1176.
0262	Porter P M; Porter H L; Raffle A D (1988) Land-use systems for vertisols in the Bay region of Somalia (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1987, p. 308-320.
0263	Purnell M F (1979) Vertisols and their utilization in West Africa (En) Presented at the IITA annual research conference held in Ibadan, Nigeria, 15-19 Oct 1979, IITA, Ibadan, Nigeria.
0264	Ross G J; Presant E W (1973) Physical, chemical and mineralogical properties of selected soils of Tanzania with reference to their genesis and behaviour (En) East African Agricultural and Forestry Journal (Kenya) v. 41, p. 201-217.
0265	Sant'Anna R A (1985) Problem soils of Africa south of the Sahara: pedological characteristics and sub-regional distribution (En) In: Proceedings of fertilizer efficiency research and technology transfer workshop for Africa south of Sahara. p. 68-77.
0266	Srivastava K L; Mesfin Abebe; Abiye Astatke; Mitiku Hailer Hailu Regassa (1993) Distribution and importance of Ethiopian vertisols and location of study sites (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian Highlands: Synthesis report 1986-92. Technical committee of the joint vertisol committee, Addis Ababa, Ethiopia. p. 13-27.
0267	Tamire Hawando (1984) Characteristics and genesis of vertisols occurring in the dry sub-humid tropical climate in Alemaya valley, eastern Ethiopia (En) Beitrage Tropische Landwirtschaft und veterinamedizin (Germany) v. 22 (1), p. 31-40.
0268	Trangmar B B; Singh U; Yost R S; Uehara G (1985) Application of geostatistics for soil survey and land evaluation (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 77-96.
0269	van der Merwe C R (1935) Morphology of the South African black clays (En) Transactions of the third international congress of soil science v. 1, p. 301-303.
0270	van der Merwe C R (1940) Soil groups and sub-groups of South Africa (En) South Africa Department of Agriculture and Forestry Bulletin no. 231, vp.
0271	van der Merwe C R (1949) South African soil types (En) CAB, Slough (UK) v. 46, p. 8-15.
0272	van Baren J H V; Sombroek W G (1985) Vertisols in the collection of the international soil museum and some suggestions on classification (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 63-67.
0273	Veldkamp W J (1983) The classification of the major soils of the high rainfall area in northern Zambia and their correlation with similar soils elsewhere (En) Seminar on soil productivity in the high rainfall areas of Zambia held in Lusaka, Zambia. 8-10 Feb 1983. Occasional paper no. 6, p. 64-86.
0274	van Wambeke A; van Oosten M F (1954) Morphological, chemical and physical properties of the tropical clays of the Lufira valley (En) In: Proceedings of the second inter-African soils conference v. 2, p. 1201-1204.
0275	Whiteman A J (1971) Geology of the Sudan republic (En) Oxford Univ., Press., London, UK.
0276	Wilding L P; Tessier D (1988) Genesis of vertisols: shrink-swell phenomena (En) In: Wilding L P; Puentes R (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18, Texas A&M Univ., Texas, USA. p. 55-81.

Soil physics

0277	Abiye Astatke; Mohamed-Saleem M A; El-Wakeel A () Soil water dynamics under cereal and forage legume on drained vertisols in the Ethiopian highlands (En) Agricultural Water Management (Netherlands)
0278	Ali O A (1964) Some physical properties of Gezira clay (En) Faculty of Agriculture, Khartoum Univ., Sudan. 99 pp.
0279	Asnakew Woldeab (1988) Physical properties of Ethiopian vertisols (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 August - 4 Sep 1987, p. 111-123.
0280	Bellis S E; Muir A (1956) Gilgai phenomena in tropical black clays of Kenya (En) Journal of Soil Science (UK) v. 7, p. 1-9.
0281	Beukes D J (1987) An evaluation of the volumeter method to quantify stability of soil aggregates of a vertisol (En) South Africa Journal of Plant and Soil v. 4(2), p. 94-97.
0282	Blokhuis W A; Slager S; van Schagon R H (1970) Plasmic fabrics of two Sudan vertisols (En) Geoderma (Netherlands) v. 4, p. 127-137.
0283	Bouma J; Loveday J (1988) Characterizing soil water regimes in swelling clay soils (En) In: Wilding L P; Puentes (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18, Texas A&M Univ., Texas, USA. p. 83-96.
0284	Bouma J (1988) Characterizing soil water relationships in swell-shrink soils (En) In: Transactions of international workshop on swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 83-95.
0285	Brook T R; Robinson J B D (1959) Camber bed cultivation of ground-water (vlei) soils 11. modifications of the system (En) East African Agricultural Journal (Kenya) v. 24, p. 192 - 196.
0286	Bui E N; Mermut A R (1989) Orientation of planar voids in vertisols and soils with vertic properties (En) Soil Science Society of America Journal v. 53(1), p. 171-178.
0287	Chan K Y (1981) Representative sampling for bulk density in a vertisol (En) Soil Science Society of America Journal v. 45(3), p. 668-669.
0288	Chittaranjan S; Patnaik US (1980) Hydrology and engineering (En) In: 25 years of research on soil and water conservation in semi-arid deep black soils. Central Soil Water Conservation Research and Training Institute, Research Centre, Bellary, India.
0289	Coughlan K J; McGarry D; Smith G D (1987) The physical and mechanical characterization of vertisols (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 89-105.
0290	Dabin B (1958) Physical and chemical properties of the black soils of the IRCT station at Anie-Mono (Togo) (Fr) Coton et Fibre Tropicales (France) v. 13, p. 257-268.
0291	Dagg M; Russam K (1968) The relation between soil shrinkage and the development of surface cracks in an experimental road in Keyna (En) African Soils (Nigeria) v. 13, p. 5-25.
0292	Dahab M H; Mustafa M A; Rahman H A A (1988) Intermittent evaporation, moisture distribution and salt redistribution through saline sodic clay soil as affected by irrigation frequency and quantity (En) Soil Science (USA) v. 146(3), p. 168-175.
0293	de Bruijn C M A (1963) Thermodynamics of expansive soils 3: the moisture sorption potential: definition and analysis (En) Central Soil Research Institute (South Africa) Special Report no. D5, 27 pp.
0294	De Vos N C J H; Virgo K J (1969) Soil structure in vertisols of the blue Nile clay plains of Sudan (En) Journal of Soil Science (UK) v. 20, p. 189-206.
0295	de Marchand B C (1924) On some physical properties of Transval soils (En) Journal of Agricultural Science (UK) v. 14, p. 151-169.
0296	Decroux J (1966) The hydrological profiles of three soil types in Morocco. (Seven-years observations with lysimeters at Rabat) (Fr) Cahier Recherche Agronomie (Maroc) v. 22, 81 pp.
0297	Du Plessis S F (1969) The swelling of montmorillonite clays (En) Agrochemophysica (South

	Africa) v. 1, P. 9-12.
0298	El-Abedine Z; Robinson G H; Tyega J (1969) A study of certain physical properties of a vertisol in the Gezira area, republic of Sudan (En) Soil Science (USA) v. 108, p. 359-366.
0299	El-Abedine Z; Robinson G H (1971) Study of cracking in some vertisols of the Sudan (En) Geoderma (Netherlands) v. 5, p. 229-241.
0300	El-Abedine Z (1971) Factors affecting hydraulic conductivity in the soil profile of the Gezira (En) FAO Project, Rome.
0301	Fadda N R (1960) The use of electrical resistance units for the study of soil moisture changes and irrigation requirements in the Sudan Gezira (En) Empire Cotton Growing Review (UK) v. 37, p. 118-130.
0302	Finck A (1962) Calcium status of some Sudan clay soils (En) Plant and Soil (Netherlands) v. 16, p. 293-309.
0303	Folorunso O A; Ohu J O (1989) Physical properties of northeastern Nigerian vertisols as they affect management (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe; 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 239-249.
0304	Greene H (1928b) Soil permeability in the eastern Gezira (En) Journal of Agricultural Science (UK) v. 18, p. 531-543.
0305	Hack H R B (1970) Emergence of crops in clay soils of central Sudan rangelands in relation to soil water and air filled pore space (En) Experimental Agriculture (UK) v. 6, p. 287-302.
0306	Hack H R B (1984) Calculation of the field volumetric water content of cracking clay soils from measurements of gravimetric water content and bulk density (En) Journal of Soil Science (UK) v. 35, p. 299-315.
0307	Hallsworth E G; Beckman G G (1969) Gilgai in the quaternary (En) Soil Science (USA) v. 107, p. 409-420.
0308	Hussein J (1980) An investigation into soil-water relations and soil structure of a vertisol (En) The 9th national congress held in Durban, South Africa, Soil Science Society Technical Committee Report no. 174, Soil Science Society, Durban, South Africa.
0309	IAR Addis Ababa Ethiopia (1973) Soil and water studies - available water holding capacity of vertisols - Infiltration rate (En) Melka Werer Research Station progress report 1972/73, p. 17-24.
0310	Jelly R M (1963) The physical properties and irrigation management of a montmorillonite soil (En) Second central African scientific congress held in Lusaka, Zambia. 8 pp.
0311	Kamara C S; Haque I (1987) Studies on the field capacity of a Udic vertisol (En) Proceedings of the international conference on measurement of soil and plant water status vol. 1. Soils: Commemoration of the Centennial of Utah State Univ., held in Logan, Utah, 6-10 July 1987. Utah State Univ., Logan, Utah, USA. p. 47-58.
0312	Kamara C S; Haque I (1988a) Soil moisture related properties of vertisols in the Ethiopian highlands (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 183-200.
0313	Kamara C S; Haque I (1988b) Soil moisture storage along a toposequence in Ethiopian vertisols (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1987, p. 201-222.
0314	Kamara C S; Haque I (1988) Physical properties of vertisols and their implications for management: a review (En) Plant Science Division Working Document no. B7, ILCA, Addis Ababa, Ethiopia. 91 pp.
0315	Kamara C S; Haque I (1990) Characteristics of lowland soils of Melka Sede state farm and Melka Werer Research Center in the Harerge region of Ethiopia (En) Plant Science Division Working Document no. B11, ILCA, Addis Ababa, Ethiopia. 77 pp.
0316	Karlsson I (1982) Soil moisture investigation and classification of seven soils in the Mbeya region, Tanzania (En) Uppsala, Sweden, Sveriges lantbruksuniv. 53 pp.
0317	Low P F (1961) Physical chemistry of clay-water interactions (En) Advances in Agronomy (USA) v. 13, p. 269-327.

0318	Mcleans A H (s d) Moisture characteristics of some Zambian soils (En) Soil Survey Report no. 5, vp.
0319	Miline G; Calton W E (1943) Mechanical composition of east African soils (En) East African Agricultural Journal (Kenya) v. 8, p. 202-208.
0320	Mukhtar O M A; Swoboda A R; Godfrey C L (1974) The effect of sodium and calcium chlorides on structure stability of two vertisols: Gezira clay from the Sudan, Africa and Houston black clay from Texas, USA (En) Soil Science (USA) v. 118, p. 109-119.
0321	Nyandat N N (1972) Gypsum as improver of the permeability of gnumosol (typic pellustert) in the Kano plains of Kenya (En) East African Agricultural and Forestry Journal (Kenya) v. 38 (1), p. 1-7.
0322	Pachepsky Ya A; Zborishuk N G (1984) Mathematical models of water movement in heavy clay soils (En) In: Proceedings of the international society of soil science symposium on water and solute movement in heavy clay soils held in Wageningen, The Netherlands, 27-31 Aug 1984, ILRI Publication v. 37, p. 101-113.
0323	Panje P; Matabwa C J; Kumwenda J T D (1987) Soils of the drier areas of Malawi which are prone to drought, present agriculture on these soils are research which may increase the agricultural potential (En) Agronomic adjustment to the environment of the 400-600 mm rainfall zone of southern Africa: Proceedings of a SADCC workshop held in Harare, Zimbabwe, Sep 1983, p. 47-61.
0324	Paul C L (1982) Influence of physical properties of clay soils on their management for sugar production in Guyana (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 162-166.
0325	Rich C I; Thomas G W (1960) The clay fraction of soils (En) Advances in Agronomy (USA) v. 12, p. 1-39.
0326	Russell M B (1980) Profile moisture dynamics of soil in vertisols and alfisols (En) In: Proceedings of the international workshop on the agroclimatological research needs of the semi-arid tropics held at ICRISAT, Patancheru, AP, India. 22-24 Nov 1980, p. 75-87.
0327	Saarainen T; Alatalo V (1989) Physical soil properties as related to water balance at afforestation sites in Tendelti, central Sudan (En) Sudan Silva (Sudan) v. 8(27), p. 39-49.
0328	Schlichting E (1985) The water/air regime of swelling/shrinking soils (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th International soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 243-252.
0329	Seiny-Booker L; Floret C; Pontanier R (1992) Degradation of savana soils and reduction of water available for the vegetation: the case of northern Cameroon vertisols (En) Cameroon journal of Soil Science v. 72(4), p. 459-488.
0330	Snyman K; Fey M V; Cass A (1985) Physical properties of some highveld vertisols (En, Afr) South African Journal of Plant and Soil v. 2(1), p. 18-20.
0331	Stephens D; Bellis S E; Muir A (1956) Gilgai phenomena in tropical black clays of Kenya (En) Journal of Soil Science (UK) v. 7(1), p. 1-9.
0332	Smith G D; Yule D F; Coughlan K J (1984) Soil physical factors in crop production on vertisols in Queensland, Australia (En) In: ACIAR/IBSRAM proceedings of the international workshop on soils held in Townsville, Australia, 12-16 Sep 1983, p. 87-104.
0333	Snyman K; Fey M V; Cass A (1984) Physical properties of some highveld vertisols (Afr, En) South African Journal of Plant and Soil v. 2(1), p. 18-20.
0334	Swindale L D (1983) Soil physical factors in the management of vertisols in the semi-arid tropics (En) In: ACIAR/IBSRAM proceedings of the international workshop on soils held in Townsville, Australia, 12-16 Sep 1983, p. 116-117.
0335	Takar A A; Dobrowolski J P; Thurow T L (1990) Influence of grazing, vegetation life-form and soil type on infiltration rates and interrill erosion on a Somalian rangeland (En) Journal of Range Management (USA) v. 43(6), p. 486-490.
0336	Tamhane R Y; Deshpande T L (1955) Black soils - physical properties as related to irrigability of black soils of Narmanda valley in Madhya Pradesh (En) In: Proceedings of national academy of sciences held in New Delhi, India v. 24A, p. 10-24.
0337	Thompson C H; Beckman G G (1982) Gilgai in Australian black earths and some of its effects

	on plants (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 149-156.
0338	van Wambeke A; van Oosten M F (1954) The effect of a "gilgai" micro-relief on the constitution of tropical clays in Lufira valley, Belgian Congo (En) Transactions of the fifth international congress of soil science v. 4, p. 321-324.
0339	Venkateswarlu J (1984) Soil problems with vertisols with particular reference to surface conditions and water relations (En) In: ACIAR/IBSRAM proceedings of the international workshop on soils held in Townsville, Australia, 12-16 Sep 1983, p. 105-115.
0340	Virgo K J (1981) Observations of cracking in Somalia vertisols (expanding lattice clay minerals) (En) Soil Science (USA) v. 131(1), p. 60-61.
0341	van der Merwe D H (1967) The composition and physical properties of the clay soils on the mafic rocks of the bushveld igneous complex (En) In: Proceedings of the 4th regional conference of Africa: soil mechanics. National Building Research Institute, Pretoria, South Africa. p. 141-146.
0342	Yule D F; Ritchie J T (1980) Soil shrinkage relationships of Texas vertisols I. small cores (En) Soil Science Society of America Journal v. 44, p. 1285-1291.

Soil chemistry and mineralogy

0343	Acquaye D K; Owusu-Benuah E (1989) Chemical characteristics of some vertisols of Ghana (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 327-346.
0344	Acquaye D K; Dowuona G N J; Mermut A R; Arnaud R J St (1992) Micromorphology and mineralogy of cracking soils from the Accra plains of Ghana (En) Soil Science Society of America Journal v. 56(1), p. 193-201.
0345	Adam A I; Andersen W B; Dixon J B (1983) Mineralogy of the major soils of the Gezira scheme (En) Soil Science Society of America Journal v. 47, p. 1233-1240.
0346	Adeoye K B; Folorunso O A; Mohamed-Saleem M A (1988) Effects of adsorbed cations on the physical properties of vertisols in the Chad basin of northeast Nigeria (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 127-128.
0347	Ahmad N; Jones R L (1969) Genesis, chemical properties and mineralogy of Caribbean Grumusols (En) Soil Science (USA) no. 107, p. 166-174.
0348	Asnakew Woldeab (1988) Physical and chemical properties of vertisols and their management under Ethiopian conditions (En) In: Transactions of international workshop on swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 199-201.
0349	Ayed I A; Wild A (1986) The distribution of nitrogen in profiles of Sudan Gezira vertisol with special reference to fixed ammonium (En) Egyptian Journal of Soil Science v. 23(61), p. 53-61.
0350	Bampoe-Addis A; Raman K V; Mortland M M (1968) Clay mineral status of some major soil series in Ghana (En) Soil Science (USA) v. 107, p. 119-125.
0351	Barber R G (1979) Potassium fixation in some Kenyan soils (En) Journal of Soil Science (UK) v. 30(4), p. 785-792.
0352	Betts A V (1966) Mineralogy of a soil profile formed on dolerite: II. Bethal black clay, Transvaal (En) South African Journal of Agricultural Science no. 9, p. 49-66.
0353	Blokhuis W A; Pape T; Slager S (1969) Morphology and distribution of pedogenic carbonate in some vertisols of the Sudan (En) Geoderma (Netherlands) v. 2, p. 173-200.
0354	Desta Beyene (1983) Micronutrient status of some Ethiopian soils (En) Soil Science Bulletin no. 4, IAR, Addis Ababa, Ethiopia. 43 pp.
0355	Dixon J B (1982). Mineralogy of vertisols (En) In: Vertisols and rice soils of the tropics: symposia papers II. 12th international congress of soil science held in New Delhi, India. p. 48-59.
0356	Dobronol's Kil V V (1973) Mineralogical and geochemical characteristics of black soils of Kenya, Uganda and Tanzania (En) Pochnovedenie () no. 8, p. 14-25.

0357	Fadl A E (1971) A mineralogical characterization of some vertisols in the Gezira and Kenana clay plain of Sudan (En) Journal of Soil Science (UK) no. 22, p. 129-135.
0358	Finck A (1960/61) Compilation of some chemical data for Gezira soil and cotton (En) Gezira Research Station, Sudan.
0359	Fitzpatrick R W; LeRoux J (1977) Mineralogy and chemistry of a Transvaal black clay toposequence (En) Soil Science (USA) v. 28, p. 79-89.
0360	Hajek B F (1985) Mineralogy of aridisols and vertisols (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 221-229.
0361	Hamilton R (1955a) Soil minerals of the Gold Coast (En) Journal of Soil Science (UK) v. 6, p. 318-321.
0362	Hamilton R (1955b) A mineralogical investigation of some Gold Coast soils (En) Netherlands Journal of Agricultural Science v. 3 & 6, p. 127-134 & 312-318.
0363	Izzat A E A (1984) Chemical and biological activity of zinc, copper and some other nutrient elements in Sudanese soils (En) Rijksuniversiteit, Gent (Belgium). Faculteit van de Landbouwwetenschappen. Gent (Belgium) 202. suppl. p. 203-236.
0364	Jones T A (1958a) Carbon studies on the irrigated soils of the Sudan Gezira (En) Journal of Soil Science (UK) v. 9, p. 272-276.
0365	Jones T A (1958b) A study of carbon - nitrogen ratios on the irrigated soils of the Sudan Gezira (En) Journal of Soil science (UK) v. 9, p. 277-279.
0366	Joseph A F (1924) The composition of some Sudan soils (En) Journal of Agricultural Science (UK) v. 14, p. 490-497.
0367	Kantor W; Schwertmann U (1974) Mineralogy and genesis of clays in red-black soil toposequences on basic igneous rocks in Kenya (En) Journal of Soil Science (UK) v. 25: p. 67-78.
0368	Kanyanda C W (1989) Properties of some vertisols (En) In: Vertisol management in Africa: Proceedings of the first regional seminar held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 99-117.
0369	Nyamapfene K W (1984) Transmission electron microscopy and electron diffraction studies on the clay fraction of three Zimbabwean vertisols derived from basalt (En) Zimbabwe Journal of Agricultural Research v. 22(2), p. 111-117.
0370	Owusu-Benuah E; Acquaye D K (1989) Phosphate sorption characters of selected major Ghanaian soils (En) Soil Science (USA) v. 148(2), p. 114-123.
0371	Paquet H; Bocquier G; Millot G (1966) Neoformation and degradation of clay minerals in certain solodized solents and vertisols of the Chad area (Fr) Bull. Serv. Carte géol. Als. Lorr v. 19, p. 295-322.
0372	Piccolo A; Gobena Huluka (1986) Phosphorus status of some Ethiopian soils (En) Tropical Agriculture (Trinidad) v. 63, p. 137-142.
0373	Raychaudhuri S P (1941) Studies on the physico-chemical properties of associated black and red soils of Nyasaland protectorate, British Central Africa (En) Indian Journal of Agricultural Sciences v. 11, p. 100-109.
0374	Robinson G H; Magar W Y; Rai K D (1969) Soil properties in relation to cotton growth (En) In: Symposium on cotton growth in the Gezira environment, Agricultural Research Corporation, Wad Medani, Sudan.
0375	Robinson G H (1971) Exchangeable sodium and yields of cotton on certain clay soils of Sudan (En) Journal of Soil Science (UK) v. 22, p. 328-335.
0376	Sahlemedhin Sertsu; Sanchez P A (1978) Effects of heating on some changes in soil properties in relation to an Ethiopian land management practice (En) Soil Science Society of America Journal v. 42, p. 940-944.
0377	Said M B (1971) Effect of drying and rewetting on the exchangeable potassium content of the Sudan Gezira soil (En) Agrochimica (Italy) v. 15, p. 356-361.
0378	Said M B (1973) Ammonium fixation in the Sudan Gezira soil (En) Plant and Soil (Netherlands) v. 38(1), p. 9-16.

0379	Said M B (1975) Distribution of phosphorus in the Sudan Gezira soils (En) Tropical Agriculture (Trinidad) v. 52(3), p. 269-274.
0380	Stephens D (1953) A petrographic study of a tropical black earth and gray earth from the Gold Coast (En) Journal of Soil Science (UK) v. 4, p. 211-219.
0381	Taboadela M M (1953) The clay mineralogy of some soils from Spain and from Rio Muni (West Africa) (En) Journal of Soil Science (UK) v. 4, p. 48-55.
0382	Tagwira F; Oloya T; Nleya G G (1992) Copper status and distribution in the major Zimbabwean soils (En) Communications in Soil Science and Plant Analysis (USA) v. 23(7/8), p. 659-671.
0383	Tanner P D (1966) Factors influencing the availability of manganese in Rhodesian acid red-clay soils (En) Rhodesia Univ., Rhodesia.
0384	Tanner P D (1978) Relations of sorption of molybdate and phosphate by clays and clay loams to soil and other chemical factors (En) Rhodesian Journal of Agricultural Research v. 16, p. 31-41.
0385	Tekalign Mamo; Haque I (1987) Sulphur investigations in some Ethiopian soils (En) East African Agricultural and Forestry Journal (Kenya) v. 52, p. 148-156.
0386	Tekalign Mamo; Haque I (1987) Phosphorus status of some Ethiopian soils I. sorption characteristics (En) Plant and Soil (Netherlands) v. 102 (2), p. 261-266.
0387	Tekalign Mamo; Haque I (1988) Potassium status of some Ethiopian soils (En) East African Agricultural and Forestry Journal (Kenya) v. 53, p. 123-130.
0388	Tekalign Mamo; Haque I; Kamara C S (1988) Phosphorus status of some Ethiopian highland vertisols (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug.-4 Sept 1987, p. 232-252.
0389	Tekalign Mamo; Haque I (1991a) Phosphorus status of some Ethiopian soils II. nature and distribution of inorganic phosphates and their relation to available phosphorus (En) Tropical Agriculture (Trinidad) v. 68, p. 2-8.
0390	Tekalign Mamo; Haque I (1991b) Phosphorus status of some Ethiopian soils III. evaluation of soil test methods for available phosphorus (En) Tropical Agriculture (Trinidad) v. 68, p. 51-56.
0391	van der Merwe C R (1955) Clay minerals of South African soil groups II. subtropical black clays and related soils (En) Soil Science (USA) v. 79, p. 147-158.
0392	van der Merwe C R; Heystek H (1955) Clay minerals of South African soil groups I. lilt soils of the desert and adjoining semi-arid regions (En) Soil Science (USA) v. 80, p. 479-494.
0393	van der Merwe C R (1957) Clay minerals of the subtropical soil groups of the union of South Africa (En) African Soils (Nigeria) v. 4(2), p. 104-121.
0394	van der Merwe C R; Weber H W (1963) The clay minerals of South African soils developed from granite under different climatic conditions (En, Fr) South African Journal of Agricultural Science v. 6 (3), p. 411-454.
0395	Wapakala W W (1976) Changes in some chemical properties of a red clay soil = result of long-term fertilizer and rotational trials in central Kenya (En) East African Agricultural and Forestry Journal (Kenya) v. 42 (2), p. 201-218.
0396	Yerima B P K; Hossner L R; Wilding L P; Calhoun F G (1988) Forms of phosphorus and phosphorus sorption in northern Cameroon vertisols and associated alfisols (En) In: Wilding L P; Puentes R (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18, Texas A & M Univ., USA. p. 147-164.
0397	Yerima B P K; Wilding L P; Hallmark C T; Calhoun F G; Hallmar C T (1988) Statistical relationships among selected properties of northern Cameroon vertisols and associated alfisols (En) Soil Science Society America Journal v. 53, p. 1758-1763.

Soil microbiology

0398	Abdel Majid H M; El-Mahi Y E; Grammar Y (1983) Potential of urease inhibitors in reducing
------	--

	ammonia losses in some tropical soils (En) Tropical Agriculture (Trinidad) v. 60(4), p. 301-302.
0399	Friedericks J B; Hagedorn C; Vanscoyoc S W (1990) Isolation of rhizobium leguminosarum (biovar trifolii) strains from Ethiopian soils and symbiotic effectiveness on African annual clover species (En) Applied and Environmental Microbiology (USA) v. 56(4), p. 1087-1092.
0400	Friedericks J B (1990) Evaluation of African trifolium species for growth and biological nitrogen fixation (En) Dissertation Abstracts International - Sciences and Engineering.
0401	Friedericks J B; Hagedorn C; Reneau R B (1991) Evaluation of African annual clovers to moisture stress in two Ethiopian highland soils (En) Plant and Soil (Netherlands) v. 133(2), p. 271-279.
0402	Haque I (1992) Use of legume biological nitrogen fixation in crop and livestock production systems (En) In: Mulongoy K; Gueye M; Spencer D S C (eds) Biological nitrogen fixation and sustainability of tropical agriculture: Proceedings of the 4th international conference of the African association for biological nitrogen fixation held at IITA, Ibadan, Nigeria, 24-28 Sep 1990, p. 432-437.
0403	Luyindula N; Haque I (1990) Rhizobium studies on trifolium species in Ethiopian highlands (En) Presented at the symposium on research for development, 4 April 1990, Vancouver, BC, Canada.
0404	Luyindula N; Haque I (1992) Effect of rhizobium inoculation and phosphorus on growth and biological nitrogen fixation in tree legumes grown on a highland vertisol (En) In: Mulongoy K; Gueye M; Spencer D S C (eds) Biological nitrogen fixation and sustainability of tropical agriculture: Proceeding of the 4th international conference of the African association for biological nitrogen fixation held at IITA, Ibadan, Nigeria, 24-28 Sep 1990, p. 109-112.
0405	Musa M M (1968a) Nitrogenous fertilizer transformations in the Sudan Gezira soil I. ammonia volatilization losses following surface applications of urea and ammonium sulphate (En) Plant and Soil (Netherlands) v. 29, p. 413-421.
0406	Musa M M (1968b) Nitrogenous fertilizer transformations in the Sudan Gezira soil II. nitrification of urea and ammonium sulphate (En) Plant and Soil (Netherlands) v. 29, p. 1-8.
0407	Musa M M; Mukhtar N O (1969) Enzymatic activity of a soil profile in the Sudan Gezira (En) Plant and Soil (Netherlands) v. 30, p. 153-156.
0408	Musa M M (1971) Seasonal variations in the soil microflora and microbiological activity of the Sudan (En) African Soils (Nigeria) v. 16, p. 81-90.
0409	Musa M M (1977) Some microbiological and chemical effects of the decomposition of crop residues in irrigated Sudan soils (En) In: FAO/SIDA workshop on the use of organic materials as fertilizers in Africa held in Buea, Cameroon. 5-14 Dec 1977, p. 176-185.
0410	Tekalign Mamo; Haque I (1986) Response of lucerene (<i>Medicago sativa</i>) to phosphate fertilization and inoculation with <i>Vasicular arbuscular</i> mycorrhizal fungus in a P deficient vertisol (En) ILCA Newsletter (Ethiopia) v. 5(3), p. 5-6.
0411	Waring S A; Saffigna P G (1984) Biological process affecting nutrient element availability and distribution in Australian cracking clays (En) In: McGarity J W; Hoult E H; So H B (eds) Proceedings of a symposium on the properties and utilization of cracking clay soils held in Armidale, New South Wales, Australia, 24-28 Aug 1981, Reviews in Rural Science (Australia) v. 5, p. 187-204.

Soil fertility and plant nutrition

0412	Akyeampong E; Tekalign Mamo (1988) Response of <i>Sesbania sesban</i> to nitrogen and phosphorus fertilization on two Ethiopian vertisols (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug - 4 Sep 1987, p. 256-257.
0413	Alemeida L A; Valante R P; Ricardo R P (1954) The organic matter of the "black soils" of Angola (En) Transactions of the fifth international congress of soil science v. 2, p. 335-341.
0414	Amare Abebe; Tamirie Hawando (1975) Phosphorus nutritional requirements of wheat plants grown on Alemaya black cracking clay soils under greenhouse conditions (En) In: Proceedings of the 5th annual research seminar held in Addis Ababa, Ethiopia, 30 Oct - 1 Nov

	1975, p. 153-154.
0415	Asnakew Woldeab; Tekalign Mamo; Mengesha Bekele; Tefera Ajema (1991) Soil fertility management studies on wheat in Ethiopia (En) In: Hailu Gebre-Mariam; Tanner D G; Mengistu Hulluka (eds) <i>Wheat research in Ethiopia: a historical perspective</i> . IAR/CIMMYT, Addis Ababa, Ethiopia. p. 137-172.
0416	Ayoub A T (1986) ¹⁵N - labelled urea recovery by different crops in the Sudan Gezira soil (En) <i>Fertilizer Research (Netherlands)</i> v. 9, p. 213-221.
0417	Bekele Sisay (1975) The effect of manure and commercial fertilizers on the yield and protein content of natural pastures (En) In: <i>Proceedings of the 5th annual research seminar held in Addis Ababa, Ethiopia, 30 Oct - 1 Nov 1974</i> , p. 196-198.
0418	Bowell R J; Ausah R K (1993) Trace element budget in an African savannah ecosystem (En) <i>Biogeochemistry (Netherlands)</i> v. 20(2), p. 103-126.
0419	Burford J R (1987) Strategies for maintenance of soil fertility (En) In: <i>Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986</i> . IBSRAM proceedings no. 6, p. 311-323.
0420	Burhan H O; Mansi M G (1970) Effect of N, P and K on yields of cotton in the Sudan Gezira (En) <i>Experimental Agriculture (UK)</i> v. 6, p. 279-286.
0421	Esu I E; Asiribo O E (1989) Micronutrient fertility of some northern Nigerian vertisols and associated management implications (En) In: <i>Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989</i> . IBSRAM proceedings no. 9, p. 347-357.
0422	Finck A; Peters K H (1961) Soil and plant nutrition problems in the Gezira (En) Unpublished.
0423	Haque I; Jutzi S C (1985) Relative effectiveness of refined and rock phosphates on the growth of African clovers (En) <i>ILCA Newsletter (Ethiopia)</i> v. 4 (5), p. 5.
0424	Hughan D S; Booth D R C (1966) Abnormal nitrogen requirements of sugar cane on the montmorillonitic black clay soil of the Kafue flats in Zambia (En) In: <i>Proceedings of the 40th congress of South African sugar technological association</i> . p. 247-452.
0425	IAR Addis Ababa Ethiopia (1977) Effect of NP fertilizer on grain yield of wheat at Ginchi (En) <i>Holleta-Guenet Research Station. Holleta-Genet Research Station progress report 1975/76</i> , p. 289-290.
0426	Ishag H M (1992) Effect of foliar micro-nutrient fertilizers on the yield of wheat in irrigated Gezira (En) In: <i>Annual meeting of Nile valley regional program on cool season food legumes and cereals held in Sudan. Oct 1992</i> , p. 128-132.
0427	Izzat A E A (1984) Chemical and biological activity of zinc, copper and some other nutrient elements in Sudanese soils (En) <i>Rijksuniversiteit, Gent (Belgium). Faculteit van de Landbouwwetenschappen, Gent (Belgium)</i> . 202 pp.
0428	Jelley R M; Kerkhoven G J (1965) Fertilizer placement in relation to drainage problems on a deep clay soil (En) <i>Rhodesian Journal of Agricultural Research</i> v. 3, p. 5-7.
0429	Jewitt T N; Bergh H (1955/56) Micro-elements (En) <i>Gezira Research Station, Sudan</i> .
0430	Jones T A (1958) Nitrogen studies of the irrigated soils of the Sudan Gezira II. extended fallowing in cotton rotations (En) <i>Journal of Soil Science (UK)</i> v. 9, p. 267-271.
0431	Jutzi S G; Haque I (1984) The effects of P and N/P fertilization on the growth, nodulation and seed set of three African clovers on a P deficient vertisol (En) <i>ILCA Newsletter (Ethiopia)</i> v. 3(2), p. 5-6.
0432	Kanwar J S; Rego T J; Seetharama N (1984) Fertilizer and water-use efficiency in pearl millet and sorghum in vertisols and alfisols of semi-arid India (En) <i>Fertilizer News (India)</i> v. 29, p. 42-52.
0433	Katyal J C; Hong C W; Vlek P L G (1987) Fertilizer management in vertisols (En) In: <i>Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986</i> . IBSRAM proceedings no. 6, p. 247-266.
0434	Laryea K B; Anders M M; Pathak P (1995) Long-term experiments on alfisols and vertisols in the semi-arid tropics (En) <i>Advances in Soil Science (USA)</i>
0435	Le Mare P H (1959) Soil fertility studies in the three areas of Tanganyika (En) <i>Empire Journal of Experimental Agriculture (UK)</i> v. 27, p. 197-222.

0436	Le Mare P H (1987) Chemical fertility characteristics of vertisols (En) Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 125-137.
0437	Manjunathaiah H M; Sheelavantar M N; Gidnawar V S; Murthy A S P (1988) Recycling of crop residues and fertilizer management in vertisols in a legume-cereal sequence (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 218-221.
0438	Mesfin Abebe (1979) Studies on soil fertility and drainage (En) In: Summary of research activities at Sheno sub-station, 1968-78. JAR, Addis Ababa, Ethiopia. p. 12-22.
0439	Mesfin Abebe (1981) Soil burning in Ethiopia (En) Ethiopian Journal of Agricultural Sciences v. 3(1), p. 57-74.
0440	Mitmuni J P; Mfitilodze M W; McDowell L R (1990) Interrelationships of minerals in soil plant-animal system at Kuti Ranch, Malawi (En) Communications in Soil Science and Plant Analysis (USA), v. 21(5/6), p. 415-427.
0441	Miressa Duffera; Tekalign Mamo; Mesfin Abebe; Samuel Geleta (1991) Response of four wheat varieties to nitrogen on highland pellic vertisols in Ethiopia (En) In: Tanner D G; Mwangi W (eds) 7th regional wheat workshop for eastern, central and southern Africa held in Nakuru, Kenya, Sep 16-19, 1991, p. 480-488.
0442	Mowo J G; Gama B M (1991) Effect of nitrogen and phosphorus fertilizers on cotton, maize and sorghum in a pellic vertisol at Ukiriguru (En) Conference on soils and fertilizer use research co-ordinating committee meeting held in Arusha, Tanzania, November 1991.
0443	Msaky J J T; Msanya B M; Uriyo A P (1986) The use of rock phosphate as a source of phosphorus on a slightly acid clayey soil in Tanzania (En) Africa Focus (Belgium) v. 2(2), p. 127-138.
0444	Mukhtar M O; Yousif H Y (1979) Response of irrigated groundnuts (<i>Arachis hypogaea L.</i>) to urea fertilization in the central rainlands of the Sudan (En) Zbl Bakt. II Abt () no. 134, p. 25-33.
0445	Mugwira L M; Haque I (1991) Variability in the growth and mineral nutrition of African clovers (En) Journal of Plant Nutrition (USA) v. 14(6), p. 553-569.
0446	Murthy A S P; Viswanath D P; Sheelavantar M N (1985) Soil fertility management in relation to agricultural productivity in vertisols of India (En) In: Taxonomy and management of vertisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 285-316.
0447	Nnadi L A; Haque I; Mugwira L M (1993) Phosphate response and mineral composition of Ethiopian highland <i>trifolium</i> species (En) Communications in Soil Science and Plant Analysis (USA) v. 24(7&8), p. 641-656.
0448	Nnadi L A; Haque I (1985) Estimating phosphorus requirements of native Ethiopian clovers using phosphorus sorption isotherms (En) Presented at the international conference on soil fertility, soil filth and post clearing land degradation in the humid tropics held in Ibadan, Nigeria, 21-26 July 1985.
0449	Poulain J F (1976) Improvement of the fertility of cultivated soils in Mali: assessment of 13 years work (1962-1974) (En) Agronomie Tropicale (France) v. 13, p. 403-416.
0450	Pulschen L (1988) Vertic arable soils of central Ethiopia: their fertility status and weed community (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1988, p. 253-254.
0451	Pulschen L (1988) Investigation on the fertility status and on agronomic factors of some cultivated soils in the Shoa administrative region, Ethiopia (En) Debre Zeit Agricultural Research Centre, Alemaya Univ., of Agriculture, Ethiopia. 63 pp.
0452	Roorda T M M (1988) Soil burning in Ethiopia: some effects on soil fertility and physics (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1987, p. 124.
0453	Saroha M S; Singh H G. (1979) Effect of prevention of iron chlorosis on the quality of

	sugarcane grown on vertisols (En) Plant and Soil (Netherlands) v. 52(4), p. 467-473.
0454	Saxena N P; Sheldrake A R (1980) Iron chlorosis in chickpea (<i>Cicer arietinum</i> L.) grown on high pH calcareous vertisol (En) Field Crops Research (Netherlands) v. 3(3), p. 211-214.
0455	Shukla U C; Sandabe M K; Kwari J D. (1987) Distribution of available Zn and response to applied Zn in some entisols and vertisols of Chad basin in north eastern Nigeria (En) Journal of Plant Nutrition (USA) v. 10 (9/16), p. 2069-2075.
0456	Stephens D (1967) Effects of grass fallow treatments in restoring fertility of Buganda clay loam in south Uganda (En) Journal of Agricultural Science (UK) v. 68 (3), p. 301-403.
0457	Tanner P D (1977) Uptake of manganese (<i>Zea mays</i> L.) in relation to manganese concentration in acid clay loams as affected by time (En) Rhodesian Journal of Agricultural Research v. 15, p. 151-161.
0458	Venkateswarlu J (1979) Management of soil fertility in black soils (En) In: Seminar on management of black soils, Dharwar, India. Univ., of Agricultural Sciences, Dharwar, India.
0459	Wehrmann J; Legesse Wolde Yohannes (1965) Effects of "guie" on soil conditions and plant nutrition (En) African Soils (Nigeria) v. 10, p. 124-136.

Soil and water management

0460	Abate Tedla (1989) Improved technology for draining vertisols in the Ethiopian highlands: ILCA's contribution (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, Jan 16-21, 1989. IBSRAM proceedings no. 9, p. 173-179.
0461	Abate Tedla; Abiye Astatke (1989) Vertisol management project highlights (En) Presented in agronomy and soils training workshop held at JAR, Holleta, Ethiopia, 20-25 Feb 1989, 17 pp.
0462	Abate Tedla; Getinet Gebeyehu; Tesfaye Tessema (1989) Drainage improvement on vertisols for better cropping in the Ethiopian highlands (En) Presented in an annual conference of the crop science committee of Ethiopia held in Addis Ababa, Ethiopia, 16-17 Feb 1989, 10 pp.
0463	Abate Tedla; Getinet Gebeyehu; Tesfaye Tessema (1989) Drainage improvement on vertisols of the highlands of Ethiopia (En) In: SEBIL: Bulletin of the Crop Science Committee of Ethiopia v. 1 (2), p. 33-34.
0464	Abate Tedla (1992) Vertisol technology for smallholder farmers in Ethiopia (En) Presented in agricultural conference for NGO's in Ethiopia held in Addis Ababa, Ethiopia, 2-4 Dec 1992, 12 pp.
0465	Abiye Astatke; Jutzi S C; Grunder M (1988) Effects of surface drainage on soil erosion and wheat growth on a gently sloping Vertisol at Debre Zeit, Ethiopia (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug - 4 Sep 1987, p. 288-289.
0466	Abiye Astatke; Jutzi S C; Grunder M (1989) Vertisol surface drainage and effects on soil and nutrient conservation, excess water disposal and wheat growth at Debre Zeit (En) Proceedings of the 20 th national crop improvement conference held at JAR, Addis Ababa, Ethiopia, 28-30 March 1988, p. 75-86.
0467	Abiye Astatke; Jutzi S C; Grunder M; Burns E; Mohamed-Saleem M A (1989) Effects of surface drainage on erosion in the Vertisol areas of the Ethiopian highlands (En) Internal report, ILCA, Addis Ababa, Ethiopia.
0468	Abiye Astatke; Abate Tedla (1992) Small-scale water reservoirs for erosion control and for sustainable agricultural production (En) Presented at the symposium on environmental degradation held in Mekele, Ethiopia. 15-20 April 1992.
0469	Ahmad N (1988) Management of vertisols in the humid tropics (En) In: Wilding L P; Puentes R (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18, Texas A & M Univ., College Station, Texas, USA. p. 97-115.
0470	Ahmad N; Webster J L (1988) Improvement and management of a salt affected vertisols (Scotland clays) using irrigation and organic and inorganic soil amendments in Barbados, West Indies (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct. 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 232-233.

0471	Ali M A; Fadl O A A (1987) Irrigation of a saline-sodic in the Sudan Gezira II. salt movement and sodicity changes (En) Tropical Agriculture (Trinidad) v. 54, p. 279-283.
0472	Anon (1981) Improving the management of India's deep black soils (En) In: Seminar on management of deep black soils for increased production of cereals, pulses, and oilseeds held in New Delhi, India, 21 May 1981, 106 pp.
0473	Blokhuis W A (1985) Relationships between morphological properties and drainage in vertisols, Part I: papers (En) In: Taxonomy and management of vertisols and aridisols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 231-242.
0474	Escobedo J (1988) Soil conservation works on vertisols of central Ethiopia (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) In: Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia. 31 Aug-4 Sep 1987, p. 290.
0475	Fadal O A A; Ali M A (s d) Irrigation of a saline sodic site in the Sudan Gezira I. water movement (En) Tropical Agriculture (Trinidad) (UK) v. 54, p. 157-165.
0476	Farbrother H G (1972) Field behavior of Gezira clay under irrigation (En) Cotton Growing Review (UK) v. 49, p. 1-27.
0477	Farbrother H G (1973) Water relations of crops in the Gezira (En) Cotton Research Reports. Cotton Research Corporation, Sudan.
0478	Farbrother H G (1975) The accumulation of moisture under fallow during the rains in the Gezira (En) Cotton Research Reports. Cotton Research Corporation, Sudan.
0479	Farbrother H G (1979) Water management in Gezira (En) Terminal statement prepared for the government of Sudan. FAO Project.
0480	Fischer H H (1982) Soil tillage and moisture conservation practices on the clay soils of the springbok flats [maize yields, mulches, nontillage, South Africa] (En) South African Society of Crop Production v. 11, p. 81-84.
0481	Folorunso O A; Ohu J O; Adeoye K B (1988) Soil properties and dry-matter yield of wheat as affected by the quality and quantity of irrigation water in a sodic vertisol of northeast Nigeria (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 258-259.
0482	Geremew Eticha; Fantaw Abegaz (1991) Water requirement of sesame and groundnut in middle Awash and Gode regions (En) In: Oil seed research and development in Ethiopia held at JAR, Addis Ababa, Ethiopia, 3-5 Dec 1991, p. 82-94.
0483	Geremew Eticha; Fantaw Abegaz (1992) Water requirement of sesame and groundnut in the middle Awash and Gode regions (En) First national oil seeds workshop: oil seeds research and development in Ethiopia held at JAR, Addis Ababa, Ethiopia. 3-5 Dec 1991.
0484	Gumbs F A (1982) Soil and water management features in Trinidad and Guyana (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 76-81.
0485	Gupta R K; Tomar S S; Tomar A S (1979) Improved soil management practices for maize and sorghum grown on vertisols of central India (De, En) Journal of Agronomy and Crop Science (Germany) v. 148(6), p. 478-583.
0486	Haider G; Tilahun Hordofa; Endale Bekele (1988) Irrigation water management for cotton on vertisols in the middle Awash region of Ethiopia (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa Ethiopia, 31 Aug-4 Sep 1987, p. 166-182.
0487	Haque I; Jutzi S C (1984) Effects of improved drainage and fertilization on the growth of Italian rye grass and oats on a soil with vertic properties at Debre Berhan, Ethiopia (En) ILCA Newsletter (Ethiopia) v. 3(4), p. 5-6.
0488	Hassan H A (1990) Management of vertisol under irrigation in Sudan Gezira (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration in research, training and extension held in Texas A & M Univ., College Station, Texas, USA, June 25-29, 1990, p. 54-70.
0489	Hiruy Belayneh (1986) The effect of drainage systems, drainage spacings and fertilizer on seed yield and other characters of wheat, teff and chickpea on heavy clay soils of Ginchi

	(En) Ethiopian Journal of Agricultural Sciences v. 8(2), p. 85-94.
0490	Hiruy Belayneh (1986) Benefits of drainage on wheat, teff and chickpeas on heavy clay soil in central Ethiopia (En) In: Desta Beyene (ed) Soil science research in Ethiopia: Proceedings of the first soil science research workshop held in Addis Ababa, Ethiopia, 11-14 Feb 1986, p. 143-146.
0491	Hussein J (1984) Laboratory analysis for assessing potential irrigation problems of basalt - derived vertisols (En) Zimbabwe Agricultural Journal v. 81, p. 9-16.
0492	IAR Addis Ababa Ethiopia (1975) Study of simple drainage systems on a poorly drained pellic vertisol at Holleta (En) Holleta-Guenet Research Station. Holleta-Guenet Research Station progress report 1972/73, p. 147-153.
0493	ICRISAT (1981) Improving the management of India's deep black soils (En) In: Proceedings of the seminar on management of deep black soils for increased production of cereals, pulses and oilseeds held in New Delhi, India, 21 May 1981, 106 pp.
0494	ICRISAT (1982) An approach to improved productivity on deep vertisols (En) ICRISAT Information Bulletin no. 11, 14 pp.
0495	Ikitoo E C (1989) Some properties of vertisols in Kenya and their current level of management for crop production (En) Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 193-208.
0496	Ikitoo E C; Muchena F N (1992) Management of vertisols in semiarid areas of Kenya: a case study in the Mwea area (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 97-115.
0497	Ishag H M (1982) The influence of irrigation frequency on growth and yield of groundnuts (<i>Arachis hypogaea</i> L.) under arid conditions (En) Journal of Agricultural Science (UK) no. 99, p. 305-310.
0498	Jewitt T N; Middleton K R (1954) Irrigation problems in the Sudan (En) Transactions of the fifth international congress of soil science 3, p. 417-420.
0499	Jewitt T N; Law R D; Virgo K J (1979) Vertisol soils of the tropics and sub-tropics: their management and use (En) Outlook on Agriculture (UK) v. 10, p. 33-40.
0500	Jones E; Nyamudeza P; Busangavanye T (1989) Rainfed cropping and water conservation on vertisols in the southeastern lowveld of Zimbabwe (En) Vertisol management in Africa: Proceeding of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 133-142.
0501	Jutzi S C (1986) Deep black clay soils (vertisols): management options for the Ethiopian highlands (En) African mountains workshop held in Addis Ababa, Ethiopia, 18-27 Oct 1986, 7 pp.
0502	Kampen J; Krishna J H; Pathak P (1981) Rainy season cropping on deep vertisols in the SAT: effects on hydrology and soil erosion (En) In: Lal R; Russell E W (eds) Tropical agricultural hydrology, p. 257-272.
0503	Kanwar J S; Kampen J; Virmani S M (1982) Management of vertisols for maximizing crop production - ICRISAT experience (En) Symposium papers 11. Transactions of the 12th international congress of soil science held in New Delhi, India. p. 94-118.
0504	Kanwar J S (1983) Rain water management: the key to increased agricultural production in vertisols (deep black soils), prospects and policy implications for Madhya Pradesh (En) Presented at the seminar on agricultural development held in Madhya Pradesh, India, May 1983. ICRISAT, Patancheru, AP, India.
0505	Kanyanda C W (1985) Properties, management and classification of vertisols in Zimbabwe (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 94-199.
0506	Kopelo B; Rimmelzwaal A (1986) Management aspects of some selected problem soils in Botswana (En) FAO World Soil Resources Reports no. 58, p. 75-86
0507	Krantz B A; Kampen J; Russell M B (1978) Soil management differences of alfisols and vertisols in the semi-arid tropics (En) In: Diversity of soils in the tropics. American Society of Agronomy Special Publication no. 34, p. 77-95.
0508	Krantz B A; Kampen J; Virmani S M (1978) Soil and water conservation and utilization for

	increased food production in the semi-arid tropics (En) In: 11th congress of international society of soil science held in Edmonton, Canada, 1978. ICRISAT, Patancheru, AP, India.
0509	Lal R (1982) Management of clay soils for erosion control (En) Tropical Agriculture (Trinidad) v. 59, p. 133-138.
0510	Latham M (1988) Soil management: a necessary tool for land development in the tropics (En) Entwicklung und laendlicher Raum (Germany) v. 22(4), p. 16-17.
0511	Laryea K B; Sachan R C; Pathak P (1989). The storage and use of runoff water for agriculture in the semi-arid tropics (En) In: Proceedings of the seventh Afro-Asian regional conference held in Tokyo, Japan, Oct 15-25, 1989.
0512	Lekholoane L (1985) Properties, management and classification of vertisols in Lesotho (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 84-93.
0513	Lombin G; Esu I E (1988) Characteristics and management problems of vertisols in the Nigerian savannah (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 293-307.
0514	Long P B R (1978) The Indo-UK dryland farming project, Indore: a review of the project and some agricultural engineering problems and aspects (En) Overseas Development Administration Report on Indo-UK DCF Project. Indor Dryland Project, Indore, India. 154 pp.
0515	Loveday J (1984) Management of vertisols under irrigated agriculture (En) In: McGarity J W; Hoult E H; So H B (eds) Proceedings of a symposium on the properties and utilization of cracking clay soils held in Armidale, New South Wales, Australia, 24-28 Aug 1981, Reviews in Rural Science (Australia) v. 5, p. 269-277.
0516	Lowole M W (1985) Properties, management and classification of vertisols in Malawi (En) In: 5th meeting of the east African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 110-130.
0517	MacDonald M (1973) Investigation and feasibility study of an irrigation project south of lake Chad-Nigeria (En) Hunting Services Ltd., Nigeria, 1973, Soil survey and land classification v. 96, vp.
0518	MacMillan R A; Ngoma A (1985) Vertisolic soils of the Hanang wheat complex, Tanzania: characteristics, distribution, use and management (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 131-154.
0519	Mahmoud M A (1985) Management of vertisols for rainfed crop production in the Sudan (En) In: Taxonomy and management of vertisols and aridsols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 317-321.
0520	Materechera S A (1988) Properties, uses and management of vertisols in Malawi (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 341.
0521	Mesfin Abebe; Tekalign Mamo; Miressa Duffera; Selamyihun Kidanu (1991) Durum wheat response to improved drainage of vertisols in the central highlands of Ethiopia (En) In: Tanner D G; Mwangi W (eds) 7th regional wheat workshop for eastern, central and southern Africa held in Nakuru, Kenya" 16-19 Sep 1991, p. 407-414.
0522	Mesfin Abebe; Tekalign Mamo; Miressa Duffera; Selamyihun Kidanu (1994) Crop response to improved drainage of vertisols in Ethiopian highlands (En) Journal Agronomy and Crop Science (Germany) (In press)
0523	Mordi R I; Bababe B; Kaigama B K (1992) Preliminary results on the effects of improved management technology on crop production on the vertisols of the Ngala plains in Nigeria (En) In: Report on the 1992 annual meeting on AFRICALAND management of vertisols in Africa held in Accra, Ghana, 11-13 June, 1992. IBSRAM Network Document no. 3, p. 39-50.
0524	Mowo J G (1987) Occurrence and management of vertisols for the production of cotton and other crops in western Tanzania (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 139-143.

0525	Muchena F N; Gachene C K K (1985) Properties, management and classification of vertisols in Kenya (En) In: 5th meeting of the eastern African sub-committee for soil correlation and land evaluation, Wad Medani, Sudan, 5-10 Dec 1983, FAO World Soil Resources Reports no. 56, p. 22-30.
0526	Mullins J A; Webb A A; Coughlan K J (1987) Approaches to erosion control on vertisols in Queensland, Australia (En) In: Management of vertisols under semi-arid conditions: Proceedings of a workshop held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 285-297.
0527	Ndayizeye J; Nzabonihankuye G (1982) Vertisols in Rwanda and their problems of irrigation (soil properties) (Fr) Bulletin of Agriculture (Rwanda) v. 15(4), p. 224-229.
0528	Ngatoluwa R; Mansoor H; Majanga B D; McKeague J A (1987) Conservation measures in vertisols under large scale wheat farming in northern Tanzania (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 145-154.
0529	Noman K I; Saleh H H (1984) Efficient water management for salinity control in vertisols (Ar, En) Egyptian Journal of Soil Science v. 24(3), p. 217-224.
0530	Ntokothe E M (1989) Occurrence, properties and management problems of vertisols in Malawi (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 297-313.
0531	Nwaka G I C (1989) Morphological characteristics, classification and management of some vertisols of Nigeria (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 361-381.
0532	Nyaki A S (1992) Management of vertisols in northern Tanzania in relation to their physical and chemical properties (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 189-202.
0533	Nyamudeza P (1988) Rainwater management on vertisols for crop production in semi-arid regions (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 260.
0534	Nyamudeza P; Mandiringana O T (1992) The Zimbabwe/IBSRAM rainwater management project on vertisols (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 157-174.
0535	Osman A (1987) Vertisols management systems in semi-arid Mediterranean area (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 201-205.
0536	Pathak P; Miranda S M; El-Swaify S A (1985). Improved rainfed farming for semi-arid tropics: Implications for soil and water conservation (En) In: El-Swaify S A; Moldenhauer W C; Andrew L (eds) Soil erosion and conservation. Soil Conservation Society of America, Ankeny, Iowa, USA. p. 338-354.
0537	Pathak P; Laryea K B (1991) Prospects of water harvesting and its utilization for agriculture in the semi-arid tropics (En) In: Proceedings of the symposium of the SADCC land and water management research program first scientific conference held in Gaborone, Botswana, Oct 8-10, 1990.
0538	Puentes R; Harris B L; Victoria C (1988) Management of vertisols of temperate regions (En) In: Wilding LP; Puentes R (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18, Texas A&M Univ., Texas, USA. p. 129-145.
0539	Rama Mohan Rao M S; Bhola S N; Jayaram N S (1980) Soils: 25 years research on soil and water conservation in semi-arid deep black soils (En) Central Soil and Water Conservation Research and Training Inst., Bellary, Karanataka, India.
0540	Rao V R; Rama Mohan Rao M S (1980) Rainfed Agriculture (En) In: Research on soil and water conservation in semi-arid deep black soils. Monograph no. 1, Central Soil and Water Conservation Research and Training Inst., Bellary, Karanataka, India. p. 77-143.
0541	Russell J S (1984) Management of cracking clay soils in rainfed environments (En) In: Mc Garity J W; Hoult E H; So H B (eds) Proceedings of a symposium on the properties and utilization

	of cracking clay soils held in Armidale, New South Wales, Australia, 24-28 Aug 1981, Reviews in Rural Science (Australia) v. 5, p. 307-315.
0542	Satti M A E (1992) Effect of pre-sowing irrigation on wheat yield at white Nile; Sudan (En) In: Annual report of Nile valley regional program on cool season food legumes and cereals, Sudan, Oct 1992, p. 157.
0543	Shaw M E A (1982) Aspects of the management of salinity on swelling clay soils in Jamaica (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 167-172.
0544	Siewierski E; Ojanuga A G; Mayaki W C (1982) Properties and management of vertisols in Ngala area, Nigeria (En) In: Fourth Afro-Asia Regional Conference of ICID held in Lagos, Nigeria. p. 441-450.
0545	Smedema L K (1984) Furrow irrigation design for vertisols (En) Agricultural Water Management (Netherlands) v. 9, p. 211-218.
0546	Srivastava K L; Abiye Astatke; Tekalign Mamo; Hailu Regassa; Selamyihun Kidanu (1993) Land, soil and water management (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibaba (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 75-84.
0547	Srivastava K L (1992) Management of vertisols in Africa: ICRISAT's experience (En) In: Reports of the 1992 annual meetings on AFRICALAND management of vertisols in Africa held in Accra, Ghana. 11-14 June 1992. IBSRAM Network Document no. 3, p. 131-140.
0548	Svensson J (1987) Afforestation of clayey soils in northern Mozambique (En) An evaluation of species trial. A minor field study 9 Oct - 4 Dec 1987, Uppsala, Sweden. 55 pp.
0549	Swindale L D (1981) An overview of ICRISAT's research on the management of deep black soils (En) In: Proceedings on the management of deep black soils for increased production of cereals, pulses and oilseeds held in New Delhi, India, 21 May 1981, p. 17-20.
0550	Swindale L D; Miranda S M (1984) The distribution and management in dryland agriculture of vertisols in the semi-arid tropics (En) In: Mc Garity J W; Hoult E H; So H B (eds) Proceedings of a symposium on the properties and utilization of cracking clay soils held in Armidale, New South Wales, Australia, 24-28 Aug 1981, Reviews in Rural Science (Australia) v. 5, p. 316-323.
0551	Tekalign Mamo (1989) Recent experimental work on vertisol management in Ethiopia: the experience of Alemaya University of Agriculture (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 181-192.
0552	Tekalign Mamo (1992) Management options for sustainable crop production on Ethiopian central highland vertisols (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 Mar 1991. IBSRAM Network Document no. 1, p. 43-54.
0553	Unger P W; Stewart B A (1988) Conservation techniques for vertisols (En) In: Wilding L P; Puentes R (eds) Vertisols: their distribution, properties, classification and management. SMSS Technical Monograph no. 18, Texas A&M Univ., Texas, USA. p. 165-181.
0554	Venkateswarlu J (1981) Management of deep black clay soils for increased production of cereals, oilseeds and pulses (En) In: Improving the management of India's deep black soils. ICRISAT, Patancheru, AP, India. p. 81-92.
0555	Verma G P (1981) Erosion control on vertisols under comparatively high rainfall conditions India (En) In: Proceedings of the south-east Asian regional symposium on problems of soil erosion and sedimentation held at Asian Institute of Technology, Bangkok, 27-29 Jan 1981, p. 301-310.
0556	Verma G P (1988) Land and water management for crop production on rainfed vertisols and associated soils (En) In: Transactions of international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 153-163.
0557	Virgo K J; Munro R N (1978) Soil and erosion features of the central plateau of Tigray, Ethiopia (En) Geoderma (Netherlands) v. 20, p. 131-157.
0558	Virmani S M (1990) Research and training on vertisol management at ICRISAT (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration on research, training

	and extension held in Texas A & M Univ., College Station, Texas, USA, June 25-29, 1990, p. 36-40.
0559	Yule D F (1987) Water management of vertisols in the semi-arid tropics (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 107-123.

Traction and tillage

0560	Abiye Astatke (1980) 1980 Progress report of the implements trial at Debre Zeit and Debre Berhan (En) Highlands Programme, ILCA, Addis Ababa, Ethiopia. 19 pp.
0561	Abiye Astatke; Matthews M D P (1982) 1981 Progress report of the cultivation trials and related cultivation work at Debre Zeit and Debre Berhan (En) Highlands Programme, ILCA, Addis Ababa, Ethiopia. 29 pp.
0562	Abiye Astatke; Matthews M D P (1983) 1982 Progress report of the cultivation trials and related cultivation work at Debre Zeit and Debre Berhan (En) Highlands Programme, ILCA, Addis Ababa, Ethiopia. 39 pp.
0563	Abiye Astatke; Tides Tessema (1985) Report on a visit to Hararghe from October 21 to 27, 1985 to assess the construction of ponds using animal power (En) Highlands Programme, ILCA, Addis Ababa, Ethiopia. 6 pp.
0564	Abiye Astatke (1985) Animal traction research in Ethiopia (En) Workshop on review of the status of livestock, pasture and forage research in Ethiopia held at ILCA, Addis Ababa, Ethiopia, 8-10 Jan 1985, 7 pp.
0565	Abiye Astatke; Mohamed-Saleem M A (1992) Low-cost animal-drawn implements for better utilization of vertisols in the Ethiopian highlands (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALLAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 67-74.
0566	Abiye Astatke; Ferew Kelemu (1993) Modifying the traditional plough-maresha-for better management of vertisols (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report: 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 85-101.
0567	Abiye Haile Selassie; Cossins N J (1985) Use of ox-drawn scoops for pond maintenance in the southern Ethiopian rangelands (En, Fr) ILCA Newsletter (Ethiopia) v. 4(1), p. 5-6.
0568	Abate Tedla; Airaksinen H; Mohamed-Sleem M A (1992) Effect of seedbed methods and time of harvest on the yield and nutritive value of some forage crops grown on vertisol at Debre Zeit, Ethiopia (En) Agricultural Science in Finland v. 1 (5), p. 491-497.
0569	Anderson F M (1982) Draught animal power in Africa: an overview (En) In: Report of the expert consultation on appropriate use of animal energy in agriculture in Africa and in Asia: FAO expert consultation on appropriate use of animal energy in agriculture in Africa and Asia, Rome, Italy, 15-19 Nov. 1982, 6 pp.
0570	Anderson F M (1984) An overview of ILCA's animal traction research in Ethiopia (En) In: Flora C B (ed); Nichols P P (Comp). Animals in the farming systems: Proceedings of a symposium 3. Annual farming systems research symposium held in Kansas, USA, 31 Oct. 2 Nov. 1983. Farming Systems Research Paper Series (USA) no. 6, p. 178-183.
0571	Anderson F M (1985) Draught animal power systems in sub-Saharan Africa: their production impact and research needs (En) In: Draught animal power for production, ACIAR workshop on draught animal power for production held in Townsville, Australia. 16 pp.
0572	Anderson F M; Abiye Astatke (1985) Pond excavation using oxen drawn scoops in rural Ethiopia: the experience of two peasants associations in the Debre Berhan area (En) Internal report Highlands Programme, ILCA, Addis Ababa, Ethiopia. 12 pp.
0573	Anderson F M; Gryseels G; Durkin J W (1986) Factors affecting smallholder grain production in the Ethiopian highlands (En) OAU/SAFGRAD International drought symposium on food grain production in the semi-arid region of Africa held in Nairobi, Kenya, 19-23 May 1986, 20 pp.
0574	Anon (1972) Manual on the employment of draught animals in agriculture (En) FAO, Rome,

	244 pp.
0575	Anon (1978) Manual on the employment of draught animals in agriculture (En) Centre D'Etudes et d'Expérimentation du Machinisme Agricole Tropical Antony (France), 261 pp.
0576	Anon (1981) Animal traction in sub-Saharan Africa (En, Fr) ILCA Bulletin no. 14. 18 pp.
0577	Berry R H; Wainwright R P (1982) Tillage trials in vertisols in the South Kordofan region of Sudan (En) Overseas Division. National Institute of Agricultural Engineering, Silsoe, UK. 37 pp.
0578	Fujioka K (1987) Draught animal power - 25 years of experience in French-speaking Africa (En, Fr), FAO World Animal Review no. 63, p. 40-44.
0579	Goe M R (1983) Current status of research on animal traction (En, Fr) FAO World Animal Review no. 45, 45 pp.
0580	Goe M R; Gryseels G (1983) Animal traction: a technology for smallholder farmers (En) Courier (Belgium) no. 82, 56 pp.
0581	Goe M R (1988) Effect of tillage frequency of clay soils on the draught of the Ethiopian ard (maresha) (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, 31 Aug.-4 Sep. 1987, p. 380-381.
0582	Goe M R; Abiye Astatke (1989) Development of draught animal power systems in Ethiopia (En) In: Hoffmann D; Nari J; Petheram R J (eds) Draught animals in rural development: International research symposium on draught animals in rural development held in Cipanas, Indonesia, 3-7 Jul 1989. ACIAR proceedings series no. 27, p. 69-77.
0583	Getachew Asamenew; Jutzi S C; Abate Tedla; McIntire J; Ikavalko E (1988) Improved draught power use for increased food and feed production on Ethiopian highland vertisols (En) 2. National livestock improvement conference, Addis Ababa, Ethiopia, 23-25 Feb 1988, 10 pp.
0584	Getachew Asamenew (1990) Status of and constraints to animal traction technology in the Ethiopian highlands (En) Presented at a seminar on the role of draught animal technology in rural development held at CTVM, Edinburgh, Scotland, UK, 2-12 April 1990, 14 pp.
0585	Ghodake R D (1985) Improved dryland technology for deep black soils: economic evaluation and implication for credit policy (En) Seminar on Linking of Agricultural Research System with Commercial Banks held in Puna, India, 9-12 Jul 1985, 21 pp.
0586	Gryseels G; Abiye Astatke; Anderson F M; Getachew Asamenew (1984) The use of single oxen for crop cultivation in Ethiopia (En, Fr) ILCA Bulletin no. 18, p. 20-25.
0587	Gryseels G (1984) On-farm animal traction research: experiences in Ethiopia with the introduction of the use of single oxen for crop cultivation (En) In: Flora C B (ed); Nichols P P (comp). Animals in the farming systems: Proceedings of a symposium, 3. Annual farming systems research symposium held in Kansas, USA, 31 Oct -2 Nov 1983. Farming Systems Research Paper Series (USA) no. 6, p. 419-430.
0588	Gryseels G; Anderson F M; Durkin J W; Getachew Asamenew (1986) Draught power and smallholder grain production in the Ethiopian highlands (En, Fr) ILCA Newsletter (Ethiopia) v. 5(4), p. 5-7.
0589	Hailu Regassa (1992) Land preparation methods and cropping systems for improved agricultural production on vertisols: IAR's experience (En) In: Report of the 1992 annual meeting on Africaland management of vertisols in Africa held in Accra, Ghana, 11-13 June 1992. IBSRAM Network Document no. 3, p. 95-106.
0590	JAR, Addis Ababa Ethiopia (1977) Seed-bed preparation method studies at Ginichi (En) Holleta-Guenet Research Station. Holleta-Guenet Research Station progress report 1975/76, p. 315-316.
0591	Islam S O; Mwaita S K; Polhill R T (s d) Livestock and the improved management of dark clay soils (vertisols) in semi-arid areas (En) Magarini Settlement Project, Malindi, Kenya. 9 pp.
0592	Jutzi S C (1987) Animal power for improved management of deep black clay soils in sub-Saharan Africa. (En) (Phase 1: Ethiopia). Joint ILCA/ICRISAT/MOA/AUA/AU: research, training and outreach project. Outreach Sub-project Deneba/Inewari progress report, March 1987, 13 pp.
0593	Jutzi S C; Anderson F M; Abiye Astatke (1987) Low cost modification of the traditional Ethiopian tine plough for land shaping and surface drainage of heavy clay soil: preliminary results from on-farm verification trials (En) ILCA Bulletin no. 27, p. 28-31.

0594	Jutzi S C; Anderson F M; Abiye Astatke (1988) Low-cost modifications of the traditional Ethiopian tine-plow for land-shaping and surface drainage of heavy clay soils: preliminary results from on-farm verification (En, Fr) In: Starkey P; Ndiame F (eds) Animal power in farming systems, Vieweg & Sohn. Braunschweig, Wiesbaden, Germany F R 2. West Africa animal traction networkshop held in Freetown, Sierra Leone, 19-25 Sep 1986, p. 127-132.
0595	Jutzi S C; Mohamed-Saleem M A (1992) Improving productivity on highland vertisols: the oxen-drawn broadbed maker (En) In: Franzel S; Houten H van (eds) Research with farmers: lessons from Ethiopia. CABI, Willingford, UK. p. 97-108.
0596	Kamara C S; Haque I (1991) Effects of type of seed bed and <i>Sesbania sesban</i> mulch placement in vertisol on the yield of maize (En) Presented at the 12th international conference of ISTRO held in Ibadan, Nigeria, 8-12 July 1991, p. 402-409.
0597	Laryea K B; Pathak P (1987) Crop production under rainfed agriculture in the semi-arid tropics: cultivation and water entrapment systems (En) Presented at the international workshop - study group session on: optimum crop production in arid and semi-arid zones held in Omer Israel, Feb 17-March 10, 1987.
0598	Laryea K B; Pathak P; Klaij M C (1991) Tillage systems and soils in the semi-arid tropics (En) Soil and Tillage Research (Netherlands) v. 20, p. 201-218.
0599	McIntire J (1984) Policy environments for mechanized agriculture in sub-Saharan Africa with special reference to animal traction (En, Fr) In: Conference on livestock policy issues in Africa held in Addis Ababa, Ethiopia, 24-28 Sep 1984, 29 pp.
0600	Mesfin Abebe (1982) Uses of improved seedbed and fertilizers as an alternative to soil burning or "guie" (En) Ethiopian Journal of Agricultural Sciences v. 4(1), p. 1-9.
0601	Norton A J (1989) Tillage and tillage implements in relation to water harvesting on vertisols in semi-arid Zimbabwe (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 143-156.
0602	Salih A A; Musa A; Farah S M (1990) The effect of land preparation and planting method on wheat in Gezira (En) In: Annual report of Nile valley regional program on cool season food legumes and cereals, ICARDA, 1989-1990, p. 62-64.
0603	Spence J R (1967) Camber beds for cotton (En) Ukiriguru Research Notes no. 1, vp.
0604	Spoor G (1982) Deep loosing and mole drainage on clay soils (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 97-102.
0605	Srivastava N S L (1989) Research on draught animal power in India (En) In: Hofmann D; Nari J; Petheram R J (eds) Draught animals in rural development: International research symposium on draught animals in rural development held in Cipanas, Indonesia, 3-7 Jul 1989. ACIAR proceedings series no. 27, p. 53-60.
0606	Standley J; Hunter H M; Thomas G A; Blight G W; Webb A A (1990) Tillage and crop residue management effect on vertisol properties and grain sorghum growth over seven years in the semi-arid sub-tropics 2. changes in soil properties (En) Soil and Tillage Research (Netherlands) v. 18, p. 367-388.
0607	Starkey P (1985) Some organizations concerned with animal traction research and development in sub-saharan Africa (En) Agricultural Research Unit. IBRD discussion paper, IBRD, Washington, DC, USA. 49 pp.
0608	Starkey P (1986) Draught animal power in Africa: priorities for development, research and liaison (En) Florida Univ., Gainesville, USA. Farming Systems Support Project. FSSP Networking Paper (USA) no. 14, p. 40.
0609	Starkey P (1987) Animal power in southern Africa: A report of a SACCAR workshop on animal traction (En) GATE (Germany) no. 87/4, p. 32-33.
0610	Starkey P; Ndiame F (eds) (1988) Animal power in farming systems (En, Fr) Vieweg & Sohn. Braunschweig, Wiesbaden (Germany). 2. West Africa animal traction networkshop held in Freetown, Sierra Leone, 19-25 Sep 1986, 363 pp.
0611	Starkey P; Faye A (eds) (1990) Animal traction for agricultural development (En, Fr) Technical Centre for Agricultural and Rural Cooperation, Wageningen, Netherlands. 3. Workshop of the west Africa animal traction network held in Saly, Senegal, 7-12 Jul 1988, 475 pp.
0612	Tekalign Mamo; Selam Yihun Kidanu; Mesfin Abebe; Miresa Duffera; Teklu Erkosa (1994)

	Response of chickpea to phosphorus application and seed bed preparation methods on vertisols of Ethiopia (En) International Chickpea Newsletter (India) (In press)
0613	Thomas G A; Standley J; Webb A A; Blight G W; Hunter H M (1990) Tillage and crop residue management effect on vertisol properties and grain sorghum growth over seven years in the semi-arid sub-tropics 1. crop residue and soil water during fallow periods (En) Soil and Tillage Research (Netherlands) v. 17, p. 181-197.
0614	Thomas G A; Standley J; Hunter H M; Blight G W; Webb A A (1990) Tillage and crop residue management effect on vertisol properties and grain sorghum growth over seven years in the semi-arid sub-tropics 3. crop growth, water use and nutrient balance (En) Soil and Tillage Research v. 18, p. 389-407.
0615	Uzureau C (1974) Animal draught in west Africa (En) World Crops (UK), sn, p. 112-114.
0616	White L P; Law R (1969) Channeling of alluvial depression soils in Iraq and Sudan (En) Journal of Soil Science (UK) v. 20, p. 84-90.
0617	Willcocks T J (1979) Tillage energy requirements for semi-arid crop production in Botswana (En) In: Lal R (ed) Soil tillage and crop production conference on the role of soil physical properties in maintaining productivity of tropical soils, Ibadan, Nigeria, 6-10 Dec 1977. IITA proceedings series no. 2, p. 303-323.
0618	Willcocks T J (1980) Tillage requirements of vertisol soils in south Kordofan and the role of the agricultural mechanization project in Kadugli, Sudan (En) ODA/NIAE Report, Bedford, UK, AFRC, 1980, 46 pp.
0619	Willcocks T J (1980) Tillage requirements of vertisol soils in South Kordofan and the role of the agricultural mechanization project in Kadagli, Sudan (En) National Institute of Agricultural Engineering, Silsoe, UK. 46 pp.
0620	Willcocks T J (1984a) Tillage requirements in relation to soil type in semi-arid rainfed agriculture (En) Journal of Agricultural Engineering Research v. 30(4), p. 327-336.
0621	Willcocks T J (1984b) Some observations and recommendations for the improvement of tillage practices on vertisols (En) OD/NIAE/ODA Publication, 28 pp.
0622	Willcocks T J (1985) Development of sustainable cultural practices for rainfed cropping on vertisol at Qal En Nahal, Eastern Sudan (En) ODA/NIAE Report no. OD/85/2F, 28 pp.
0623	Willcocks T J (1987) Avenues for the improvement of cultural practices on vertisols (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 207-220.
0624	Willcocks T J; Cornish G A (1988) Vertisols improvement of cultural tillage practices, Qal en Nahal eastern Sudan (En) In: Engineering advances for agriculture and food: Proceedings of the 1938-1988 Jubille conference of the institution of agricultural engineers, co-sponsored by the fellowship of engineering, Robinson, College, Cambridge, Silsoe, Bedford, UK. 12-15 Sep 1988, p. 13-14.
0622	Willcocks T J (1989) Agricultural engineering aspects of vertisol management (En) In: Vertisol management in Africa: Proceedings of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 63-76.
0626	Willcocks T J; Twomlow S J (1992) An evaluation of sustainable cultural practices for rainfed sorghum production on vertisols in east Sudan (En) Soil and Tillage Research (Netherlands) v. 24(2), p. 183-198.

Watershed management

0627	Adhikari R N; Chittaranjan S (1988) Hydrology based model for prediction of runoff and sediment yield with limited data for agricultural watersheds (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 248-249.
0628	Awade M N; Michael A M (1988) Water balance of agricultural watersheds (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 236-237.

0629	Babel M S; Arun Sharma; Jaspal Singh (1988) Effect of land management practices on small watershed hydrology (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 250-251.
0630	Channappa T C; Ranga K (1988) Quantification of erosion and runoff with cropping management practices for watershed modelling (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 246-247.
0631	Kampen J (1980) Watershed management and technology transfer in the semi-arid tropics (En) Proceedings international symposium on development and transfer of technology for rainfed agriculture and the SAT farmer held at ICRISAT, Patancheru, AP, India, 28 Aug - 1 Sep 1979, p. 111-120.
0632	Kanwar J S; Rego T J (1983) Fertilizer use and watershed management in rainfed areas for increasing crop production (En) Fertilizer News (India) v. 28(9), p. 33-43.
0633	Miranda S M; Pathak P; Srivastava K L (1983) Runoff management for small agricultural watersheds the ICRISAT experience (En) In: Proceedings of the national seminar: a decade of dryland agricultural research in India and thrust in the eighties held at CRIDA, Hyderabad, India, Jan 18-20 1983, p. 88-97.
0634	Mittal S P; Grewal S S; Agnihotri Y; Dyal S K N; Sud A D (1988) Studies on runoff, soil loss and productivity of small agricultural watershed (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 95-101
0635	Nielsen S A; Panda J C (1988) A water yield model for small semi-arid watersheds of India (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 63-76.
0636	Pathak P; Murty V V N; Miranda S M (1981) Runoff measurements from small agricultural watersheds (En) Internal report, ICRISAT, Patancheru, AP, India. 63 pp.
0637	Pathak P; Miranda S M (1981) Hydrologic behaviour of vertisol and alfisol watersheds (En) Presented at the workshop on ICAR-ICRISAT collaborative projects on farming systems held in CRIDA, March 1981. Hyderabad, India.
0638	Pathak P; Miranda S M (1982) Sediment flow and its measurements from small agricultural watersheds: the ICRISAT experience (En) In: Proceedings of the national seminar: a decade of dryland agricultural research in India and thrust in the eighties held at CRIDA, Hyderabad, India, Jan 18-20, 1983, p. 88-97.
0639	Pathak P; Murty V V N; El-Swaify S A; Sigh S; Sudi R (1984) Runoff model for small semiarid watersheds (En) Presented at XXI annual convention of Indian society of agricultural engineers, New Delhi, April 4-7 1984, 13 pp.
0640	Pathak P (1987) Runoff modelling of small agricultural watersheds - ICRISAT experience (En) Presented at the national symposium on hydrology held at National Institute of Hydrology, Roorkee, UP, India, Dec 16-18, 1987, 12 pp.
0641	Pathak P (1988) Surveys for watershed planning development and management (En) Presented at the national workshop on soil and water conservation measures for drylands held at CRIDA, Hyderabad, India, Aug 19- Sept 10, 1988, 18 pp.
0642	Pathak P; Laryea K B; Sudi R (1989) A runoff model for small watersheds in the semi-arid tropics (En) Transactions of American Society of Agricultural Engineers v. 32(5), p. 1619-1624.
0643	Pathak P (1991) Runoff sampler for small agricultural watersheds (En) Agricultural Water Management (Netherlands) v. 19, p. 105-115.
0644	Pathak P; Laryea K B; Sudi R (1994) Concentration and size distribution of sediment from small agricultural watersheds (En) American Society of Agricultural Engineering (<i>In press</i>)
0645	Rama Prasad (1988) A hydrological model for small agricultural watersheds (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 77-86.
0646	Rama Mohan Rao M S; Chittaranjan S; Chandrappa M (1988) Resource conservation through watershed management for improving productivity (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural and Development

	v. 3(2), p. 17-30.
0647	Rao K A; Agrawal D K (1988) Integrated approach of watershed and command area development (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 193-202.
0648	Sarkar T K and Bhattacharya A K (1988) Watershed water balance methodologies/techniques and development research priorities (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 1-11.
0649	Shriniwas Sharma; Singh R P (1988) Pay offs from hydrologic improvements in watersheds 1987 drought experience (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 102-111.
0650	Singh R P (1988) Role of agroforestry in watershed management and development-research priorities (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 12-16.
0651	Srivastava K L; Pathak P; Kanwar J S; Singh R P (1985). Watershed based soil and rain water management with special reference to vertisols and alfisols (En) Presented at the national seminar on soil conservation and water management held in New Delhi, India, 17-18 Sep 1985.
0652	Tejwani K G (1984) Soil research in retrospect and prospect vii. watershed management (En) In: Soil science in India. Indian Society of Soil Science Bulletin no. 14, p. 169-175.
0653	Yadav R C; Bhushan L S; Lal B; Reddy K K (1988) Field evaluation of microwatersheds (En) In: Special issue on the role of small watershed hydrology in rainfed agriculture. Indian Journal of Dryland Agricultural Research and Development v. 3(2), p. 112-121.

Crops

[General](#)

[Cereals](#)

[Root and tuber crops](#)

[Grain legumes](#)

[Tree and fruit crops](#)

[Cash crops](#)

[Forages and pastures](#)

General

0654	Gebre H (1988) Crop agronomy research on vertisols in the central highlands of Ethiopia: IAR's experience (En) In: Ginkel M van; Tanner D G (eds) 5th regional wheat workshop for eastern, central and southern Africa and the Indian Ocean held in Antsirabe, Madagascar. 5-10 Oct 1987, p. 152-160. CIMMYT, Mexico and Canadian International Development Agency, Ottawa, Canada.
0655	Greacen E L; Gardner E A (1982) Crop behaviour on clay soils (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 123-132.
0656	Hailu Gebre (1988) Crop agronomy research on vertisols in the central highlands of Ethiopia: IAR's experience (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa Ethiopia. 31 Aug-4 Sep 1987, p. 321-334.
0657	Kerkhoven G J (1963) Crop potential of marginalitic soil in the kafue flats (En) Rhodesian Journal of Agricultural Research v. 1, p. 71-79.

Cereals

0658	Abate Tedla; Jutzi S C; Getinet Gebeyehu (1988) Performance of improved wheat varieties on some highland vertisols under enhanced surface drainage (En) In: SEBIL: Bulletin of the Crop Science Committee of Ethiopia v. 1(1), p. 28.
0659	Abate Tedla; Mohamed-Saleem M A; Tesfaye Tesemma (1991) Grain and straw comparison of wheat varieties using early season planting on drained vertisols in the Ethiopian highlands (En) Internal report, ILCA, Addis Ababa, Ethiopia.
0660	Abate Tedla; Mohamed-Saleem M A; Schulthess U; Tesfaye Tesemma (1991) Comparison of wheat grain and straw yields and straw chemical composition on drained vertisols in the Ethiopian highlands (En) Internal report, ILCA, Addis Ababa, Ethiopia. 21 pp.
0661	Babiker I A (1989) Use of vertisols for rainfed sorghum in the central clay plain in Sudan (En) Management of vertisols for improved agricultural production: an IBSRAM inaugural workshop held at ICRISAT, Patancheru, AP, India, 18-22 Feb 1985, p. 113-116.
0662	Ghugare R V; Sonar K R (1984) Effect of presowing soil water treatments on yield and iron nutrition of upland rice grown on calcareous vertisol (En) Journal of Plant Nutrition (USA) v. 7(1/5), p. 201-209.
0663	Giref Sahile; Abate Tedla (1993) Effects of weeding practices on grain and straw yield of durum wheat under traditional and improved seedbed preparation on vertisols in the Ethiopian highlands (En) Annual conference of the crop science society of Ethiopia held in Addis Ababa, Ethiopia, 2-3 Feb 1993, 7 pp.

0664	Tanner D G; Amanuel Gorf; Kassahun Zewdie (1991) Wheat agronomy research in Ethiopia (En) In: Hailu Gebremariam; Doughlas G Tanner; Mengistu Hulluka (eds) Wheat research in Ethiopia: a historical perspective. IAR/CIMMYT Addis Ababa, Ethiopia. p. 95-133.
0665	Tesfaye Tesemma; Getachew Belay; Demisse Mitiku (1991) In: Tanner D G; Mwangi W (eds) Evaluation of durum wheat genotypes for naturally waterlogged highland vertisols of Ethiopia (En) Seventh regional wheat workshop for eastern, central and southern Africa held in Nakuru, Kenya, 16-19 Sep 1991, p. 96-102.
0666	Willcocks T J; Twomlow S J (1992) An evaluation of sustainable cultural practices for rainfed sorghum production on vertisols in east Sudan (En) Soil and Tillage Research (Netherlands) v. 24(2), p. 183-198.

Root and tuber crops

0667	Ali A M (1989) Improvement of sweet potato production under irrigated heavy clays in the Sudan (En) In: Alvarez M N; Hahn S K (eds) Proceedings of the third eastern and southern Africa regional root crops workshop held in Mzuzu, Malawi, 7-11 Dec 1987. Root crops and low-input agriculture: helping to meet food self-sufficiency goals in eastern and southern Africa, IITA, Ibadan, Nigeria. p. 240-244.
------	--

Grain legumes

0668	Ahmed M H; Adam K M (1986) The evaluation of the groundnut (<i>Arachis hypogaea L.</i>) losses during mechanical digging as affected by the soil moisture content on the irrigated heavy clay of central Sudan (En) Oleagineux (France) v. 41 (89), p. 391-392.
0669	Dawelbeit M I (1991) Comparison of four peanut harvesting systems in irrigated clays of Sudan (En) Applied Engineering in Agriculture (USA) v. 7(1), p. 10-13.
0670	Fageiry K A (1987) Weed control in soybean (<i>Glycine max</i>) in vertisols of Sudan (En) Tropical Pest Management (UK) v. 33 (3), p. 220-223.
0671	Tamirie Hawando (1984) Soil and climatic stresses on chickpea production in Ethiopia (En) In: Adaptation of chickpea and pigeonpea to abiotic stresses: Proceedings of the consultants' workshop held at ICRISAT, Patancheru, AP, India. 19-21 Dec 1984, p. 159-167.
0672	Ibrahim A E; Ahmed F E (1990) Effect of harvest time and pod position on the quality of soybean seed (En) Sudan Agricultural Journal v. 13, p. 1-16.
0673	Ishag H M (1965) Effect of sowing dates on yield of irrigated groundnuts in the Gezira (En) African Soils (Nigeria) no. 10, p. 509-521.
0674	Ishag H M (1970) Growth and yield of irrigated groundnuts (<i>Arachis hypogaea L.</i>) grown at different spacings in the Sudan: flowering, yield and yield components (En) Journal of Agricultural Science (UK) v. 77, p. 533-537.
0675	Ishag H M (1971) Weed control in irrigated groundnuts (<i>Arachis ground L.</i>) in the Sudan (En) Journal of Agricultural Science (UK) v. 77, p. 237-242.
0676	Ishag H M (1982) Potential yield of groundnuts in the Gezira environment (En) International symposium on the production and intra-African trade of groundnuts, Banjul, Gambia.
0677	Ishag H M; Said M B (1985) Groundnut production in irrigated vertisols of the Gezira - achievements and problems (En) In: Taxonomy and management of vertisols and aridsols: Proceedings of the 5th international soil classification workshop held in Khartoum, Sudan, 2-11 Nov 1982, p. 323-329.
0678	Khashmelmous A E (1989) Evaluation of faba bean (<i>Vicia faba</i>) varieties in the heavy clay soils of central Sudan (Sennar area) (En) FABIS Newsletter (ICARDA) no. 23, p. 10-12.

Tree and fruit crops

0679	Hamid G A; Geneif A A; Sidahmed O A (1989) Releasing grapefruit cultivars for the Sudan [performance of four locally collected and nine introduced grapefruit cultivars under a heavy
------	--

	clay conditions] (En) 1. regional symposium on horticulture in Jordan and the neighboring countries held in Amman, Jordan. 27-30 March 1989, 20 pp.
0680	Kamara C S; Haque I (1992) Faidherbia albida and its effects on Ethiopian highland vertisols (En) Agroforestry Systems (Netherlands) v. 18(1), p. 17-29.
0681	Sidahmed O A; Geneif A A (1984a) Performance of citrus in the irrigated heavy clay soils of central Sudan I. lemon (cultivars, yields, fruit quality) (En) Acta Horticulturae (Netherlands) v. 143, p. 247-255.
0682	Sidahmed O A; Geneif A A (1984b) Performance of citrus in the irrigated heavy clay soils of central Sudan II. lime (cultivars, yields, fruit quality) (En) Acta Horticulturae (Netherlands) v. 143, p. 257-263.
0683	Sidahmed O A; Geneif A A (1984c) Performance of citrus in the irrigated heavy clay soils of central Sudan III. grape fruit (cultivars, yields, fruit quality) (En) Acta Horticulturae (Netherlands) v. 143, p. 265-270.
0684	Sidahmed O A; Geneif A A (1984d) Performance of citrus in the irrigated heavy clay soils of Central Sudan IV. orange (cultivars, yields, fruit quality) (En) Acta Horticulturae (Netherlands) v. 143, p. 271-278.

Cash crops

0685	Donaldson R A; Meyer J H; Wood R A (1990) Response to potassium by sugarcane grown on base saturated clay soils in the eastern Transvaal lowland (En) In: Proceedings of the annual congress - South African sugar technologists' association no. 64, p. 17-21.
0686	Ferguson H (1953) Agronomic research on cotton in the Sudan Gezira (En) Empire Cotton Growing Review (UK) v. 30, p. 241-266.
0687	Ishag H M; Ayoub A T; Said M B (1987) Cotton leaf reddening in the irrigated Gezira (En) Experimental Agriculture (UK) v. 23(2), p. 207-212.
0688	Kerkhoven G J (1964) Cotton on tropical black clay, Kafue Flats, northern Rhodesia (En) Empire Cotton Growing Review (UK) v. 41, p. 2-12.
0689	Mohamed H S (1992) Cotton nutrition in Gezira vertisols (En) Faculty of Agriculture, Khartoum Univ., Khartoum, Sudan. 153 pp.
0690	Purnell M F; El-Tom O A R (1975) Soil conditions and cotton yields in selected hawashes of Laota block, Gezira, Sudan (En) Soil Survey Administration, Wad Medani, Sudan. 47 pp.
0691	Taha M A (1969) Growth and development of the cotton plant under irrigation (En) Cotton Growth in Gezira Environment. Agricultural Research Corporation, Khartoum, Sudan.

Forages and pastures

0692	Akundabweni L (1984) Native clovers of the Ethiopian highlands: the backwoods champions (En) ILCA Newsletter (Ethiopia) v. 3(1), p. 5-6.
0693	Astatke Haile (1977) Results of experiments in forage crops and pasture management in the highlands of Ethiopia, 1971-76 (En) IAR Forage and Range Bulletin no. 1, 128 pp.
0694	Astatke Haile (1979) Forage crops and pasture management in the highlands of Ethiopia (En) IAR Forage and Range Bulletin no. 2, p. 23-41.
0695	Goe M R; Reed J D (1988) Utilization of feed resources by draught animals on smallholder farms in the Ethiopian highlands (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 382-383.
0696	Hailu Kenno; Lulseged Gebrehiwot (1983) Prospects of vetches (Vicia spp) as forage legumes for the highlands of Ethiopia (En) Ethiopian Journal of Agricultural Science v. 5, p. 131-138.
0697	Jutzi S C; Haque I; Abate Tedla (1987) The production of animal feed in the Ethiopian highlands: potential and limitations (En) In: 1st national livestock improvement conference held in Addis Ababa, Ethiopia, 11-13 Feb 1987. IAR proceedings, p. 141-142.

0698	Lulseged Gebrehiwot; Alemu Tadesse (1984) Pasture research and development in Ethiopia (En) In: Kategile J A (ed) Pasture improvement research in eastern and southern Africa: Proceedings of a workshop on pasture improvement research in eastern and southern Africa held in Harare, Zimbabwe, 17-21 Sep 1984, p. 77-91.
0699	Lulseged Gebrehiwot (1988) Assessment of the productivity of native and improved forages on vertisols in the central highlands of Ethiopia (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa Ethiopia, 31 Aug-4 Sep 1987, p. 379.

Cropping systems

0700	Abate Tedla; Jutzi S C; Kahurananga J; Tothill J C (1988) Results of undersowing clover mixture in bread wheat on improved vertisols in the Ethiopian highlands (En) Internal report, ILCA, Addis Ababa, Ethiopia. 6 pp.
0701	Abate Tedla; Abiye Astatke (1992) Some methods for introducing forage legumes into the smallholder mixed farms in the Ethiopian highlands (En) Presented in symposium on environmental degradation held in Mekele, Ethiopia, 15-20 April 1992, 11 pp.
0702	Abate Tedla; Getachew Asamenew (1992) Food and feed production strategies for vertisols in the Ethiopian highlands (En) In: Report of the 1992 annual meeting on Africaland management of vertisols in Africa held in Accra, Ghana, 11-13 June 1992. IBSRAM Network Document no. 3, p. 85-94.
0703	Abate Tedla; Mohamed-Saleem M A (1992) Cropping systems for vertisols of the Ethiopian highlands (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 55-66.
0704	Abate Tedla; Tekalign Mamo; Getinet Gebeyehu (1992) Integration of forage legumes into cereal cropping systems in vertisols of the Ethiopian highlands (En) Tropical Agriculture (Trinidad) v. 69(1), p. 68-72.
0705	Abate Tedla; Mohamed-Saleem M A; Tekalign Mamo; Alemu Tadesse; Miressa Duffera (1993) Grain, fodder and residue management (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 103-137.
0706	Abate Tedla; Sherington J; Mohamed-Saleem M A (1993) Integration of forage and food crops grown sequentially on cropped vertisols under rainfed conditions in the mid-altitude Ethiopian highlands (En) Experimental Agriculture (UK) v. 30, p. 291-298.
0707	Abate Tedla; Lupwayi N Z; Hailu Regassa (1994) Cereal/forage legume mixed cropping systems in the Ethiopian highlands: nodulation, grain and fodder yields in wheat/clover mixed cropping on vertisols in farmers' fields (En) Presented at the 6th conference of the crop science society of Ethiopia held in Addis Ababa, Ethiopia, 3-4 May 1994,
0708	Abiye Astatke; Jutzi S C; Abate Tedla (1988) Sequential cropping on vertisols of the Ethiopian highlands using broadbed and furrow system (En) ILCA Bulletin no. 34, p. 15-20.
0709	Abiye Astatke; Airaksinen H; Mohamed-Saleem M A (1990) Supplementary irrigation for sequential cropping in the Ethiopian highland vertisols using broadbed and furrow land management system (En) Agricultural Water Management (Netherlands) v. 20(3), p. 173-184.
0710	Arihara J; Ae N; Okada K; Johanes C (1991) Improvement of soil productivity through legume-based cropping systems in Indian alfisols and vertisols under semi-arid environments (En) In: Soil constraints on sustainable plant production in the tropics: conference of the XXIVth international symposium on tropical agriculture research held in Kyoto, Japan, 14-16 Aug 1990. Tropical agriculture research series 24, p. 157-173.
0711	Brzesowsky W J (1989) Crop soil management in irrigated black clay soils of east Africa and Ethiopia-Part 2 (En) Agriculture International (UK) v. 41 (12), p. 420-423.
0712	Foster J H; Kshirsagar K G; Bhende M J; Rao V B; Walker T S (1987) Early adoption of improved vertisol technology options and double cropping in Begumgunj, Madhya Pradesh, India (En) Economic Group Progress Report no. 77, ICRISAT, Patancheru, AP, India. 81 pp.
0713	Gezahegn Ayele; Tekalign Mamo (1992) Determinants of demand for fertilizer in vertisol cropping systems of Ada and Lume regions of Ethiopia (En) In: Report of the 1992 annual meeting on AFRICALAND management of vertisols in Africa held in Accra, Ghana, 11-13 June 1992. IBSRAM Network Document no. 3, p. 107-118.

0714	Kanwar J S (1987) Rice based cropping system and vertisol management: Indian experience: new directions (En) Presented at symposium on rice farming systems: new directions held in Sakha, Egypt, 31 Jan-3 Feb 1987, 41 pp.
0715	Krantz B A (1974) Cropping patterns for increasing and stabilizing agricultural production in the semi-arid tropics (En) In: International workshop on farming systems held at ICRISAT, Hyderabad, India, 18-21 Nov 1974, p. 217-248.
0716	Mahmoud M A (1988) Rainfed agriculture and cropping systems on vertisols in Sudan (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 335-336.
0717	Owusu-Benuah E; Duah-Yentumi S; Oteng J W (1992) Improved management technology for sustainable cropping systems on the Accra plains of Ghana (En) In: Reports and papers on the management of vertisols (IBSRAM/AFRICALAND), Nairobi, Kenya, 4-6 March 1991. IBSRAM Network Document no. 1, p. 87-93.
0718	Owusu-Benuah E; Duah-Yentumi S (s d) Report on survey on current land-use and cropping systems on the vertisols of Accra plains (En) Soil Science Dept. Ghana Univ., Legon. 12 pp.
0719	Tekalign Mamo; Abate Tedla; Teklu Erkosa (1993) The effect of undersowing wheat with clovers on wheat grain yield, total crop residue yield and nutritive value of straw and fodder grown on vertisol in Ethiopia (En) Regional wheat workshop for eastern, central and southern Africa held in Kampala, Uganda, 7-10 June 1993, 15 pp.
0720	Unger P W (1982) Management of crops on clay soils in the tropics (En) Tropical Agriculture (Trinidad) v. 59 (2), p. 110-122.
0721	Willey R W (1987) Cropping systems evaluation (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no 6, p. 299-309.

Crop and livestock interaction

0722	Asfaw Yimegnuhal; Negussie Akalework; Jutzi S C (1987) Conventional sheep production and fattening in an intensively cropped vertisol area of the central Ethiopian highlands, Debre Zeit (En) ILCA, Addis Ababa, Ethiopia. 9 pp.
0723	Getachew Asamenew; Abate Tedla (1992) Research on crop and livestock intensification on small-farm vertisols: ILCA's experience (En) In: Report of the annual review meeting on AFRICALAND management of vertisols in Africa held in Accra, Ghana, 11-13 June 1992. IBSRAM Network Document no. 3, p. 121-130.
0724	Gryseels G (1988) The role of livestock in the generation of smallholder farm income in two vertisol areas of the central Ethiopian highlands (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa Ethiopia, 31 Aug-4 Sep 1987, p. 345-358.
0725	McIntire J; Gryseels G (1987) Crop-livestock Interactions in sub-Saharan Africa and their implications for farming systems research (En) Experimental Agriculture (UK) v. 23(3), p. 235-243.
0726	Nnadi L A; Haque I (1988) Forage legumes in African crop-livestock production systems (En) ILCA Bulletin no. 3, p. 10-19.



Farming systems

0727	Getachew Asamenew; Jutzi S C; McIntire J; Abate Tedla (1988) Diagnosis of traditional farming systems in some Ethiopian highland vertisol areas (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 384-388.
0728	Getachew Asamenew (1991) A study on the farming systems on some Ethiopian highland vertisol areas: A draft report on sub-project 321/12-01/002 (En) ILCA, Addis Ababa, Ethiopia. 150 pp.
0729	Getachew Asamenew; Hailu Beyene; Workeneh Negatu; Gezahegn Ayele (1993) A survey of the farming systems of vertisol areas of the Ethiopian highlands (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 29-49.
0730	Gryseels G; Anderson F M (1983) Farming systems research in ILCA's highlands program (En) FSSP Newsletter (USA) v. 1(3), p. 7-10.
0731	Hailu Beyene; Chilot Yirga (1992) Vertisol farming systems of north Shewa (En) In: Franzel S; Houten H van (eds) Research with farmers: lessons from Ethiopia. CAB International Wallingford, UK. p. 79-96.
0732	Kanwar J S (1988) Farming systems in swell-shrink soils under rainfed conditions in soils of semi-arid tropics (En) In: Transactions international workshop swell-shrink soils: classification, management and use potential of swell-shrink soils held in Nagpur, India, 24-28 Oct 1988, National Bureau of Soil Survey and Land Use Planning, Nagpur, India. p. 179-193.
0733	Virmani S M; Swindale L D (1984) Soil management support services: an aid to the transfer of improved farming systems for vertisols in the semi-arid tropics (En) Soil Taxonomy News (USA) no. 7, 19 pp.
0734	Young A (1987) The potential of agroforestry for soil conservation with special reference to vertisols (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 187-199.





On-farm-research

0735	Getachew Asamenew (1990) Methodological issues in on-farm research to improve smallholder feed production (En) Presented at the ILCA forage evaluation and production course, Aug 20 to Sep 14, 1990, ILCA, Addis Ababa, Ethiopia.
0736	Gryssels G; Anderson F M (1983) Research on farm and livestock productivity in the Ethiopian highlands: initial results 1977-1980 (En) ILCA Research Report no. 4, 52 pp.
0737	Gryssels G; Anderson F M; Getachew Asamenew; Abebe Mesgina; Abiye Astatke; Wolde-Ab Wolde-Mariam (1989) On-farm research to improve smallholder livestock productivity in the Ethiopian highlands (En) Quarterly Journal of International Agriculture (Germany) v. 28(3/4), p. 365-375.



Economic assessment

0738	Getachew Asamenew (1988) An overview of a whole-farm approach in economic evaluation of small ruminant production technologies (En) Small ruminant production technique course, May 1988, ILCA, Addis Ababa, Ethiopia.
0739	Getachew Asamenew; Jutzi S C; Abate Tedla; McIntire J (1988) Economic evaluation of improved vertisol drainage for food crop production in the Ethiopian highlands (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 263-283.
0740	Getachew Asamenew; Shapiro B I (1992) Economic evaluation of the broad-bed maker: an animal traction implement to overcome waterlogging and promote early planting on vertisols (En) Internal report, ILCA, Addis Ababa, Ethiopia. 14 pp.
0741	Ghodake R D; Lalitha S (1988) Economic assessment of vertisol technologies in India: implications for on-farm verification in sub-Saharan Africa (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 284-285.
0742	Ryan J G; Sarin R (1981) Economics of technology options for vertisols in the relatively dependable rainfall regions of the Indian semi-arid tropics (En) Proceedings on the management of deep black soils for increased production of cereals, pulses and oilseeds held in New Delhi, India, 21 May 1981, India. p. 37-57.
0743	Sarin R; Ryan J G (1983) Economic assessment of improved watershed-based technology options in on-farm experiments (En) ICRISAT Economics Program Progress Report no. 46, ICRISAT, Patancheru, AP, India. 20 pp.
0744	Spaargaren O C; Sokotela S B (1988) Vertisols of Zambia: their management, productivity and economic assessment (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug - 4 Sep 1987, p. 342.
0745	von Oppen M; Ghodake R D; Kshirsagar K G; Singh R P (1985) Socioeconomic aspects of transfer of vertisol technology (En) In: Management of vertisols for improved agricultural production: an IBSRAM inaugural workshop held at ICRISAT, Patancheru, AP, India, 18-22 Feb 1985, p. 235-249.
0746	Walker T S; Ryan J G; Kshirsagar K G; Sarin R (1983) The economics of deep vertisol technology options: implication for design testing and transfer (En) In: Seminar on technology options and economic policy for dryland agriculture held at ICRISAT, Patancheru, AP, India.

Technology transfer and impact assessment

0747	Getachew Asamenew; Mohamed-Saleem M A (1992) Farmer participatory roles in technology development and transfer: a case study from on-farm vertisol technology experience in Ethiopia (En) In: Sandford S; Reece A (eds) Proceedings of a workshop on farmers' participatory research. IAR/FARM Africa workshop on farmers' participatory research held in Addis Ababa, Ethiopia, 17-19 Feb 1992, p. 19-25.
0748	Getachew Asamenew; Hailu Beyene; Adugna Hailer Workeneh Negatu (1993) Technology validation and transfer (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 139-146.
0749	Jutzi S C; Getachew Asamenew; Haque I; Abate Tedla; Abiye Astatke (1987) Intermediate technology for increased food and feed production from deep black clay soils in the Ethiopian highlands (En) In: Improving food crop production on small farms in Africa: FAO/SIDA seminar on increased food production through low-cost food crops technology held in Harare, Zimbabwe, 2-17 March 1987, p. 376-383.
0750	Ryan J G; Sarin R; Pereira M (1980) Assessment of prospective soil, water and crop management technologies for the semi-arid tropics of peninsula India (En) Proceedings of the international workshop on socioeconomic constraints to development of semi-arid tropical agriculture held at ICRISAT, Patancheru, AP, India, 19-23 Feb 1979, p. 52-72.
0751	Ryan J G; Virmani S M; Swindale L D (1982) Potential technologies for deep black soils in relatively dependable rainfall regions of India (En) Presented at the seminar on innovative technologies for rural development organized by Indian Bank held at ICRISAT, Patancheru, AP, India, 15-17 April 1982, p. 41-61.
0752	Ryan J G; von Oppen M (1983) Assessment of impact of deep vertisol technology options (En) Presented at TAC meeting, ICRISAT, Hyderabad, India.
0753	Swindale L D (1980) Problems and concepts of agrotechnology transfer within the tropics (En) In: Proceedings international symposium on development and transfer of technology for rainfed agriculture and the SAT farmer held at ICRISAT, Patancheru, AP, India, 28 Aug - 1 Sep 1979, p. 73-82.
0754	Swindale L D (1988) Developing, testing and transferring improved vertisol technology: the Indian experience (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 13-43.
0755	Virmani S M; Willey R W; Reddy M S (1981) Problems, prospects and technology for increasing cereal and pulse production from deep black soils (En) In: Improving the management of India's deep black soils: Seminar on management of deep black soils for increased production of cereals, pulses and oilseeds held in New Delhi, India, 21 May 1981, p. 21-36.
0756	von Oppen M; Ghodake R D; Kshirsagar K G; Singh R P (1985) Important programs in international agricultural research: Performance and transfer constraints of improved vertisol technology (En) Entwicklung und laendlicher Raum (Germany) v. 19(6), p. 11-14.

Networks

0757	Brabant P (1987) Selection of sites for the vertisol network: distinction between types of vertisols (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 65-70.
0758	Burford J R (1987) The vertisols network: objectives and plans (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 51-61.
0759	Jutzi S C; Mesfin Abebe (1987) Improved agricultural utilization of vertisols in the Ethiopian highlands - an interinstitutional approach (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 173-183.
0760	Jutzi S C; Abate Tedla; Mesfin Abebe; Desta Beyne (1988) Inter-institutional modes of operation in research and development of improved vertisol technologies for the Ethiopian highlands (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa, Ethiopia, 31 Aug-4 Sep 1987, p. 389-398.
0761	Kanwar J S; Virmani S M (1987) Management of vertisols for improved crop production in the semi-arid tropics: a plan for a technology transfer network in Africa (En) Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 157-172.
0762	Latham M (1987) Management of the vertisols network (En) Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceeding no. 6, p. 13-19.
0763	Latham M; Ahn P M (1988) Networking on vertisol management: concepts, problems and development (En) In: Jutzi S C; Haque I; McIntire J; Stares J E S (eds) Management of vertisols in sub-Saharan Africa: Proceedings of a conference held at ILCA, Addis Ababa Ethiopia, 31 Aug-4 Sep 1987, p. 399-411.
0764	Latham M (1990) IBSRAM's African vertisols network (En) In: Jones C A; Gerik T J (eds) Vertisol management workshop: International collaboration on research, training and extension held in Texas A & M Univ., College Station, Texas, USA, 25-29 June 1990, p. 23-35.
0765	Mesfin Abebe; Jutzi S C (1989) The joint project on improved management and utilization of dark clay soils in Ethiopia-retrospects and prospects (En) In: Vertisol management in Africa: Proceeding of a workshop held in Harare, Zimbabwe, 16-21 Jan 1989. IBSRAM proceedings no. 9, p. 385-398.
0766	Mesfin Abebe; Jutzi S C (1993) The joint project on vertisols management: retrospect and prospects (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols from sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 147-157.
0767	Pushparajah E (1992) Overview of IBSRAM's vertisol network in Africa (En) In: Report of the 1992 annual meeting on AFRICALAND management of vertisols in Africa held in Accra, Ghana, 11-13 June 1992. IBSRAM Network Document no. 3, p. 167-186.
0768	Sehgal J L; Vadivelu S; Hirekerur L R; Deshpande S B. (1987) Soil site criteria for selecting experiment sites for a vertisol management network (En) In: Management of vertisols under semi-arid conditions: Proceedings of the first regional seminar held in Nairobi, Kenya, 1-6 Dec 1986. IBSRAM proceedings no. 6, p. 71-82.
0769	Srivastava K L (1989) A draft proposal for collaborative research on vertisol management in Ethiopia (En) Internal report, ICRISAT, Patancheru, AP, India. 40 pp.

0770	Tekalign Mamo; Mohamed-Saleem M A; Abate Tedla (1993) Development of coordinated research efforts (En) In: Tekalign Mamo; Abiye Astatke; Srivastava K L; Asgelil Dibabe (eds) Improved management of vertisols for sustainable crop-livestock production in the Ethiopian highlands: Synthesis report 1986-92. Technical committee of the joint vertisol project, Addis Ababa, Ethiopia. p. 1-11.
-------------	--

Subject index

[Documentation](#)
[Agroclimatology, physiography and vegetation](#)
[Soils](#)
[Crops](#)
[Cropping systems](#)
[Crop and livestock interaction](#)
[Farming systems](#)
[On-farm research](#)
[Economic assessment](#)
[Technology transfer and impact assessment](#)
[Networks](#)

Documentation

Books

0001, 0002, 0003

Bibliographies

0004, 0005, 0006, 0007, 0008, 0009, 0010, 0011, 0012, 0013, 0014, 0015, 0016, 0017, 0018, 0019, 0020, 0021, 0022, 0023, 0024, 0025

Conferences

0026, 0027, 0028, 0029, 0030, 0031, 0032, 0034, 0035, 0036, 0037, 0038, 0039, 0040, 0041, 0042

Reports, Bulletins and Project Documents

0043, 0044, 0045, 0046, 0047, 0048, 0049, 0050, 0051, 0052, 0053

Reviews

0054, 0055, 0056, 0057, 0058, 0059, 0060, 0061, 0062, 0063, 0064, 0065, 0066, 0067, 0068, 0069, 0070, 0071, 0072, 0073, 0074, 0075, 0076, 0077, 0078, 0079, 0080, 0081, 0082, 0083, 0084, 0085, 0086, 0087, 0088, 0089, 0090, 0091, 0092, 0093, 0094, 0095, 0096, 0097, 0098, 0099, 0100, 0101, 0103, 0104, 0104, 0106, 0107

Thesis

0108, 0109, 0110, 0111, 0112, 0113, 0114, 0115, 0116, 0117, 0118, 0119, 0120, 0121, 0122, 0123, 0124, 0125, 0126, 0127, 0128, 0129, 0130

Agroclimatology, physiography and vegetation

0131, 0132, 0133, 0134, 0135, 0316, 0137, 0138, 0139, 0140, 0141, 0142, 0143, 0144, 0145

Soils

General

0146, 0147, 0148, 0149, 0150, 0151, 0152, 0153, 0154, 0155, 0156, 0157, 0158, 0159, 0160,

0161, 0162, 0163, 0164, 0165, 0166, 0167, 0168, 0169, 0170, 0171, 0172, 0173, 0174, 0178, 0179, 0180, 0181, 0182, 0183, 0184, 0185, 0186, 0187, 0188, 0189, 0190, 0191, 0192, 0193, 0194, 0195, 0196, 0197, 0198, 0199, 0200, 0201, 0202, 0203, 0204, 0205, 0206, 0207, 0207, 0208, 0209, 0210, 0211, 0212, 0213, 0214, 0215, 0216, 0217, 0218, 0219, 0220, 0221, 0222, 0223

Soil Morphology, Survey, Classification, Land Use Systems and Planning

0224, 0225, 0226, 0227, 0228, 0229, 0230, 0231, 0232, 0233, 0234, 0235, 0236, 0237, 0238, 0239, 0240, 0241, 0242, 0243, 0244, 0245, 0246, 0247, 0248, 0249, 0250, 0251, 0252, 0253, 0254, 0255, 0256, 0257, 0258, 0259, 0260, 0261, 0262, 0263, 0264, 0265, 0266, 0267, 0268, 0269, 0270, 0271, 0272, 0273, 0274, 0275, 0276

Soil Physics

0277, 0278, 0279, 0280, 0281, 0282, 0283, 0284, 0285, 0286, 0287, 0288, 0289, 0290, 0291, 0292, 0293, 0294, 0295, 0296, 0297, 0298, 0299, 0300, 0301, 0302, 0303, 0304, 0305, 0306, 0307, 0308, 0309, 0310, 0311, 0312, 0313, 0314, 0315, 0316, 0317, 0318, 0319, 0320, 0321, 0322, 0323, 0324, 0325, 0326, 0327, 0328, 0229, 0330, 0331, 0332, 0333, 0334, 0335, 0336, 0337, 0338, 0339, 0340, 0341, 0342

Soil Chemistry and Mineralogy

0347, 0344, 0345, 0346, 0347, 0348, 0349, 0350, 0351, 0352, 0353, 0354, 0355, 0356, 0357, 0358, 0359, 0360, 0361, 0362, 0363, 0364, 0365, 0366, 0367, 0368, 0369, 0370, 0371, 0372, 0373, 0374, 0375, 0376, 0377, 0378, 0379, 0380, 0381, 0382, 0383, 0384, 0385, 0386, 0387, 0388, 0389, 0390, 0391, 0392, 0393, 0394, 0395, 0396, 0397

Soil Microbiology

0398, 0399, 0400, 0401, 0402, 0403, 0404, 0405, 0406, 0407, 0408, 0409, 0410, 0411

Soil Fertility and Plant Nutrition

0412, 0413, 0414, 0415, 0416, 0417, 0418, 0419, 0420, 0421, 0422, 0423, 0424, 0425, 0426, 0427, 0428, 0429, 0430, 0431, 0432, 0433, 0434, 0435, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0446, 0447, 0448, 0449, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459

Soil and Water Management

0460, 0461, 0462, 0463, 0464, 0465, 0466, 0467, 0468, 0469, 0470, 0471, 0472, 0473, 0474, 0475, 0476, 0477, 0478, 0479, 0480, 0481, 0482, 0483, 0484, 0485, 0486, 0487, 0488, 0489, 0490, 0491, 0492, 0493, 0494, 0495, 0496, 0497, 0498, 0499, 0500, 0501, 0502, 0503, 0504, 0505, 0506, 0507, 0508, 0509, 0510, 0511, 0512, 0513, 0514, 0515, 0516, 0517, 0518, 0519, 0520, 0521, 0522, 0523, 0524, 0525, 0526, 0527, 0528, 0529, 0530, 0531, 0532, 0533, 0534, 0535, 0536, 0537, 0538, 0539, 0540, 0541, 0542, 0543, 0544, 0545, 0546, 0547, 0548, 0549, 0550, 0551, 0552, 0553, 0554, 0555, 0556, 0557, 0558, 0559

Traction and Tillage

0560, 0561, 0562, 0563, 0564, 0565, 0566, 0567, 0568, 0569, 0570, 0571, 0572, 0573, 0574, 0575, 0576, 0577, 0578, 0579, 0580, 0581, 0582, 0583, 0584, 0585, 0586, 0587, 0588, 0589, 0590, 0591, 0592, 0593, 0594, 0595, 0596, 0597, 0598, 0599, 0600, 0601, 0602, 0603, 0604, 0605, 0606, 0607, 0608, 0609, 0610, 0611, 0612, 0613, 0614, 0615, 0616, 0617, 0618, 0619, 0620, 0621, 0622, 0623, 0624, 0625, 0626

Watershed Management

0627, 0628, 0629, 0630, 0631, 0632, 0633, 0634, 0635, 0636, 0637, 0638, 0639, 0640, 0641, 0642, 0643, 0644, 0645, 0646, 0647, 0648, 0649, 0650, 0651, 0652, 0653

Crops

General

0654, 0655, 0656, 0657

Cereals

0658, 0659, 0660, 0661, 0662, 0663, 0664, 0665, 0666

Root and Tuber Crops

0667

Grain Legumes

0668, 0669, 0670, 0671, 0672, 0673, 0674, 0675, 0676, 0677, 0678

Tree and Fruit Crops

0679, 0680, 0681, 0682, 0683, 0684

Cash Crops

0685, 0686, 0687, 0688, 0689, 0690, 0691

Forages and Pastures

0692, 0693, 0694, 0695, 0696, 0697, 0698, 0699

Cropping systems

0700, 0701, 0702, 0703, 0704, 0705, 0706, 0707, 0708, 0709, 0710, 0711, 0712, 0713, 0714, 0715, 0716, 0717, 0718, 0719, 0720, 0721

Crop and livestock interaction

0722, 0723, 0724, 0725, 0726

Farming systems

0725, 0728, 0729, 0730, 0731, 0732, 0733, 0734

On-farm research

0735, 0736, 0737

Economic assessment

0738, 0739, 0740, 0741, 0742, 0743, 0744, 0745, 0746

Technology transfer and impact assessment

0747, 0748, 0749, 0750, 0751, 0752, 0753, 0754, 0755, 0756

Networks

0757, 0758, 0759, 0760, 0761, 0762, 0763, 0764, 0765, 0766, 0767, 0768, 0769, 0770

Author index

Abate Tedla	0026, 0460, 0461, 0462, 0463, 0464, 0468, 0568, 0583, 0658, 0659, 0660, 0663, 0697, 0700, 0701, 0702, 0703, 0704, 0705, 0706, 0707, 0708, 0719, 0723, 0727, 0749, 0760, 0770
Abboud S M A	0108
Abdel Majid H M	0398
Abdulla H H	0146, 0147
Abebe Mesgina	0044, 0737
Abiye Astatke	0053, 0091, 0109, 0266, 0277, 0461, 0465, 0466, 0467, 0468, 0546, 0560, 0561, 0562, 0563, 0564, 0565, 0566, 0572, 0582, 0586, 0593, 0594, 0701, 0708, 0709, 0749, 0737
Abiye Haile Selassie	0567
Acevedo G	0251
ACIAR	0027
Acquaye D K	0054, 0343, 0344, 0370
Adam A I	0148, 0224, 0345
Adam K M	0668
Adamson D	0145
Adeniji F A	0242
Adeoye K B	0346, 0481
Adhikari R N	0627
Adu S U	0055
Adugna Haile	0748
Ae N	0710
Agnihotri Y	0634
Agrawal D K	0647
Ahmad N	0056, 0057, 0058, 0059, 0149, 0347, 0469, 0470
Ahmed F E	0672
Ahmed M H	0668
Ahmed H U	0019
Ahn P M	0028, 0150, 0763
Airaksinen H	0568, 0709
Akundabweni L	0692
Akyeampong E	0412
Alatalo V	0327
Alemeida L A	0413
Alemu Tadesse	0698, 0705
Ali O A	0278
Ali A M	0667
Ali M A	0471, 0475

Ali Yimer	0110
Amanuel Gorfu	0664
Amare Abebe	0414
Anders M M	0434
Andersen W B	0345
Anderson B	0256
Anderson F M	0569, 0570, 0571, 0572, 0573, 0586, 0588, 0593, 0594, 0730, 0736, 0737
Andrew G	0151
Anketse Berhan Kifle	0111
Anon	0029, 0472, 0574, 0575, 0576
Arihara J	0710
Arnaud R J St	0344
Arun Sharma	0629
Asfaw Yemegnuhal	0044, 0722
Asgelil Dibabe	0053, 0060, 0089, 0092, 0170,
Ashaye T I	0152, 0153
Asiribo O E	0421
Asnakew Woldeab	0279, 0348, 0415
Astatke Haile	0693, 0694
AUA	0043
Ausah R K	0418
Awade M N	0628
Ayed I A	0349
Ayele Beker	0154
Ayoub A T	0416, 0687
Azevedo A L	0061, 0165
Bababe B	0249, 0523
Babel M S	0629
Babiker I A	0062, 0063, 0661
Bampoe-Addis A	0350
Barber R G	0351
Barro S E	0064, 0107
Beavington F	0155
Beckman G G	0307, 0337
Beinroth F H	0156
Bekele Sisay	0417
Belay Simane	0131
Bellis S E	0211, 0280, 0331
Bergh H	0429
Berhanu Debele	0065
Berry R H	0068, 0225, 0577
Betts A V	0352
Beukes D J	0281
Bhattacharjee J C	0099, 0100

Bhattacharya A K	0648
Bhende M J	0712
Bhola S N	0539
Bhushan L S	0653
Biblio G	0207
Blight G W	0606, 0613, 0614
Blokhuis W A	0112, 0157, 0226, 0282, 0353, 0473
Bloodworth M E	0181
Blume H P	0261
Bocquier G	0371
Booth D R C	0424
Botelho C J B da	0061
Bouma J	0030, 0283, 0284
Bowell R J	0418
Brabant P	0755
Bradshaw P N	0113
Brammer H	0158, 0159, 0227
Brasher B R	0243
Bridge B J	0104
Brink A B A	0228
Brinkman R	0134
Brook T R	0285
Browning J	0025
Bryant R B	0250
Brzesowsky W J	0711
Bui E N	0286
Bull T A	0132
Bunting A H	0066, 0160
Bunyolo A M	0229
Burford J R	0031, 0067, 0419, 0758
Burhan H O	0420
Buringh P	0001, 0161
Burns E	0467
Bursink J	0114
Busangavanye T	0500
Buxton B P	0068
CAB Slough UK	0004, 0005, 0006, 0007, 0008, 0009, 0010, 0011, 0012, 0013, 0014, 0015, 0016, 0017, 0018
Calhoun F G	0396, 0397
Calton W A	0162, 0163, 0319
Carnelli J P	0251
Cass A	0330, 0333
Chan K Y	0287
Chandrappa M	0646

Channappa T C	0630
Charreau C	0002
Chilot Yirga	0731
Chittaranjan S	0288, 0627, 0646
Clark N G	0069
Clay E G	0069
Comerma J A	0070, 0071
Commisoris A	0234
Cook T	0082, 0083
Cornish G A	0624
Cossins N J	0567
Coughlan K J	0289, 0332, 0526
D'Costa V P	0230, 0231, 0232
Dabin B	0164, 0290
Dagg M	0291
Dahab O A	0233
Dahab M H	0292
Daniel Dauro	0115
Dawelbeit M I	0669
de Bruijn C M A	0293
de Pauw E	0133, 0205
de Costa J V B	0165
de Costa V P	0230, 0231, 0232
de Marchand B C	0166, 0295
De Vos N C J H	0294
De Datta S K	0075
Decroux J	0296
del Villar E H	0076
Demisse Mitiku	0665
Deshpande S B	0768
Deshpande T L	0336
Dest a Beyene	0021, 0032, 0072, 0073, 0177, 0354, 0760
Diallo M	0074
Dixon J B	0345, 0355
Dobronol's Kil V V	0356
Dobrowolski J P	0140, 0335
Donaldson R A	0685
Dowuona G N J	0344
Du Plessis S F	0297
Duah-Yentumi S	0259, 0717, 0718
Dudal R	0077, 0078, 0079, 0167
Durand J H	0168
Durkin J W	0573, 0588
Dyal S K N	0634

Edelman C H	0134
Ehui S K	0093
El-Tom O A R	0690
El-Swaify S A	0081, 0339, 0536
El-Abedine Z	0234, 0298, 0299, 0300
El-Mahi Y E	0398
El-Sarrag G	0080
El-Wakeel A	0277
Elliot C R	0028
Endale Bekele	0486
Escobedo J	0474
Esu I E	0235, 0249, 0421, 0513
Eswaran H	0079, 0082, 0083
Eylachew Zewdie	0116
Fadal O A A	0471, 0475
Fadda N R	0301
Fadl A E	0357
Fadul H M	0148
Fageiry K A	0670
Fantaw Abegaz	0482, 0483
FAO	0236, 0237
Farah S M	0602
Farbrother H G	0476, 0477, 0478, 0479
Faye A	0611
Ferew Kelemu	0566
Fergus I F	0104
Fey M V	0330, 0333
Finck A	0084, 0238, 0239, 0302, 0358, 0422
Fischer H H	0480
Fisseha Itanna	0117
Fitzpatrick E A	0240
Fitzpatrick R W	0359
Floret C	0329
Florunso O A	0085, 0241, 0242, 0249, 0303, 0346, 0481
Foster J H	0712
Friedericks J B	0399, 0400, 0401
Fujioka K	0578
Furguson H	0686
Gachene C K K	0232, 0255, 0525
Gama B M	0086, 0442
Gardner E A	0655
Gatahi M M	0232
Gebre H	0654
Gefu J O	0019

Geneif A A	0679, 0681, 0682, 0683, 0684
Geremew Eticha	0482, 0483
Gerik T J	0037
Getachew Asamenew	0044, 0087, 0583, 0584, 0586, 0588, 0702, 0723, 0727, 0728, 0729, 0735, 0737, 0738, 0739, 0740, 0747, 0748, 0749
Getachew Belay	0665
Getinet Gebeyehu	0462, 0463, 0658, 0704
Gezahegn Ayele	0713, 0729
Ghodake R D	0585, 0745, 0756, 0741
Ghugare R V	0662
Gidnawar V S	0437
Giref Sahile	0663
Gobena Huluka	0372
Godfrey C L	0320
Goe M R	0020, 0023, 0118, 0695, 0579, 0581, 0582, 0589, 0584, 0697
Grammar Y	0398
Greacen E L	0655
Green H	0169, 0244, 0304
Greenland D J	0075
Grewal S S	0634
Grossman R B	0243
Grunder M	0465, 0466, 0467
Gryseels G	0573, 0580, 0586, 0587, 0588, 0724, 0725 0730, 0736, 0737
Gumbs F A	0484
Gupta R K	0485
Guthrie R L	0245
Gwani E S	0019
Hack H R B	0305, 0306
Hadad M A	0119
Hagedorn C	0399, 0401
Hagenzieker F	0246, 0247
Haider G	0088, 0486
Hailu Regassa	0073, 0089, 0135, 0144, 0170, 0266, 0546, 0589, 0707
Hailu Gebre	0656
Hailu Kenno	0696
Hailu Beyene	0729, 0731, 0748
Hajek B F	0360
Hallmark C T	0397
Hallsworth E G	0307
Halmar C T	0397
Hamid G A	0679
Hamilton R	0361, 0362
Haque I	0021, 0022, 0038, 0045, 0051, 0090, 0091, 0092, 0093, 0176, 0177, 0311, 0312, 0313, 0314, 0315, 0385, 0386, 0387, 0388, 0389, 0390, 0423, 0431, 0402, 0403, 0404, 0410, 0445, 0447, 0448, 0487, 0596, 0680, 0697, 0726, 0749

Harris B L	0538
Hassan H A	0488
Heystek H	0392
Higgins G M	0180
Hirekerur L R	0768
Hiruy Belayneh	0489, 0490
Hong C W	0433
Hoore J D	0171
Hope Simpson J F	0137
Hossner L R	0396
Hoult E H	0039
Hoyle A C	0137
Huda A K S	0135, 0136, 0143, 0144
Hughan D S	0424
Hunter H M	0606, 0613, 0614
Hussein J	0120, 0190, 0308, 0491
IAR Addis Ababa Ethiopia	0094, 0309, 0425, 0492, 0590
Ibarra F P	0177
Ibrahim A E	0672
IBSRAM	0033, 0034, 0035
ICRISAT	0493, 0494
Ikavalko E	0583
Ikitoo E C	0495, 0496
Ikwa H	0172
ILCA/IAR/AUA	0049
ILCA/ICRISAT/IBSRAM	0046, 0047, 0048,
Isbell R F	0248
Ishag H M	0426, 0497, 0673, 0674, 0675, 0676, 0677, 0687
Islam S O	0591
ICSS	0036, 0050
Izzat A E A	0363, 0427
Jackson A C	0069
Jaspal Singh	0629
Jayaram N S	0539
Jelley R M	0179, 0310, 0428
Jewitt T N	0052, 0173, 0174, 0429, 0498, 0499
Johanes C	0710
Jones E	0500
Jones T A	0364, 0365, 0430
Jones R L	0347
Jones C A	0037
Joseph A F	0367
Jutzi S C	0038, 0051, 0090, 0095, 0175, 0423, 0431, 0465, 0466, 0467, 0487, 0501, 0583, 0592, 0593, 0594, 0595, 0658, 0697, 0700, 0708, 0722, 0727, 0739,

	0749, 0759, 0760, 0765, 0766
Kahurananga J	0700
Kaigama B K	0249, 0523
Kalsson I	0316
Kamara C S	0176, 0177, 0311, 0312, 0313, 0314, 0315, 0388, 0596, 0680
Kampen J	0502, 0503, 0507, 0508, 0631
Kantor W	0367
Kanwar J S	0178, 0432, 0503, 0504, 0632, 0651, 0761, 0714, 0732
Kanyanda C W	0368, 0505
Kass D L	0250
Kassahun Zewdie	0664
Katyal J C	0433
Kerkhoven G J	0179, 0428, 0657, 0688
Khalil A	0261
Khashmelmous A E	0678
Khodary O	0205
Kilasara M	0254
Kimble J	0083
Kshirsagar K G	0712, 0745, 0746, 0756
Klaj M C	0598
Klinkenberg K	0180
Kopelo B	0506
Kowal J M L	0121
Krantz B A	0507, 0508, 0715
Krishan J H	0502
Kumwenda J T D	0323
Kunze G W	0181
Kwakye P K	0241
Kwari J D	0455
Lal B	0653
Lal R	0509, 0653
Lalitha S	0741
Landey R J	0099, 0100
Laplante A	0182
Larbi A	0122
Laryea K B	0434, 0597, 0598, 0537, 0642, 0644, 0511
Latham M	0510, 0762, 0763, 0764
Law R	0499
Law R D	0616
Le Mare P H	0435, 0436
Lea J D	0160
Legesse Wolde Yohannes	0459
Lekholoane L	0512

Leneuf N	0183, 0184
LeRoux J	0359
Liautaud G	0207
Lobova E V	0185
Lombin G	0513
Long P B R	0514
Loveday J	0283, 0515
Low P F	0317
Lowole M W	0516
Lozet J	0186
Lugo Lopez M A	0251
Lulseged Gebrehiwot	0696, 0698, 0699
Lupwayi N Z	0707
Luyindula N	0403, 0404
Luzio L W	0187
MacDonald M	0517
MacMillan R A	0252, 0518
Magai R	0229
Magar W Y	0374
Mahmoud M A	0519, 0716
Maignien R	0188
Majanga B D	0528
Mamadou Kabirou N'Diaye	0189
Mandiringana O T	0190, 0191, 0534
Manjunathaiah H M	0437
Mansoor H	0528
Mansi M G	0420
Marcos Sahl	0021
Matabwa C J	0323
Materechera S A	0192, 0520
Mathieu C	0193
Matthews M D P	0561, 0562
Maufe H B	0194
Mayaki W C	0544
McDowell L R	0440
McGarity J W	0039, 0195
McGarry D	0289, 0104
McIntire J	0038, 0583, 0599, 0725, 0727, 0739
McKeague J A	0528
Mcleans A H	0318
Mermut A R	0253, 0286, 0344
Mengesha Bekele	0415
Mesfin Abebe	0092, 0096, 0097, 0266, 0438, 0439, 0441, 0521, 0522, 0600, 0612, 0759, 0760, 0765, 0766

Meyer J H	0685
Mfutilodze M W	0440
Michael Hailu	0020
Michael A M	0628
Middleton K R	0196, 0498
Miline G	0319
Millot G	0371
Miranda S M	0636, 0637, 0638, 0633, 0550, 0536
Miressa Duffera	0441, 0522, 0521, 0612, 0705
Mitchell B D	0221
Mitiku Haile	0266
Mitmuni J P	0440
Mittal S P	0634
Moberg J P	0254
Mohamed H A	0197
Mohamed H S	0689
Mohamed-Saleem M A	0087, 0095, 0277, 0346, 0467, 0568, 0595, 0565, 0659, 0660, 0703, 0705, 0706, 0709, 0747, 0770
Mordi R I	0249, 0523
Morison C G T	0137
Mortland M M	0350
Mowo J G	0086, 0198, 0442, 0524
Msaky J J T	0443
Msanya B M	0254, 0443
Muchena F N	0255, 0496, 0525
Mueller Haude P	0199
Mugwira L M	0445, 0447
Muir A	0256, 0280, 0331
Mukhtar O M A	0320
Mukhtar N O	0407, 0444
Mullins J A	0526
Munro R N	0557
Murthy R S	0098, 0099, 0100
Murthy A S P	0101, 0437, 0446
Murty V V N	0636, 0639
Musa M M	0405, 0406, 0407, 0408, 0409
Musa S B	0200
Musa A	0602
Mustafa M A	0292
Mwaita S K	0591
Mwangi W	0042
National Bureau of Soil Survey and Land Use Planning	0040
Ndayizeye J	0527

Ndiame F	0610
Negussie Akalework	0722
Nettleton W D	0243, 0257
Ngatoluwa R	0528
Ngoma A	0252, 0518
Nichols J D	0245, 0258
Niekirk P R van	0210
Nielsen S A	0635
Njoku E A	0241
Nleya G G	0382
Nnadi L A	0090, 0447, 0448, 0726
Noman K I	0529
Norton A J	0601
Nourai A H	0080
Ntokotha E M	0530
Nwaka G I C	0249, 0531
Nxumalo E M	0201
Nyaki A S	0532
Nyamapfene K W	0369
Nyamudeza P	0500, 0533, 0534
Nyandat N N	0321
Nzabonihankuye G	0527
Oakes H	0181
Ochtman L H J	0238
Ochtman L H S	0157
Ogunsola O A	0249
Ohu J O	0085, 0242, 0249, 0303, 0481
Ojanuga A G	0544
Okada K	0710
Oloya T	0382
Omeje M U	0249
Osman A	0535
Otchere E O	0019
Oteng J W	0717
Owusu-Bennuah E	0054, 0259, 0343, 0370, 0717, 0718
Oxenstierna A	0202
Pabs-Garnon O M	0123
Pachepsky Ya A	0322
Pagel H	0260
Panda J C	0635
Panje P	0203, 0323
Pape T	0353
Paquet H	0371
Pathak P	0082, 0136, 0220, 0434, 0502, 0511, 0536, 0537, 0597, 0598, 0636, 0637,

	0638, 0639, 0640, 0641, 0642, 0643, 0644, 0651
Patnaik U S	0288
Paul C L	0324
Pereira M	0750
Peters K H	0157, 0422
Pfeiffer D	0261
Pias J	0204
Piccolo A	0372
Pofali R M	0099
Polhill R T	0591
Pontanier R	0329
Porter H L	0262
Porter P M	0262
Poulain J F	0449
Powell J M	0093
Presant E W	0264
Prescott J A	0138
Probert M E	0104
Puentes R	0003, 0538
Pulschen L	0450, 0451
Purnell M F	0103, 0139, 0205, 0263, 0690
Pushparaja E	0767
Raats P A C	0030
Rafle A D	0262
Rahman H A A	0292
Rai K D	0374
Rama Prasad	0645
Rama Mohan Rao M S	0539, 0540, 646
Ramadan H	0260
Raman K V	0350
Randhawa N S	0105
Ranga K	0630
Rao K A	0647
Rao V B	0712
Rao V R	0540
Raychaudhuri S P	0373
Raymundo M E	0075
Reddy K K	0653
Reddy M S	0755
Reed J D	0695
Rego T J	0081, 0136, 0432, 0632
Remmelzwaal A	0506
Reneau R B	0401
Retuer G	0206

Ricardo R P	0413
Rich C I	0325
Ritchie J T	0342
Robinson G H	0234, 0298, 0299, 0374, 0375
Robinson J B D	0285
Roorda T M M	0452
Ross G J	0264
Russam K	0291
Russell J S	0104, 0541
Russell M B	0326, 0507
Ryan J G	0742, 0743, 0746, 0750, 0751, 0752
Saarainen T	0327
Sachan R C	0511
Saffigna P G	0411
Sahelemedhin Sertsu	0124, 0376
Sahrawat K L	0031, 0067
Said M B	0377, 0378, 0379, 0677, 0687
Saleh H H	0529
Salih A A	0602
Samuel Geleta	0125, 0441
Sanchez P A	0376
Sandabe M K	0455
Sant'Anna R A	0106, 0265
Sarin R	0742, 0743, 0746, 0750
Sarkar T K	0648
Saroha M S	0453
Satti M A E	0542
Saxena N P	0454
Schlichting E	0328
Schulthess U	0126, 0660
Schwertmann U	0367
Seetharama N	0432
Sehgal J L	0253, 0768
Seiny-Booker L	0329
Selam Yihun Kidanu	0127, 0521, 0522, 0546, 0612
Shapiro B I	0740
Shaw M E A	0543
Sheelavantar M N	0437, 0446
Sheldrake A R	0454
Sherington J	0706
Shriniwas Sharma	0649
Shukla U C	0455
Sidahmed O A	0679, 0681, 0682, 0683, 0684
Siewierski E	0544

Simon A B	0207
Singh R P	0069, 0649, 0650, 0651, 0745, 0756
Singh U	0268
Singh R	0220
Singh S	0081, 0639
Singh H G	0453
Sirak Teklu	0023
Slager S	0282, 0353
Sleeman J R	0257
Smedema L K	0545
Smith G D	0289, 0332
Snow O W	0169
Snyman K	0330, 0333
So H B	0039
Soil Survey Administration Khartoum Sudan	0041
Sokotela S B	0744
Sombroek W G	0272
Some L	0107
Sonar K R	0662
Spaargaren O C	0744
Spence J R	0603
Spoor G	0604
Srivastava N S L	0605
Srivastava K L	0026, 0053, 0266, 0546, 0547, 0633, 0651, 0769
Standley J	0606, 0613, 0614
Stares J E S	0038
Starkey P	0023, 0607, 0608, 0609, 0610, 0611
Stephens D	0256, 0331, 0380, 0456
Stewart B A	0553
Stoops G	0253
Sud A D	0634
Sudi R	0639, 0642, 0644
Svensson J	0548
Swindale L D	0208, 0334, 0549, 0550, 0733, 0751, 0753, 0754
Swoboda A R	0320
Syman K	0330
Sys C	0209
Taboadela M M	0381
Tadesse Tessema	0563
Tagwira F	0382
Taha M A	0691
Takar A A	0140, 0335
Tamhane R Y	0336

Tamirat Tsegaye	0128
Tamire Hawando	0154, 0267, 0414, 0671
Tanner P D	0383, 0384, 0457
Tanner D G	0042, 0664
Tefera Ajema	0415
Tejwani K G	0652
Tekalign Mamo	0026, 0053, 0091, 0092, 0095, 0385, 0386, 0387, 0388, 0389, 0390, 0410, 0412, 0415, 0441, 0521, 0522, 0546, 0551, 0552, 0612, 0704, 0705, 0713, 0719, 0770
Teklu Erkosa	0612, 0719
Tesfaye Tesemma	0462, 0463, 0659, 0660, 0665
Tessier D	0276
Theron J J	0210
Thomas G W	0325
Thomas G A	0606, 0613, 0614
Thompson C H	0337
Thorp J	0211
Thurow T L	0140, 0335
Tilahun Hordofa	0486
Tomar A S	0485
Tomar S S	0485
Tomlinson P R	0212
Tothill J C	0700
Tothill J D	0213
Trangmar B B	0268
Trogenza G A	0024
Tsige Amare	0045
Twomlow S J	0626, 0666
Tyega J	0298
Uehara G	0268
Unamba Oparah I	0260
Unger P W	0553, 0720
Uriyo A P	0443
Uzureau C	0615
Vadivelu S	0768
Valante R P	0413
van der Merwe C R	0214, 0215, 0216, 0217, 0269, 0270, 0271, 0391, 0392, 0393, 0394
van der Merwe D H	0341
van Wambeke A	0274, 0338
van de Weg R F	0218
van Schagon R H	0282
van Baren J H V	0272
van Oosten M F	0274, 0338
Vanscoyoc S W	0399

Veldkamp W J	0229, 0273
Venkateswarlu J	0084, 0339, 0458, 0554, 0105
Verma G P	0555, 0556
Victoria C	0538
Vijarnsorn P	0219
Virgo K J	0294, 0340, 0557, 0499
Virmani S M	0135, 0136, 0141, 0142, 0143, 0144, 0220, 0503, 0508, 0558, 0751, 0761, 0733, 0755
Viswanath D P	0446
Vlek P L G	0433
von Oppen M	0745, 0752, 0756
Wagnew Ayalneh	0044, 0143, 0144
Wainwright R P	0577
Walker T S	0712, 0746
Wamicha W N	0231
Wapakala W W	0395
Waring S A	0411
Webb A A	0526, 0606, 0614, 0613
Weber H W	0394
Webster J L	0470
Wehrmann J	0459
Weise S F	0129
White L P	0616
Whiteman A J	0275
Willcocks T J	0025, 0617, 0618, 0619, 0620, 0621, 0622, 0623, 0624, 0625, 0626, 0666
Wild A	0349
Wilding L P	0003, 0276, 0396, 0397
Willey R W	0721, 0755
Williams M A J	0145
Wilson M J	0221
Wolde-Ab Wolde-Mariam	0737
Wood R A	0685
Workeneh Negatu	0729, 0748
Worral G A	0222
Yadav R C	0653
Yerima B P K	0130, 0396, 0397
Yost R S	0268
Young A	0734
Yousif H Y	0444
Youssef I	0223
Yule D F	0332, 0342, 0559
Zborishuk N G	0322

Appendix - Joint vertisol project

Ginchi Watershed

Resource Management for Improving and Sustaining Crop and Livestock

Production on Highland Vertisols in Ethiopia

Collaborators

- Alemaya University of Agriculture (AUA)
- Institute of Agricultural Research (JAR)
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Livestock Center for Africa (ILCA)
- Ministry of Agriculture (MOA)
- Ministry of Natural Resources Development and Environmental Protection (MNRDEP)

Funding: Governments of the Netherlands and Ethiopia





ISBN 92-9053-290-4

Printed at ILCA, Addis Ababa, Ethiopia
