

## ANNEX-4: LIST OF PUBLICATIONS

### TSBF Institute - Africa

#### *Refereed journal articles*

- Amede, T. and Schubert, S. 2003. Mechanisms of drought resistance in grain legumes: I. Osmotic adjustment. *SINET: Journal of Science* 26 (1): 37-46.
- Amede, T. and Schubert, S. 2003. Mechanisms of drought resistance in grain legumes. II. Stomatal closure and root growth. *SINET: Journal of Science* 26 (2): 137-144.
- Amede, T., Stroud, A. and Aune, J. 2004. Advancing human nutrition without degrading land resources through modelling cropping systems in the Ethiopian Highlands. *Food and Nutrition Bulletin*, Boston. In Press (December, 2004).
- Bado B.V., Bationo, A., Cescas, M.P., Sawadogo, A. and Thio, B. 2004. Nitrogen contributions of cowpea and groundnut to soil nitrogen, N fertiliser recovery and nematode infections in legume-sorghum rotations in the Guinean zone of West Africa. *Nutrient Cycling in Agroecosystems* (in review).
- Carter, S.E., Ramisch, J.J., Crowley, E.L. and Mulogoli, C. 2005. Contemporary patterns of land use and land use change in contrasting areas of western Kenya. *Land Use Policy* (In revision)
- Chipfupa, U., Murwira, H.K. and Mano, R. 2004. Potential economic implications of using decision support tools for soil fertility management by farmers in Mangwende communal areas, Zimbabwe. Submitted to *Southern Africa journal of Extension*.
- Delve, R.J. and Jama, B. *Mucuna pruriens* and *Canavalia ensiformis* legume cover crops: Sole crop productivity, nutrient balance, farmer evaluation and management implications. (Submitted to *African Crop Science Journal*).
- Diles, J., Vanlauwe, B., Van der Meersch, M.K., Sanginga, N. and Merckx, R. 2004. Long-term soil organic carbon dynamics in a subhumid tropical climate: <sup>13</sup>C data and modeling with RothC. *Soil Biology and Biochemistry*, In Press.
- Esilaba, A.O., Byalebeka, J.B., Delve, R.J., Okalebo, J.R., Ssenyange, D., Mbalule, M. and Ssali, H. 2005. On-farm testing of integrated nutrient management strategies in Eastern Uganda. *Agricultural Systems* (In press).
- Esilaba, A.O., Nyende, P., Nalukenge, G., Byalebeka, J., Delve, R.J. and Ssali, H. Resource flows and nutrient balances in smallholder farming systems in Mayuge District, Eastern Uganda. (Submitted to *Agroecosystems and Environment*).
- Fatondji, D., Martius, C., Vlek, P.L.G., Biielders, C.L., Bationo, A. and Gerard, B. 2004. Millet yield and water use as affected by amendment type in a traditional land rehabilitation technique – Zai. *Nutrient Cycling in Agroecosystems* (in review).
- Giller, K. *et al.* Soil Biodiversity in Rapidly Changing Tropical Landscapes: Scaling down and scaling up. *Journal of Tropical Microbiology*, Volume. 3 Number 1, October 2004 (Special issue on Belowground Biodiversity in Kenya) (in press).
- Jefwa, J. M., Mwangi L. M., Odee, D. and Mugambi G. Preliminary studies on mycorrhizal symbiosis in plant conservation, forestry and farming systems in Kenya. *Journal of Tropical Microbiology*, Volume. 3 Number 1, October 2004 (Special issue on Belowground Biodiversity in Kenya) (in press).
- Kahindi, J.H.P., Karanja, N.K., Odee D. and Mwaura F. B. The Diversity of Biological Nitrogen Fixing Systems in Kenya. *Journal of Tropical Microbiology*, Volume. 3 Number 1, October 2004 (Special issue on Belowground Biodiversity in Kenya) (in press).
- Kelemu, S., Mahuku, G., Fregene, M., Pachico, D., Johnson, N., Calvert, L., Rao, I., Buruchara, R., Amede, T., Kimani, P., Kirkby, R., Kaaria, S. and Ampofo, K. 2003. Harmonizing the agricultural biotechnology debate for the benefit of African farmers. *African Journal Biotechnology* Vol 2 (11): 394-416. Special Anniversary Review.

- Kimenju, J.W., Muiru, D.M., Karanja N.K., Nyongesa W.M., Miano, D. W. and Mutua, G. K. Assessing the role of organic soil amendments in management of root-knot nematodes on common bean, *Phaseolus vulgaris* L. Journal of Tropical Microbiology, Volume. 3 Number 1, October 2004 (Special issue on Belowground Biodiversity in Kenya) (in press).
- Kimenju, J.W., Karanja, N.K. and Nyongesa, M.W. Diversity and abundance of nematodes in groecosystems of Kenya. Journal of Tropical Microbiology, Volume. 3 Number 1, October 2004 (Special issue on Belowground Biodiversity in Kenya) (in press).
- Kimetu, J.M., Mugendi, D.N., Palm, C.A., Mutuo, P.K., Gachengo, C.N., Bationo, A., Nandwa, S. and Kungu, J.B. 2004. Nitrogen fertilizer equivalencies of organics of differing quality and optimum combination with inorganic nitrogen source in Central Kenya. Nutrient Cycling in Agroecosystems 68: 127–135.
- Mairura, F.S., Mugendi, D.M., Mwanje, J.I., Ramisch, J.J. and Mbugua P.M. 2005 The role of indigenous knowledge in management of soil quality among smallholder farmers in Chuka and Gachoka divisions, Kenya. Agroforestry Systems (In preparation)
- Maithya, J., Kimenye, L.N., Mugivane, F. and Ramisch, J.J. 2005. Competitiveness of agro-forestry based soil fertility management technologies for food production: The case of small holder food production in western Kenya. African Journal of Crop Science (In review)
- Mando, A., Bonzi, M., Wopereis, M.C.S., Lompo, F., Fofana, B., Vanlauwe, B., Stroosnijder, L. and Breman, H. 2004. Long-term effects of mineral and organic fertilization on soil organic matter fractions, sorghum yield and fertilizer-N recovery under sudano-Sahelian conditions. Soil Use & Management. In Press.
- Mando, A., Ouattara, B., Sédogo, M., Stroosnijder, L., Ouattara, K., Brussaard, L. and Vanlauwe, B. 2004. Long-term effect of tillage and manure application on soil organic C, particulate organic matter and crop performance under Sudano-Sahelian conditions. Soil & Tillage Research. In Press.
- Murwira, H.K., Chikowo, R., Chivenge, P., Mwale, M. and Sakala, W. 2004. Performance of green manures and grain legumes and their residual effects on maize under different edaphic conditions in Malawi, Zambia and Zimbabwe. Submitted to Agriculture, Ecosystems and Environment.
- Nehmachena, C., Murwira, H.K. and Mano, R. 2004. Econometric analysis of factors affecting intensification of legume production in the smallholder-farming sector of Zimbabwe. Submitted to Journal of Sustainable Agriculture.
- Nwoke, O.C., Vanlauwe, B., Diels, J., Sanginga, N. and Osonubi, O. 2004. Impact of residue characteristics on phosphorus availability in West African moist savanna soils. Biology and Fertility of Soils 39: 422-428.
- Nwoke, O.C., Vanlauwe, B., Diels, J., Sanginga, N. and Osonubi, O. 2004. The distribution of phosphorus fractions and desorption characteristics of some soils in the moist savanna zone of West Africa. Nutrient Cycling in Agroecosystems. In Press.
- Nwoke, O.C., Vanlauwe, B., Diels, J., Sanginga, N., Osonubi, O. and Merckx, R. 2004. Assessment of labile phosphorus fractions and adsorption characteristics in relation to soil properties of West African savanna soils. Agriculture, Ecosystems and Environment 100: In Press.
- Okoth S.A. An overview of the diversity of microorganisms involved in decomposition in soils. Journal of Tropical Microbiology, Volume. 3 Number 1, October 2004 (Special issue on Belowground Biodiversity in Kenya) (in press).
- Oorts K., Vanlauwe, B., Merckx, R. 2004. Cation exchange capacities of soil organic matter fractions in a Ferric Lixisol with different organic matter inputs. Agriculture, Ecosystems and Environment 100. In Press.
- Oorts, K., Vanlauwe, B., Pleysier, J. and Merckx, R. 2004. A new method for the simultaneous measurement of pH-dependent cation exchange capacity and pH buffering capacity. Soil Science Society of America Journal. In Press.

- Oorts, K., Vanlauwe, B., Recous, S. and Merckx, R. 2004. Evaluation of ultrasonic dispersion for the isolation of soil organic matter fractions in highly weathered soils. *European Journal of Soil Science*, *In Press*.
- Oorts, K., Vanlauwe, B., Recous, S. and Merckx, R. 2004. Redistribution of particulate organic matter in different states of decomposition during ultrasonic dispersion, *European Journal of Soil Science*. In Press.
- Otwoma, T., Misiko, M.T. and Ramisch, J.J. 2005. Understanding local knowledge of soil quality indicators in Vihiga District, Western Kenya. *Agroforestry Systems* (In review).
- Pali, P.N., Bashaasha, B., Delve, R.J, Miiro, R.. Profitability analysis and linear programming to optimize the use of biomass transfer and improved fallow species for soil fertility improvement. (Submitted to *African Crop Science Journal*).
- Pali, P.N., Miiro, R., Delve, R.J., Bashaasha, B. and Bulega, E. Determinants of the adoption potential of selected green manure and legume species in eastern Uganda. (Submitted to *African Crop Science Journal*).
- Place, F., Barrett, C.B., Freeman, H.A., Ramisch, J.J. and Vanlauwe, B. 2003. Integrated soil fertility management: evidence on adoption and impact in African smallholder agriculture. *Food Policy* 28, 365–378.
- Probert, M.E., Delve, R.J., Kimani, S.K. and Dimes, J.P. 2005 Modeling nitrogen mineralization from organic sources: representing quality aspects by varying C:N ratios of sub-pools. *Soil Biology and Biochemistry* (In press).
- Ramisch, J.J. 2004. Inequality, agro-pastoral exchanges, and soil fertility gradients in Southern Mali. *Agriculture, Ecosystems, and Environment* (In press).
- Rufino, M.C., Rowe, E.C., Delve, R.J. and Giller, K.E. Nitrogen cycling efficiencies through livestock in African resource-poor mixed farming systems: A review (Submitted to *Agroecosystems and Environment*).
- Sanginga, P.C., Best, R., Chitsike, C., Delve, R.J., Kaaria, S. and Kirkby, R. 2004. Linking Smallholder Farmers to Markets in East Africa: Empowering Mountain Communities to Identify Market Opportunities and Develop Rural Agroenterprises. *Mountain Research and Development* 2004 24 (4) 288–291.
- Sanginga, P.C., Kaaria, S., Muzira, R., Delve, R.J., Kankwatsa, P., Kaganzi, E., Sangole, N. and Pali, P. Adding Value to Soil Fertility Research with Participatory Market Opportunities Identification: A Framework for Mainstreaming Market-led ISFM Research for Development. (Submitted to *Nutrient Cycling in Agroecosystems*).
- Shepherd, K.D., Vanlauwe, B., Gachengo, C.N., Barrios, E., Cadisch, G. and Palm, C.A. 2005. Decomposition and Mineralization Rates of Organic Residues Predicted Using Near Infrared Spectroscopy. *Soil Biology and Biochemistry* (in review).
- Tittonell, P., Vanlauwe, B., Leffelaar, P.A. and Giller, K.E. 2004. Estimating yields of tropical maize genotypes from non-destructive, on-far, plant morphological measurements. *Agriculture, Ecosystems and Environments*. In Press.
- Tittonell, P., Vanlauwe, B., Leffelaar, P.A., Rowe, E. and Giller, K.E. 2005. Exploring diversity in soil fertility management of smallholder farms in western Kenya. I. Heterogeneity at region and farm scale. *Agriculture, Ecosystems and Environment* (in review).
- Tittonell, P., Vanlauwe, B., Leffelaar, P.A., Shepherd, K.D. and Giller, K.E. 2005. Exploring diversity in soil fertility management of smallholder farms in western Kenya. II. Within farm variability in resource allocation, nutrient flows and soil fertility status. *Agriculture, Ecosystems and Environment* (in review).
- Tumuhairwe, J.B., Jama, B. Delve, R.J. and Rwakaikara-Silver, M.C. 2005. Mineral nitrogen contribution of *Crotalaria grahamiana* and *Mucuna pruriens* short-fallow in eastern Uganda. *African Crop Science Journal* (In press).

- Tumuhairwe, J.B., Jama, B., Delve, R.J. and Rwakaikara-Silver, M.C. 2005. Financial benefits of *Crotalaria grahamiana* and *Mucuna pruriens* short-duration fallow in eastern Uganda. *African Crop Science Journal* (In press).
- Vanlauwe, B. and Giller, K.E. 2005. Popular myths around soil fertility management in sub-Saharan Africa 2005 Nutrient Cycling in Agroecosystems (in review).
- Vanlauwe, B., Aihou, K., Tossah, B.K., Diels, J., Sanginga, N. and Merckx, R. 2004. *Senna siamea* trees recycle Ca from a Ca-rich subsoil and increase the topsoil pH in agroforestry systems in the West African derived savanna zone. *Plant and Soil*, *In Press*.
- Vanlauwe, B., Diels, J., Sanginga, N. and Merckx, R. 2005. Long-term integrated soil fertility management in South-western Nigeria: crop performance and impact on the soil fertility status. *Plant and Soil*, *Submitted*.
- Vanlauwe, B., Gachengo, C., Shepherd, K., Barrios, E., Cadisch and G., Palm, C.A. 2005. Laboratory validation of a resource quality-based conceptual framework for organic matter management. *Soil Science Society of America Journal*, *In Press*.

### **Refereed book chapters**

- Akinnifesi, F.K., Rowe, E.C., Livesley, S.J., Kwesiga, F.R., Vanlauwe, B. and Alegre, J.C. 2003. Tree root architecture. *In: Belowground Interactions in Tropical Agroecosystems* (Eds: M van Noordwijk, CK Ong, G Cadisch). CABI, Wallingford, UK, pp. 61-81.
- Albrecht, A., Cadisch, G., Blanchart, E., Sitompul, S.M. and Vanlauwe, B. 2003. Belowground inputs: relationships with soil quality, soil C storage and soil structure. *In: Belowground Interactions in Tropical Agroecosystems* (Eds: M van Noordwijk, CK Ong, G Cadisch). CABI, Wallingford, UK, pp.193-207.
- Amede, T. 2004. Pathways for fitting legumes into East African Highland Farming Systems: A dual approach. pp.21-29. Key Note paper. In: S. Waddington (ed). Grain legumes and green manures for soil fertility in Southern Africa: Taking Stocks of Progress. Soil Fert Net and CIMMYT – Zimbabwe. Harare, Zimbabwe. 266 p.
- Amede, T. and Kirkby, R. 2004. Guidelines for Integration of Legume Cover Crops into the Farming Systems of East African Highlands. pp.43-64. In: Bationo, A. 2004. Managing nutrient cycles to sustain soil fertility in Sub-Saharan Africa. Academic Science Publishers. 608 p.
- Amede, T., Amézquita, E., Ashby, J., Ayarza, M., Barrios, E., Bationo, A., Beebe, S., Bellotti, A., Blair, M., Delve, R., Fujisaka, S., Howeler, R., Johnson, N., Kaaria, S., Kelemu, S., Kerridge, P., Kirkby, R., Lascano, C., Lefroy, R., Mahuku, G., Murwira, H., Obertur, T., Pachico, D., Peters, M., Ramisch, J., Rao, I., Rondon, M., Sanginga, P., Swift, M. and Vanlauwe, B. 2004. Biological nitrogen fixation: A key input to integrated soil fertility management in the tropics. In: R. Serraj (ed) *Symbiotic nitrogen fixation: Prospects for enhanced application in tropical agriculture*. Raju Pramlani for Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, India, pp.113-143.
- Bationo, A., Kihara, J., Vanlauwe, B., Kimetu, J. and Sahrawat, K.L. 2004. Integrated Nutrient Management – Concepts and Experience from Sub-Saharan Africa. Book chapter.
- Carsky, R.J., Sanginga, N., Schulz, S., Douthwaite, B., Manyong, V.M., Diels, J., Vanlauwe, B. and Keatinge, J.D.H. 2004. The ability to fix N is not the only key to delivery of benefits of BNF to farmers: Experience of IITA in the savannas of Africa. In: R Serraj (Ed.) *Symbiotic Nitrogen Fixation: Prospects for Enhanced Application in Tropical Agriculture*. Oxford and IBH Publishing, New Delhi, India, pp.145-161.
- Delve, R.J., Probert, M.E. and Dimes, J.P. 2004. Improved Capabilities in Modeling and Recommendations. In: Delve, R.J. and Probert, M.E., ed., 2004. Modeling nutrient management in tropical cropping systems. *ACIAR Proceedings No. 114*, 136p.
- Kinyangi, J., Delve, R.J. and Probert, M.E. 2004. Testing the APSIM Model with Data from a Phosphorus and Nitrogen Replenishment Experiment on an Oxisol in Western Kenya. In: Delve,

- R.J. and Probert, M.E., ed., 2004. Modeling nutrient management in tropical cropping systems. ACIAR Proceedings No. 114, 136p.
- Murwira, H.K. and Chikowo, R. 2004. A synthesis of integrated soil fertility management (process and adaptive) research in southern Africa. Soil Fertility Consortium for Southern Africa.
- Probert, M.E., Delve, R.J., Kimani, S.K. and Dimes, J.P. 2004. The APSIM Manure Module: Improvements in Predictability and Application to Laboratory Studies. In: Delve, R.J. and Probert, M.E., ed. 2004. Modeling nutrient management in tropical cropping systems. ACIAR Proceedings No. 114, 136p.
- Ramisch, J.J. 2004. "Four obstacles to taking integrated soil fertility management (ISFM) research to higher scales" in, Pachico, D., Ashby, J. (eds.) Scaling up and scaling out: A review (In press).
- Ramisch, J.J. 2004. "Understanding soil in its social context: Integrating social and natural science research within AFNET", in Bationo, A. (ed.) Managing Nutrient Cycles to Sustain Soil Fertility in Sub-Saharan Africa, p.p. 501-522.
- Ramisch, J.J., Misiko, M.T., Mairura, F.S. and Otwoma, N.T., 2004. Whose land degradation counts? Contentious understandings of soil fertility management in Western Kenya, invited Chapter in Indigenous knowledge: Contentions and Transformations, G. Dei and N.N. Wane (eds.), University of Toronto Press. (In press)
- Vanlauwe, B. 2004. Integrated soil fertility management research at TSBF: the framework, the principles, and their application. In: Managing Nutrient Cycles to Sustain Soil Fertility in Sub-Saharan Africa, Ed. A Bationo. Academy Science Publishers, Nairobi, pp.25-42.

#### ***Books edited***

- Amede, T. (ed). 2003. Natural Resource degradation and environmental Concerns in the Amhara Regional State, Ethiopia: Impact on Food Security, March 2003, Bahir Dar, Ethiopia. 278 p.
- Amede, T. and Zewdie, E. (eds). 2003. Challenges of land degradation to agriculture in Ethiopia. Proceedings of the Ethiopian Society of Soil Sciences, Feb 28-Mar 1, 2002, Addis Ababa, Ethiopia. 181 p.
- Amede, T., Assefa, H. and Stroud, A. (eds). 2004. Participatory research in action: Ethiopian Experiences. Ethiopian Agricultural Research Organization and African Highlands Initiative. 144 p.
- Amede, T., Kimani, P., Ronno, W., Lunze, L. and Mbikay, N. 2004. Coping with Drought: Strategies to improve genetic adaptation of common bean to drought prone regions of Africa. CIAT Occasional Publication Series, No. 38. 2004.
- Bationo, A. (ed). 2004. Managing Nutrient Cycles to Sustain Soil Fertility in Sub-Saharan Africa. (A book edited by Andre Bationo).
- Bationo, A., Kimetu, J. and Kihara, J. (eds). 2004. Improving human welfare and environmental conservation by empowering farmers to combat soil fertility degradation: Abstracts of the International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT (Booklet).
- Delve, R.J. and Probert, M.E., ed. 2004. Modeling nutrient management in tropical cropping systems. ACIAR Proceedings No. 114, 136p.
- Fragoso, C. and Reyes-Castillo, P. (eds.) 2001. Diversidad ,function y manejo de la biota edafica en México. Acta Zoologica, nueva serie número especial 1, Instituto de Ecología A.C., Xalapa, Mexico.
- Ramakrishnan, P.S., Saxena, K.G., Rao, K.S. and Maikhuri, R.K. (eds), (in press). Soil Biodiversity, Ecological Processes and Landscape Management. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, India.

#### ***Conference proceedings***

- Adamou, A., Bationo A. Tabo R. and Koala, S. 2004. Improving soil fertility through the use of organic and inorganic plant nutrient and crop rotation in Niger. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of

- TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Agwaru, G., Matsiko, F. and Delve, R.J. Assessing Approaches for Dissemination of Research-based Information to Farmers within their Livelihood Situations in Tororo District, Uganda. Paper presented at the National Agriculture Research Organization (NARO) Conference on Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice held on September 1-4, 2004, in Entebbe, Uganda. Published in the Uganda Journal of Agriculture
- Amede, T. 2003. Opportunities and Challenges in Reversing Land Degradation. The Regional experience. In: T. Amede (ed.) 2003. Natural Resource degradation and Environmental Concerns in the Amhara Regional State, Ethiopia: Impact on Food Security, March 2003, Bahir Dar, Ethiopia. pp.173-183.
- Amede, T. and Endale T. 2004. Enhancing farmer innovation through manipulation of soil fertility gradients in Enset systems. African Soils Network (AFNet) Conference. Yaounde, Cameroon, May 17-21, 2004.
- Babana A.H. and Antoun, H. 2004. Biological system for improving the availability of Tilemsi phosphate rock for wheat (*Triticum aestivum* L) cultivated in Mali. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Badiori, O., Ouattara, K., Serpantié, G., Abdoulaye, M., Sédogo, M.P. and Bationo, A. 2004. Intensity cultivation induced-effects on Soil Organic Carbon Dynamic in the western cotton area of Burkina Faso. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Bado, B.V., Bationo, A., Lompo, F., Cescas, F.M.P., Sedoso, M.P. 2004. Long-term effects of crop rotations with groundnut and fallow on soil mineral N, nitrogen recovery, soil properties and crop yields in the Guinean zone of West Africa. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Bagayoko, M., N'Diaye, M.K., Dicko, M. and Tangara, B. 2004. Characterization of soil degradation under intensive rice production in Office du Niger zone of Mali. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Bationo, A., Kimetu, J., Kihara J. and Sanginga, N. 2004. The African Network for Soil Biology and Fertility (AfNet). In: Bationo, A., Kimetu, J. and Kihara, J. (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Bationo, A., Ramisch J., Bado B., Kihara J., Adamou A., Kimetu J., Tabo R., Lompo F., Ouattara B. and Koala S. 2004. Research highlights on integrated soil fertility management in the Sahel. Paper presented in Niger, McNight conference in January 2004.
- Bationo, A., Tabo, R., Kihara J., Kimetu J., Adamou, A. and Koala, S. 2003. Farming in the drylands of West Africa: Promising soil fertility restoration technologies. Paper presented in Niamey Niger, Drylands meeting.
- Bationo, A., Vanlauwe, B., Kihara, J., Kimetu, J. and Nandwa, S. 2004. Use of mineral and organic fertilizers to increase land sustainability and productivity in Sub-Sahara Africa.
- Byalebeka, J., Kaizzi, C.K., Ssali, H., Mubiru, D.N., Semalulu, O., Isabirye, M., Kabuye, F., Delve, R.J. and Esilaba, A. 2004. Soil and Water Management Options for Enhancing Agricultural Production

- and Increasing Value and the Competitiveness of Agricultural Products. Paper presented at the National Agriculture Research Organization (NARO) Conference on Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice held on September 1-4, 2004, in Entebbe, Uganda. Published in the Uganda Journal of Agriculture.
- Delve, R.J. 2004. Legume management: From process to market-led research. A paper presented at the Rockefeller Soils Grantees Workshop on 20<sup>th</sup> to 24<sup>th</sup> September 2004, Nairobi, Kenya
- Delve, R.J. and Roothaert, R.L. 2004. How can smallholder farmer-market linkages enhance improved technology options and natural resource? Paper presented at the National Agriculture Research Organization (NARO) Conference on Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice held on September 1-4, 2004, in Entebbe, Uganda. Published in the Uganda Journal of Agriculture.
- Delve, R.J. and Roothaert, R.L. 2004. Linking farmers to markets, one approach for increasing investment in natural resource management. In: German, L. and Stroud, A., (ed.). Integrated Natural Resource Management in Practice: Enabling Communities to Improve Mountain Landscapes and Livelihoods. AHI Conference, 12-15 October, 2004. Nairobi, Kenya.
- Delve, R.J., Gonzalez-Estrada, E., Dimes, J., Amede, T., Wickama, J. and Herrero, M. 2004. Evaluation of a farm-level decision support tool for trade-off and scenario analysis for addressing food security, income generation and natural resource management. In: German, L. and Stroud, A., (ed.). Integrated Natural Resource Management in Practice: Enabling Communities to Improve Mountain Landscapes and Livelihoods. AHI Conference, 12-15 October, 2004. Nairobi, Kenya.
- Drake, N., Mubiru, Ssali, H., Byalebeka, J., Semalulu, O., Kaizzi, C.K., Tushemereirwe, W., Nyende, P., Kabuye, F., Delve, R.J. and Esilaba, A. 2004. Participatory Research Approaches for Enhancing Innovations and Partnerships in Soil Productivity Improvement. Paper presented at the National Agriculture Research Organization (NARO) Conference on Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice held on September 1-4, 2004, in Entebbe, Uganda. Published in the Uganda Journal of Agriculture
- Hauser, M., Delve, R.J., Walaga, C., Gotschi, E., Tenywa, M.A. and Taylor, A. 2004. Linking farmers to markets: Developing strategies to improve the competitiveness of organic agriculture in Eastern and Southern Africa. Prague, September 2004.
- Kaaria, S., Kirkby, R., Delve, R.J., Njuki, J., Twinamasiko, E. and Sanginga, P. 2004. Enhancing innovation processes and partnerships. Invited paper presented at the National Agriculture Research Organization (NARO) Conference on Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice held on September 1-4, 2004, in Entebbe, Uganda. Published in the Uganda Journal of Agriculture
- Kaya, B., Niang, A., Tabo, R. and Bationo, A. 2004. Performance evaluation of various agroforestry species as short duration improved fallows for enhancement of soil fertility and sorghum crop yields in Mali. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Mairura, F.S, Mugendi, D.N., Mwanje, J.I., Ramisch, J.J. and Mbugua, P.K. 2004. Scientific assessment of farmers' perceptions of soil quality indicators within smallholder farms in the central highlands of Kenya. AFNET Symposium, Yaoundé, Cameroon, 17-21 May, 2004.
- Misiko, M.T. and Ramisch, J.J. 2004. Challenges to successfully scaling up knowledge-intensive ISFM regimes. AFNET Symposium, Yaoundé, Cameroon, 17-21 May, 2004.
- Murwira, H.K. 2004. Soil fertility and nutrient management in conservation agriculture. Paper presented at the Conservation agriculture training workshop for middle level managers in development institutions, FAO workshop, Harare, 25-29 October 2004.
- Murwira, H.K. and Waddington, S. 2004. Integrated soil fertility management research in southern Africa: Approaches and Challenges. Paper presented at the Rockefeller soils meeting in Nairobi, Kenya, 18-23 Sept, 2004.

- Ndjeunga, J. and Bationo, A. 2004. Stochastic dominance analysis of soil fertility restoration options on sandy Sahelian soils in southwest Níger. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Pali, P.N., Delve, R.J. and Nkonya, E. 2004. Using linear programming to optimize the use of biomass transfer and improved fallow species in eastern Uganda. Accepted for publication in edited conference proceedings of the 6th African Crop Science Conference, October 2003, Nairobi, Kenya
- Pali, P.N., Delve, R.J. and White, D. 2004. The Adoption Potential of Biomass Transfer and Improved Fallow Practices in Eastern Uganda: Determining Profitable and Feasible Options from a Farmers Perspective. Paper presented at the National Agriculture Research Organization (NARO) Conference on Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice held on September 1-4, 2004, in Entebbe, Uganda. Published in the Uganda Journal of Agriculture
- Ramisch, J.J., Turner, M. and Goldman, M. 2004. Whose land degradation counts? Understanding soil fertility management in Western Kenya. Invited panel presentation, African Studies Association Conference XLVII, New Orleans, 10-15 November, 2004.
- Samba, T., Coulibaly, B.S., Koné, A., Bagayoko, M. and Kouyaté, Z. 2004. Improving Soil Fertility and Crop Management in the Sahelian Zones of West Africa: A Key Solution for Increasing the Productivity and Sustainability of Millet Based Cropping Systems. In: A. Bationo, J. Kimetu and J. Kihara (eds). International Symposium of the African Network for Soil Biology and Fertility (AfNet) of TSBF Institute of CIAT. Improving Human Welfare and Environmental Conservation by Empowering Farmers to Combat Soil Fertility Degradation. Yaoundé, Cameroon, May 17-21, 2004.
- Sanginga, P.C., Best, R., Chitsike, C. Delve, R.J., Kaaria, S., and Kirkby, R. Enabling rural innovation in Africa: An approach for integrating farmer participatory research and market orientation for building the assets of rural poor. Paper presented at the National Agriculture Research Organization (NARO) Conference on Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice held on September 1-4, 2004, in Entebbe, Uganda. Published in the Uganda Journal of Agriculture
- Swift, M.J., Albrecht, A., Bationo, A., Place, F. Shepherd, K., Stroud, A., Tomich, T., Vanlauwe, B., Verchot, L. and Walsh, M. 2005. Confronting land degradation in Africa: Challenges for the next decade. ICRAF 25<sup>th</sup> Anniversary proceedings, Nairobi, Kenya, *In Press*.
- Tabo, R., Bationo, A., Gerard, B., Ndjeunga, J., Amadou, M.B., Annou, M.G., Sogodogo, D., Sibiry Taonda, J-B., Hassane, O., Diallo, M.K. and Koala, S. 2004. Improving the productivity of sorghum and millet and farmers income using a strategic application of fertilizers in West Africa McNight Workshop, Niamey, Niger
- Vanlauwe, B. and Sanginga, N. 2004. The multiple roles of organic resources in implementing integrated soil fertility management strategies. ACIAR, Australia, pp
- Vanlauwe, B., Bationo, A., Carsky, R.J., Diels, J., Sanginga, N. and Schulz, S. 2004. Enhancing the contribution of legumes and biological nitrogen fixation in cropping systems: experiences from West Africa. Grain legumes and green manures of soil fertility in Southern Africa: taking stock of progress. Proceedings of a SoilFertNet meeting, 8-11 October 2002, Vumba, Zimbabwe, pp.3-13.

#### ***Non-refereed conference presentations***

- Griffith, A., Ramisch, J.J. and Misiko, M.T. 2004. "Cultivating complexity: Local soil ecological knowledge and the management of home gardens in Western Kenya. Poster presented at World Agroforestry Congress, Orlando, Florida, 28-30 June, 2004.
- Macharia, J.M., Kimani, S.K., Kimenye, L.N., Nyikal, R.A., Ramisch, J.J. and Esilaba, A.O. 2004. Characterization of smallholder farm typologies in maize-based cropping systems of central Kenya: use of local and technical soil quality indicators. Soil Science Society of East Africa (SSSEA) conference, Arusha, Tanzania, 29 Nov – 3 Dec, 2004.



Misiko; M.T. and Ramisch, J.J. 2004. Generating “dynamic expertise”: Strengthening “Folk Ecology” and Integrated Soil Fertility Management. Poster presented at the 1<sup>st</sup> Eco-agriculture Conference, Nairobi, Kenya, 27 Sept – 1 Oct, 2004.

### **Workshop presentations**

- Amede, T. 2003. Strategies for sustainable seed production and dissemination: options and tools. FAO seed emergency workshop. Oct 28-29, 2003. Addis Ababa, Ethiopia.
- Amede, T. 2004. Improving Drought Resistance of Grain legumes in Ethiopia: The physiological approach. Invited paper presented at the “Second National Workshop on Food and Forage Legumes”. Addis Ababa, Ethiopia. 22-27 September, 2003 (in press).
- Amede, T. 2004. Possible roles of biotechnology in developing stress resistant food crops in Ethiopia. Ministry of Agriculture and Rural Development and ILRI workshop. International Livestock Research Institute (ILRI), July 5-8, 2004, Addis Ababa, Ethiopia.
- Amede, T., Assefa, H., Dibabe, A., Keneni, G., Mekonnen, K., Tesfaye, A. and Jebessa, S. 2004. Evaluation of participatory approaches for responsive research and development in Ethiopia: Success factors. P. 26-26-40. In: Ann Waters-Bayer et al. Promotion of farmer innovations and experimentations in Ethiopia (PROFIEET). National Workshop Proceedings. August 25-27, 2003. Debrezeit, Ethiopia. 172 p.
- Bationo, A., Traore, Z., Kimetu, J., Bagayoko, M., Kihara, J., Bado, V., Lompo, M., Tabo, R. and Koala, S. 2003. Cropping systems in the Sudano-sahelian zone: Implications on soil fertility management. Paper presented in Syngenta workshop, Bamako, Mali.
- Bationo, A., Vanlauwe, B., Kihara, J. and Kimetu, J. 2004. Carbon sequestration and land productivity in West African agroecosystems. NASA workshop, Bamako, Mali.
- Bationo, A., Vanlauwe, B., Abdoulaye, M.S, Adamou, A., Kimetu, J., Kihara, J., Tabo, R. and Koala, S. 2004. Increasing land sustainability and productivity through soil fertility management in the West African Sudano-Sahelian zone. Syngenta Workshop, Bamako, Mali.
- Bationo, A., Vanlauwe, B., Kihara, J., Kimetu, J., Tabo, R., Koala, S. and Adamou, A. 2003. Use of mineral and organic inputs to increase land productivity and sustainability with special reference to the drylands of West Africa. Paper presented at CTA Wageningen.
- Bationo, A., Traore, Z., Kimetu, J., Bagayoko, M., Kihara, J., Bado, V., Lompo, M., Tabo, R. and Koala S. 2004. Crop productivity as affected by cropping systems and soil fertility management in the Sudano-Sahelian zone. CTA workshop Wageningen, the Netherlands.

### **Extension Bulletins**

Misiko, M.T., Ramisch, J.J. and Mukalama, J. 2004. Interactive Techniques Manual: Tools, methods and lessons for Integrated Soil Fertility Management research and dialogue applied and adapted under the ‘Folk Ecology’ Project.

### **Research Briefs**

- Amede, T. 2003. Restoring Soil Fertility in the Highlands of East Africa through Participatory Research. *AHI Brief* No A1.
- Amede, T. 2003. Differential Entry Points to Address Complex Natural Resource Constraints in the Highlands of Eastern Africa. *AHI Brief* No C1

### **Other publications**

Other forms of intellectual property: (*contribution to the development of databases, patents, copyright material, plant variety rights etc.*)

1. Soil fertility gradient database (Vanlauwe B.)

*Refereed journal articles*

- Amézquita, E., Thomas, R.J., Rao, I.M., Molina, D.L. and Hoyos, P. 2004. Use of deep-rooted tropical pastures to build-up an arable layer through improved soil properties of an Oxisol in the Eastern Plains (Llanos Orientales) of Colombia. *Agriculture, Ecosystems and Environment* 103: 269-277.
- Amézquita, M.C., Ibrahim, M., Llanderal, T., Buurman, P. and Amézquita, E. 2004. Carbon sequestration in pasture and silvo-pastoral systems in sub-ecosystems of the American Tropics. *Journal of Sustainable Forestry* (in review).
- Barrios, E. and Cobo, J.G. 2004 Plant growth, biomass production and nutrient accumulation by slash/mulch agroforestry systems in tropical hillsides of Colombia. *Agroforestry Systems*. 60: 255-265.
- Barrios, E., Cobo, J. G., Rao, I. M., Thomas, R. J., Amézquita, E. and Jiménez, J.J. 2004. Fallow management for soil fertility recovery in tropical Andean agroecosystems in Colombia. *Agriculture, Ecosystems and Environment* (In press).
- Begum, H. H., Osaki, M., Nanamori, M., Watanabe, T., Shinano, T., and Rao, I. M. 2004. Role of phosphoenolpyruvate carboxylase in the adaptation of a tropical forage grass, *Brachiaria* hybrid, to low phosphorus acid soils. *Journal of Plant Nutrition* (in press).
- Feldpausch, T.R., Rondon, M.A., Fernández, E.C.M., Riha, S.J., Wandelli, E. 2004. Carbon and nutrient accumulation in secondary forests regenerating on pastures in Central Amazonia. *Ecological Applications*. 14(4): Supplement. Pp. S164-S176.
- Gómez-Carabalí, A., Rao, I.M., Beck, R.F. and Ortiz, M. 2004. Rooting ability and nutrient uptake by tropical forage species that are adapted to degraded andisols of hillsides agroecosystem. *Acta Facultatis Ecologie* Vol. 12 (in press).
- Ishitani, M., Rao, M., Wenzl, P., Beebe, S. and Tohme, J. 2004. Integration of genomics approach with traditional breeding towards improving abiotic stress adaptation: drought and aluminum toxicity as case studies. *Field Crops Res.* 90: (in press).
- Kelemu, S., Mahuku, G., Fregene, M., Pachico, D., Johnson, N., Calvert, L., Rao, I., Buruchara, R., Amede, T., Kimani, P., Kirkby, R., Kaaria, S. and Ampofo, K. 2003. Harmonizing the agricultural biotechnology debate for the benefit of African farmers. *African Journal Biotechnology* Vol 2 (11): 394-416. Special Anniversary Review.
- Nanamori, M., Shinano, T. Yamamura, T., Rao, I. M. and Osaki, M. 2003. Low phosphorus tolerance mechanisms: Phosphorus recycling and photosynthate partitioning in tropical forage grass, *Brachiaria* hybrid cultivar Mulato compared with rice. *Plant and Cell Physiology*. 45: 460-469.
- Oberthur, T., Barrios E., Cook S., Usma H. and Escobar G. 2004. Increasing the relevance of scientific information in hillside environments through understanding of local soil management in a small watershed of the Colombian Andes. *Soil Use and Management*. 20: 23-31.
- Pereira, C, Fernandes, E., Rondon, M. and Wandelli, E. 2004. Inorganic and organic phosphorus pools in earthworm casts (Glossoscolecidae) and a Brazilian rainforest Oxisol. . *Soil Biology & Biochemistry*, in press
- Phiri, S., Amézquita, E., Rao, I. M. and Singh, B. R. 2003. Constructing an arable layer through chisel tillage and crop-pasture rotations in tropical savanna soils of the Llanos of Colombia. *Journal of Sustainable Agriculture*. 23(1): 6-29.
- Reyes, J.T., Barrios, E. and Sanchez de Prager, M. 2004. Quantitative evaluation of the soil aggregation potential by external hyphae of arbuscular mycorrhizae in volcanic ash soils. *Biology and Fertility of Soils* (in review).
- Rivera Peña M. and Amézquita, E. 2003. Evaluación del modelo de simulación CERES-Maize aplicado a una variedad de maíz en Oxisoles de los Llanos Orientales de Colombia. Universidad Nacional de Colombia-Sede Palmira. *Acta Agronómica* 52(1-4): 39-44.

- Sevilla F., Oberthur, T. and Barrios E. 2004. Soil macroinvertebrates as affected by land use, topography, and sampling depth in a tropical micro-watershed in the Colombian Andes. *Biology and Fertility of Soils* (in review).
- Sharrock, R. A., Sinclair, F. L., Gilddon, C., Rao, I. M., Barrios, E., Mustonen, P. J., Smithson, P., Jones, D. L. and Godbold, D.L. 2004. A global assessment using PCR techniques of mycorrhizal fungal populations colonising *Tithonia diversifolia*. *Mycorrhiza* 14: 103-109.
- Torrente T.A., García-Ocampo, A., Escobar Ch., C.A., Amézquita, E. and Sampayo, T.J. 2003. Condiciones hidrofísicas de suelos con alta saturación de magnesio en el Valle del Cauca, Colombia. Universidad Nacional de Colombia-Sede Palmira. *Acta Agronómica* 52(1-4): 29-37.
- Tscherning, K., Barrios, E., Peters, M., Lascano, C. and Schultze-Kraft, R. 2004. Effects of post harvest treatment on aerobic decomposition and anaerobic in-vitro digestion of tropical legume prunings with contrasting quality. *Plant and Soil*. In Press.
- Vanlauwe, B., Gachengo, C., Shepherd, K., Barrios, E., Cadisch, G., and Palm, C.A. 2005. Laboratory validation of a resource quality-based conceptual framework for organic matter management. *Soil Science Society of America Journal*, In Press.
- Velasquez, E., Lavelle, P., Barrios, E., Joffre, R. and Reversat, F. 2004. Evaluating soil quality in tropical agroecosystems of Colombia using NIRS. *Soil Biology and Biochemistry* (in review).
- Watanabe, T., Osaki, M., Yano, H. and Rao, I. M. 2004. Internal mechanisms of plant adaptation to aluminum toxicity and phosphorus starvation in three tropical forages. *Biologia Plantarum* (in review).
- Zhiping Q., Rao I.M., Ricaurte J., Amézquita E., Sanz J.I. and Kerridge P.C. 2004. Root distribution and nutrient uptake in crop-forage systems on Andean hillsides. *Journal of Sustainable Agriculture* 23(4): 39-50.

#### **Refereed book chapters**

- Amede, T., Amézquita, E., Ashby, J., Ayarza, M., Barrios, E., Bationo, A., Beebe, S., Bellotti, A., Blair, M., Delve, R., Fujisaka, S., Howeler, R., Johnson, N., Kaaria, S., Kelemu, S., Kerridge, P., Kirkby, R., Lascano, C., Lefroy, R., Mahuku, G., Murwira, H., Obertur, T., Pachico, D., Peters, M., Ramisch, J., Rao, I., Rondon, M., Sanginga, P., Swift, M. and Vanlauwe, B. 2004. Biological nitrogen fixation: A key input to integrated soil fertility management in the tropics. In: R. Serraj (ed) *Symbiotic nitrogen fixation: Prospects for enhanced application in tropical agriculture*. Raju Primlani for Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, India, pp. 113-143.
- Amézquita, E. 2003. La fertilidad física del suelo. In: M.del P. Triana, R. Lara Silva, M.I. Gómez, G. Peñaloza (eds.). *Manejo Integral de la Fertilidad del Suelo*. Sociedad Colombiana de la Ciencia del Suelo. Bogotá, Octubre 2003. pp.165-176.
- Ayarza, M.A, Vilela, L., Pizarro, E.A. and da Costa, P.H.. 2004. Agropastoral Systems Based on Múltiple-Purpose Legumes. In: E.P. Guimaraes, J.I. Sanz, I.Rao, M.C. Amézquita, E. Amézquita and R. Thomas (eds). *Agropastoral Systems for the Tropical Savannas of Latin America*. International Center for Tropical Agriculture, CIAT. CIAT publication no. 338. pp. 185-202.
- Kelemu, S., Miles, J.W. and Rao, I.M. 2004. Biotic and abiotic constraints to *Stylosanthes* production.. In: S. Chakraborty (ed.). *High-yielding anthracnose-resistant Stylosanthes for agricultural systems*. CSIRO Australian Centre for International Agricultural Research, Canberra 2004. Chapter 8: 97-110.
- Lopes, A.S, Ayarza, M. and Thomas, R. 2004. Managing and Conserving Acid Savanna Soils for Agricultural Development: lessons from the Brazilian Cerrados. In: E.P. Guimaraes, J.I. Sanz, I.Rao, M.C. Amézquita, E. Amézquita and R. Thomas (eds). *Agropastoral Systems for the Tropical Savannas of Latin America*. International Center for Tropical Agriculture, CIAT. CIAT publication no. 338. pp. 11-41.
- Miles, J. W., do Valle, C. B., Rao, I. M. and Euclides, V. P. B. 2004. Brachiaria grasses. In: L. E. Sollenberger, L. Moser and B. Burson (eds). *Warm-season grasses*. ASA-CSSA-SSSA, Madison, WI, pp. 745-783.

- Rao, I.M., Barrios, E., Amézquita, E., Friesen, D.K., Thomas, R., Oberson and Singh, B.R. 2004. Soil phosphorus dynamics, acquisition and cycling in crop-pasture-fallow systems in low fertility tropical soil: A review from Latin America. In Modelling nutrient management in tropical cropping systems. ACIAR proceedings #114, 126-134.
- Rao, I. M. 2004. Minerals: Function. In: A. S. Raghavendra (ed). Crop Physiology. The Haworth Press, Inc., Binghamton, USA (in review).
- Rao, I. M., E. Barrios, E. Amézquita, D. K. Friesen, R. Thomas, A. Oberson and B. R. Singh. 2004. Soil phosphorus dynamics, acquisition and cycling in crop-pasture-fallow systems in low fertility tropical soils of Latin America. In: R. J. Delle and M. E. Probert (eds) Modelling nutrient management in tropical cropping systems. ACIAR Proceedings No. 114: 126-134. Australian Center for International Agricultural Research (ACIAR), Canberra, Australia.
- Rondon, M.A., Acevedo, D., Hernandez, R.M., Rubiano, Y., Rivera, M., Amézquita, E., Romero, M., Sarmiento, L., Ayarza, M., Barrios, E. and Rao, I. 2004. Carbon Sequestration Potential of the Neotropical Savannas (Llanos) of Colombia and Venezuela. In: R. Lal and J. Kimble (eds) Carbon sequestration potential of the main biomes of Latin America. CRP Press. In review.
- Rychter, A. M. and Rao, I. M. 2004. Role of phosphorus in photosynthetic carbon metabolism. In: M. Pessaraki (ed). Handbook of Photosynthesis. 2nd Edition. Marcel Dekker, Inc., New York (in press).
- Singh, B. R., Rao, I.M., Barrios, E. and Amézquita, E. 2004. Impact of tillage, agropastoral and planted fallow systems on soil-plant processes in low fertility tropical soils of Latin America. In: R. Lal, Hobbs, Uphoff and Hansen (eds) Sustainable Agriculture and the Rice-Wheat system. Marcel Dekker, Inc., New York (in press).

### ***Books Edited***

- Guimarães, E. P., Sanz, J.I., Rao, I.M., Amézquita, M.C., Amézquita, E. and Thomas, R.J. (eds). 2004. Agropastoral Systems for the Tropical Savannas of Latin America. CIAT, Cali, Colombia and EMBRAPA, Brazil. pp. 342.

### ***Conference proceedings***

- Amézquita, E. 2004. La fertilidad física del suelo. Magisterial conference presented at XVI Latin American Congress and XII Colombian Soil Science Congress "CLACS 2004", Cartagena, Colombia. September 27 to October 1, 2004.
- Amézquita, E. 2004. El ambiente físico del suelo en relación con su calidad integral. Principal conference presented at XVI Latin American Congress and XII Colombian Soil Science Congress "CLACS 2004", Cartagena, Colombia. September 27 to October 1, 2004.
- Ayarza, M, Rao, I., Barrios, E., Amézquita, E. and Rondon, M. 2004. Combating land degradation and improving agricultural profitability in savannas and hillsides agroecosystems of Latin America. Presentation at the International Symposium of African Network of Soil Biology and Fertility (AfNet). Yaounde, Cameroon, May 17-21.
- Barrios, E. 2004. Desarrollo de un enfoque integrado para el manejo biológico de la fertilidad del suelo. Principal conference presented at XVI Latin American Congress and XII Colombian Soil Science Congress "CLACS 2004", Cartagena, Colombia. September 27 to October 1, 2004.
- Barrios, E. 2004. Biología del Suelo y Funcionamiento de Agroecosistemas. FertBio'2004 that joins the XVI Brazilian Meeting on Soil Fertility, X Brazilian meeting on Mycorrhizas, VII Symposium of Soil Microbiology and the V Brazilian Meeting of Soil Biology. Lages, Santa Catarina, Brazil. (Invited paper)
- Barrios, E. and Trejo M.T. 2004. Implicaciones del Conocimiento Local sobre el Manejo Integrado de Suelos en Latinoamérica. Congreso Latinoamericano de la Ciencia del Suelo, Cartagena de Indias, Colombia.
- Barrios, E., Cobo J.G., Trejo M.T., Welchez L., Ayarza M., Amézquita E., Rao I.M., Rondón M., Flores G. and Sangina N. 2004. Towards an understanding of soil processes behind the success of the

- Quesungual Slash and Mulch Agroforestry System (QSMAS) in Western Honduras. ASA-SSSA-CSSA meeting, Seattle, USA, 31 October to 4 November 2004.
- Rao, I.M. 2004. Dinámica, absorción y ciclaje del P en suelos de baja fertilidad. Principal conference presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Rao, I.M., Barrios E., Amézquita E., Friesen D.K., Thomas R.J., Oberson A. and Singh B.R. 2004. Soil phosphorus dynamics, acquisition and cycling in crop-pasture-fallow systems in low fertility tropical soil: A review from Latin America. In: Modelling Nutrient Management in Tropical Cropping Systems. ACIAR Proceedings #114, 126-134.
- Rao, I. M., Beebe, S., Ricaurte, J., Teran, H. and Singh, S. 2004. Common bean (*Phaseolus vulgaris* L.) genotypes tolerant to aluminum-toxic soils in the tropics. Proceedings of the 6<sup>th</sup> International Symposium on *Plant-Soil Interactions at Low pH* (PSILPH) held in Sendai, Japan from 31 July to 5 August, 2004. Japanese Society of Soil Science and Plant Nutrition, Sendai, Japan, pp. 272-273.
- Rao, I., Wenzl, P., Chavez, A., Arango, A., Manrique, G., Buitrago, M., Miles, J., Beebe, S., Kimani, P., Argel, P., Schmidt, A., Peters, M., Tohme, J., Ishitani, M., Rangel, A., Mobin, M. and Horst, W. 2004. Advances in improving acid soil adaptation of tropical crops and forages: The case of common bean and *Brachiaria*. Proceedings of the 20<sup>th</sup> RIB Symposium on “International Symposium on Frontier Research to Improve Crop productivity on Acid Soils” held at Kurashiki, Japan, pp. 30-32. Research Institute for Bioresources, Okayama University, Kurashiki, Japan (Invited paper).
- Rangel, A. F., Mobin, M., Rao, I.M. and Horst, W. 2004. Aluminum-induced callose formation is not a suitable parameter for assessing genotypic differences in aluminum resistance in *Phaseolus vulgaris*. Proceedings of the 6<sup>th</sup> International Symposium on *Plant-Soil Interactions at Low pH* (PSILPH) held in Sendai, Japan from 31 July to 5 August, 2004. Japanese Society of Soil Science and Plant Nutrition, Sendai, Japan, pp. 264-265
- Rondón, M., Acevedo, D., Hernandez, R.M., Rao, I., Rubiano, Y., Sarmiento, L., Amézquita, E., Rivera, M., Ayarza, M., Barrios, E., Romero, M., Cerri, C., Bernoux, M. and Volkoff, B. 2004. Potencial para captura de carbono y reducción de emisiones de gases de efecto invernadero en la agricultura Latinoamericana. Presentation at the Latin American Congress of Soil Science. Cartagena Colombia, September 29 2004.
- Rondón, M.A. 2004. El efecto invernadero en el trópico. Principal conference presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Subbarao, G.V., Ito, O., Rao, I.M. and Rondon, M. 2004. Nitrification inhibition in root exudates of tropical grasses. Abstract vol. 50, no. 9-41. Presentation at Japanese society of soil science and plant nutrition annual meeting, September, 2004.
- Torrente T.A., García-Ocampo, A., Amézquita, E., Escobar Ch., C.A., Sampayo, T.J. 2004. Cambios volumétricos en suelos magnésicos del Valle del Río Cauca, Colombia. Editorial Universidad Surcolombiana, Facultad de Ingeniería. *Ingeniería y Región* #3. pp.39-50. ISSN 1657-6985.
- Velásquez V., Lavelle, P., Barrios, E., Amézquita, E. 2004. Bioindicadores de calidad del suelo. Principal conference presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Wenzl, P., Chaves, A.L., and Rao, I.M. 2004. Aluminum resistance coincides with differential resistance to trivalent lanthanide cations in *Brachiaria*. Proceedings of the 6<sup>th</sup> International Symposium on *Plant-Soil Interactions at Low pH* (PSILPH) held in Sendai, Japan from 31 July to 5 August, 2004. Japanese Society of Soil Science and Plant Nutrition, Sendai, Japan, pp. 262-263.

#### ***Non-refereed conference presentations***

- Arango, A., Wenzl, P., Cortés, D., Gallego, G., Ishitani, M., Rao, I.M. and Tohme, J. 2004. Identification of candidate genes for aluminum resistance in *Brachiaria decumbens* cv. Basilisk. Paper presented at V Encuentro Latinoamericano y del Caribe de Biotecnología Agrícola, 21 to 25 June 2004, Boca

Chica, Dominican Republic.

- Rao, I. M., Miles, J., Wenzl, P., Ricaurte, J., Plazas, C. and Garcia, R. 2004. Screening for aluminum resistance and field evaluation for acid soil adaptation in *Brachiaria*. Invited paper presented at the International Symposium in Kurashiki on “Al Stress Research in Plants: Present Status and New Directions for Future”. Satellite Symposium of the 6<sup>th</sup> PSILPH in Sendai. Research Institute for Bioresources, Okayama University, Kurashiki, Okayama, Japan. 7 August, 2004.
- Rao, I., Beebe, S., Ceballos, H., Alves, A., Miles, J., Martinez, C., Chatel, M., Trouche, G., Lorieux, M., Blair, M. and Ishitani, M. 2004. Phenotypic evaluation for improving adaptation to drought in common bean, cassava, rice and *Brachiaria*. Abstract of the invited paper presented at the Generation Challenge Program Workshop on Phenotyping and Water Deficit held at Agropolis, Montpellier, France (5-9 July, 2004), p 45.
- Rao, I. M., Beebe, S., Ricaurte, J., Terán, H., Cajiao, C. and Blair, M. 2004. Variación genotípica en frijol común para adaptación de baja fertilidad del suelo. Paper presented (20 April 2004) at the Workshop on Mineral Nutrition in Common bean organized with the PCCMCA meeting held at San Salvador, El Salvador. April 19-23, 2004.
- Rao, I., Beebe, S., Ayarza, M., Trouche, G., Ceballos, H., Alves, A., Miles, J., Argel, P., Schmidt, A., Peters, M., Holman, F., Lundy, M., Quiros, C., Rondon, M. and Córdova, H. 2004. Strategies for improving crop and forage adaptation to dry conditions of Central America. Invited paper presented at the “International Workshop on Adaptation to Climate Change, Sustainable Livelihoods and Biological Diversity” held at Turrialba, Costa Rica. March 16-18, 2004.
- Wenzl, P., Buitrago, M.E., Arango, A., Gallego, G., Chaves, A.L., Ishitani, M., Tohme, J. and Rao, I.M. 2004. Elucidating aluminum resistance mechanisms in signalgrass. Invited paper presented at the International Symposium in Kurashiki on “Al Stress Research in Plants: Present Status and New Directions for Future”. Satellite Symposium of the 6<sup>th</sup> PSILPH in Sendai. Research Institute for Bioresources, Okayama University, Kurashiki, Okayama, Japan. 7 August, 2004.

#### ***Non-refereed articles***

- Ayarza, M. and Welchez, L.A. 2004. Drivers effecting the development and sustainability of the Quesungual Slash and Mulch Agro forestry System (QSMAS) in hillsides of Honduras. Comprehensive Assessment Program Report. (In Press)
- Ralish, R., Ayarza, M.A. and Abi-Saab, O.J.G. 2004. Drivers effecting development and sustainability of no-till systems for smallholders at the watershed level in Brazil Comprehensive Assessment Program Report. (In Press)
- Torrente, T., A., García-Ocampo, A., Amézquita E., Escobar Ch., C.A., Sampayo, T.J. 2004. Condiciones físicas e hidrodinámicas de suelos magnésicos en el Valle del Cauca, Colombia. Editorial Universidad Surcolombiana, Facultad de Ingeniería. *Ingeniería y Región* #3. pp.19-28. ISSN 1657-6985.
- Torrente, T.A., García-Ocampo, A., Amézquita, E., Escobar Ch., C.A., Sampayo, T.J. 2004. Cambios volumétricos en suelos magnésicos del Valle del Río Cauca, Colombia. Editorial Universidad Surcolombiana, Facultad de Ingeniería. *Ingeniería y Región* #3. pp.39-50. ISSN 1657-6985.

#### ***Workshop presentations***

- Ayarza, M. and Welchez, L.A. 2004. Drivers effecting the development and sustainability of the Quesungual Slash and Mulch Agro forestry System (QSMAS) in hillsides of Honduras. Presentation at the final meeting Bright Spots Project. Khon-Kaen, Thailand, April 2004.
- Barrios, E. 2004. Biological indicators of soil quality: case studies linking soil biodiversity, their function and ecosystem services. Presentation at the First National Seminar on Soil Quality Indicators: Principles and Concepts Applied to Land Degradation. October 20-22, 2004. Cali, Colombia.
- Corrales, I.I., Amézquita, E., Rivera, M. and Chávez, L.F. 2004. Condiciones físicas de un suelo bajo diferentes sistemas de labranza y su efecto sobre el comportamiento de cultivos y malezas en la Atllanura Colombiana. En: Deyanira Lobo Luján, Donalds Gabriels y Guido Soto (eds). Programa

- Hidrológico Internacional – Evaluación de Parámetros y Procesos Hidrológicos en el Suelo. Compendio de los trabajos presentados en la VII Escuela Latinoamericana de Física de Suelos. La Serena, Chile, Nov.2-14, 2003. UNESCO, Paris, 2004. pp.101-106.
- Molina, D.L., Amézquita, E. and Hoyos G., P. 2004. Construcción de capas arables en suelos Oxisoles de la Altillanura Colombiana. En: Deyanira Lobo Luján, Donalds Gabriels y Guido Soto (eds). Programa Hidrológico Internacional – Evaluación de Parámetros y Procesos Hidrológicos en el Suelo. Compendio de los trabajos presentados en la VII Escuela Latinoamericana de Física de Suelos. La Serena, Chile, Nov.2-14, 2003. UNESCO, Paris, 2004. pp.113-118.
- Rondón, M., Acevedo, D., Hernandez, R.M., Rubiano, Y. and Rivera, M. 2004. Potential for C sequestration in soils from the Llanos of Colombia and Venezuela. Presentation at the International workshop on potential of soil carbon sequestration in Latin America. Piracicaba, Brazil, June2-5, 2004
- Rondón, M. 2004. Opportunities for mitigating climate change in the agriculture sector in Latinamerica. Presentation at the workshop on Mitigation and adaptation to climate change. 19 meeting of the SBTA from the UNCCC. Bonn. Germany, June 19-20, 2004
- Rondón, M. 2004. Calidad de suelos, cambio climático y pago por servicios ambientales. Presentation at the First National Seminar on Soil Quality Indicators: Principles and Concepts Applied to Land Degradation. October 20-22, 2004. Cali, Colombia.
- Trejo, M.T., Barrios, E., Barreto, H. and Delve, R. 2004. Participatory methodology to identify and classify local indicators of soil quality at the watershed scale. Presentation at the First National Seminar on Soil Quality Indicators: Principles and Concepts Applied to Land Degradation. October 20-22, 2004. Cali, Colombia.

#### ***Abstracts of oral presentations***

- Amézquita M.C., Ibrahim, M., Buarman, P. and Amézquita, E. 2004. Captura de carbono en sistemas de pasturas, agro-pastoreo y agro-silvo-pastoreo en sub-ecosistemas de América Tropical (Abstract 17-03). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Amézquita, M.C., Buurman, P., Murgueitio, E. and Amézquita, E. 2004. Carbon sequestration potential of pasture and agro-silvo-pastoral systems in the Tropical Andean hillsides. Presented at the “International Agroforestry Congress”, Mérida, Mexico, February 8-14, 2004.
- Barrios E. and Trejo, M.T. 2004. Implicaciones del conocimiento local de suelos sobre el manejo integrado de suelos en Latinoamérica (Abstract 23-04). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Borrero G., Friesen, D.K., Oberson, A., Rodríguez, M. and Rao, I.M. 2004. Comparación del método de Oxalato de amonio para determinar disponibilidad de fósforo en Oxisoles de los Llanos Orientales de Colombia (Abstract 24-03). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Castillo J.A., Amézquita, E. and Müller-Sämann, K. 2004. Los efectos de la rotación de cultivos y manejo sobre la estabilidad estructural de dos suelos en el Sur de Colombia (Abstract 11-06). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Chávez L.F., Amézquita, E. and Mesa, E. 2004. Efecto del sistema de labranza en el comportamiento de las propiedades físicas y en el rendimiento de maíz en un Oxisol de los Llanos Orientales de Colombia (Abstract 12-07). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories

- of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Corrales I., Amézquita, E., Rivera, M. and Chávez, L.F. 2004. Efecto de las condiciones físicas y químicas de un Oxisol de la Altillanura Colombiana bajo diferentes tratamientos sobre los rendimientos y desarrollo en raíces en siembra directa (Abstract 12-04). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Corrales I., Amézquita, E., Rivera, M. and Chávez, L.F. 2004. Poblaciones de las malezas registradas en sistemas agrícolas en los Llanos Orientales de Colombia dentro del Proyecto Culticore Fase II. CI-Carimagua 2000-2002 (Abstract 12-05). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Correa-Moreno D.L., Barrios, E., Amézquita, E., Sánchez, M. 2004. Valoración biológica de capa arable en formación en suelos de la Altillanura Colombiana (Abstract 19-09). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Díaz E.B., Paz, L.P., Amézquita, E. and Rivera, M. 2004. Influencia de los sistemas de uso del suelo en el comportamiento de las propiedades físicas de los Páramos “Las Animas” (Municipio de Silvia) y “Piedra de León” (Municipio de Sotará), Departamento del Cauca, Colombia (Abstract 15-04). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Galvis J.H., Mosquera, O., Orozco, O.L. and Amézquita, E. 2004. Caracterización morfológica de costras superficiales en un suelo bajo agricultura intensiva en el Valle del Cauca (Abstract 11-07). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Hoyos Garcés P., Amézquita, E. and Molina, D.L. 2004. Mejoramiento de las características del suelo y su efecto en la productividad de dos suelos de la Altillanura plana del Departamento del Meta (Abstract 12-03). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Lozano J., Madero, E., Tafur, H., Herrera, O. and Amézquita, E. 2004. Validación del índice de Rosseta de conductividad hidráulica propuesto por USDA en suelos del Valle del Cauca (Abstract 15-07). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Muñoz A.M., García A. and Rondón, M.A. 2004. Efectos de un sistema de producción agropecuaria intensiva sobre los flujos de gases de efecto invernadero (metano y óxido de carbono) en la Hacienda Pasoancho, Corregimiento de Roza, Palmira, Valle del Cauca (Abstract 17-02). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Pérez E.H., Páez, M.I. and Amézquita, E. 2004. Comportamiento de la absorción de fosfatos en suelos Andicos del Nor-Oriente del Departamento del Cauca, Colombia (Abstract 4-08). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.



- Reyes J.T., Barrios, E. and Sánchez, M. 2004. Influencia del micelio externo de hongos micorrícicos arbusculares en la agregación de suelos degradados (Abstract 19-02). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Rubiano Y., Amézquita, E. and Beaulieu, N. 2004. Sistema georreferenciado de indicadores de calidad de suelos para los Llanos Orientales de Colombia. Estudio de caso: Municipio de Puerto López, Meta (Abstract 23-09). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Ruiz-E. H., Legarda B., L., Amézquita, E., Arteaga M., G., Descanse, M. and Diaz, D. 2004. Dinámica de la erosión del suelo bajo tres modalidades de labranza cuantificada a través del microrelievímetro, en suelos papeiros del Departamento de Nariño, Colombia (Abstract 13-07). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Salamanca A., Sadeghian, S. and Amézquita, E. 2004. Efecto de la densidad aparente de dos suelos de la zona cafetera sobre el crecimiento temprano del café (Abstract 11-05). In: Ivonne G. Valenzuela Balcázar (compiled). Program and Memories of the XVI Latin American Congress and XII Colombian Congress of Soil Science, First edition, Sociedad Colombiana de la Ciencia del Suelo (SCCS), Palmira, Colombia. 176 p.
- Subbarao, G.V., Ito, O., Rao, I.M. and Rondon, M. 2004. Nitrification inhibition in root exudates of tropical grasses. Abstract vol. 50, no. 9-41. Presentation at Japanese society of soil science and plant nutrition annual meeting, September, 2004.

#### ***Abstracts of poster presentations***

- Bolaños-B. M., Castilla, L.A., Zárate, L., Ricaurte, J., Navia, J., Sánchez, M. and Bonilla, C.R. 2004. Efecto rizosférico “in vitro” de arroz, maíz, sorgo, crotalaria, frijón y leucaena sobre el pH. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Borrero G., Friesen, D.K., Oberson, A., Rodríguez, M. and Rao, I.M. 2004. Destinos del fósforo aplicado como fertilizante en Oxisoles de los Llanos Orientales de Colombia. Fraccionamiento secuencial. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Escobar L.F., Barrios, E. and Varela, A. 2004. Efecto del sistema de uso del suelo sobre la abundancia de poblaciones nativas de rizobios en la Microcuena Potrerillo, Departamento del Cauca. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Patiño A.M., Mesa, N., Müller-Sämman, K. and Amézquita, E. 2004. Presencia y abundancia de ácaros y hongos en parcelas con diferentes grados de erosión en Inceptisoles en el Departamento del Cauca. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Pérez, E.H., Páez, M.I. and Amézquita, E. 2004. Movilidad y distribución de clorpirifos y diazinon en columnas de suelo Andico. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.
- Rivera Peña M. and Amézquita, E. 2004. Caracterización de los sistemas en monocultivo y en rotación Oxisoles de los Llanos Orientales de Colombia. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress “CLACS 2004”, Cartagena, Colombia. September 27 to October 1, 2004.

- Rivera Peña M. and Amézquita, E. 2004. Evaluación del modelo CERES-Maize en la variedad Sicuani V-110 en Oxisoles de los Llanos Orientales de Colombia. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress "CLACS 2004", Cartagena, Colombia. September 27 to October 1, 2004.
- Rondon, M.A, Ramirez, J.A. and Lehmann, J. 2004. Greenhouse gas emissions (CH<sub>4</sub>, N<sub>2</sub>O) decrease with charcoal additions to highly weathered tropical soils. First International Symposium on Energy and Agricultural Carbon Utilization. Athens, Georgia, June 9-12 2004.
- Sevilla F., Oberthur, T. and Barrios, E. 2004. Soil macroinvertebrates as affected by land use, topography, and sampling depth in a tropical micro-watershed in the Colombian Andes. ASA-SSSA-CSSA meeting, Seattle, USA, 31 October to 4 November 2004.
- Subbarao, G.V., Ito, O., Wang, H., Nakahara, K., Ishikawa, T., Suenaga, K., Samejima, H., Rondon, M., Rao, I.M., and Ishitani, M. 2004. Can nitrification be inhibited/regulated biologically? New approaches to develop germplasm to minimize nitrogen losses in crop-livestock systems. Poster presented at 3<sup>rd</sup> International Nitrogen Conference, October 12-16<sup>th</sup> 2004, Nanjing, China.
- Torrente-T.A., Becerra, C.G., Barney, B.F., García O., A., Escobar Ch., C.A. and Amézquita, E. 2004. Evaluación de métodos de conductividad hidráulica saturada en suelos magnéticos del Valle del Cauca. Poster presented at XVI Latin American Congress and XII Colombian Soil Science Congress "CLACS 2004", Cartagena, Colombia. September 27 to October 1, 2004.
- Tscherning K., Barrios, E., Lascano, C., Peters, M. and Schultze-Kraft, R. 2004. Effect of post-harvest treatment on aerobic decomposition and anaerobic in-vitro digestion of tropical legume prunings with contrasting quality. ASA-SSSA-CSSA meeting, Seattle, USA, 31 October to 4 November 2004.

#### ***Extensión Bulletins***

- Amézquita E., Rao, I.M., Hoyos, P., Molina, D.L., Chávez, L.F. and Bernal, J.H. 2004. Development of an arable layer: A key concept for better management of infertile tropical savanna soils. Technical Bulletin. Tropical Soil Biology and Fertility Institute (TSBF), International Center for Tropical Agriculture (CIAT) and Grupo Regional Agrícola-CORPOICA, CI-La Libertad.
- Amézquita E., Hoyos Garcés, P. and Molina López, D.L. 2004. Construcción de una capa arable en la Altillanura plana de los Llanos Orientales de Colombia. Boletín Técnico. CIAT-PRONATTA-CORPOICA-UNILLANOS. Cali, Colombia. 35 p.
- Amézquita E. and Campo, J.M. 2004. Manual operacional del minisimulador de lluvia CIAT Centro Internacional De Agricultura Tropical, Unidad de Suelos, Palmira, Colombia.

#### ***Brochures and Software***

- Consortium for the Management of Fragile Soils of Central America, MIS.
- Un Arbol de Decisión para Alternativas de Uso de la Tierra en la Orinoquia Colombiana. 2004. Extensión Brochure. CIAT y Ministerio de Agricultura y Desarrollo Rural.
- Un Arbol de Decisión para Alternativas de Uso de la Tierra en la Orinoquia Colombiana. December 2003. CD ROM. CIAT y Ministerio de Agricultura y Desarrollo Rural.
- Quintero, M. and Amézquita, E. 2003. Guía para el uso de "árboles de decisión": Alternativas de Uso de la Tierra para los Llanos Orientales de Colombia. Estudio de Caso: Puerto López, Meta. Centro Internacional de Agricultura Tropical CIAT. Ministerio de Agricultura y Desarrollo Rural (Internal Report).