

## Annex

### Journal Articles in Refereed Journals (Published, In press and Submitted)

- Abello, J.F.; Kelemu, S. 2005. Hongos endofitos: Ventajas adaptativas que habitan al interior de las plantas. *Revista Corpoica Ciencia y Tecnología Agropecuaria* (In press).
- Andersson, M.; Jarvis, A.; Peters, M.; Schultze-Kraft, R. 2005. Is climate at collection site useful for the rapid assessment of diversity in germplasm collections? Comparative analysis of different approaches for germplasm characterization. *Agriculture, Ecosystems and the Environment* (submitted).
- Andersson, M.; Lascano, C.E.; Schultze-Kraft, R.; Peters, M. 2005. Forage quality and tannin concentration and composition of a collection of the tropical shrub legume *Flemingia macrophylla*. *Science of Food and Agriculture* (In press).
- Andersson, M.; Peters, M.; Schultze-Kraft, R.; Franco, L.H.; Lascano, C.E. 2005. Phenological, agronomic and forage quality diversity among germplasm accessions of the tropical legume shrub *Cratylia argentea*. *Agricultural Science* (In press).
- Andersson, M.; Peters, M.; Schultze-Kraft, R.; Gallego, G.; Duque, M.C. 2005. Molecular characterization of a collection of the tropical multipurpose shrub legume *Flemingia macrophylla*. *Agroforestry Systems* (submitted).
- Andersson, M.; Schultze-Kraft R.; Peters M.; Hincapié, B.; Lascano, C.E. 2005. Morphological, agronomic and forage quality diversity of the *Flemingia macrophylla* world collection. *Field Crops Research* (In press).
- Andersson, M.; Schultze-Kraft, R.; Peters, M.; Duque, M.C.; Gallego, G. 2005. Extent and structure of genetic diversity in a collection of the tropical multipurpose shrub legume *Cratylia argentea* (Desv.) O. Kuntze as revealed by RAPD markers. *Plant Genetic Resources Characterization and Utilization* (submitted).
- Ayarza, M.; Barrios, E.; Rao, I.M.; Amézquita, E.; Rondon, M. 2005. Advances in improving agricultural profitability and overcoming land degradation in savanna and hillside agroecosystems of tropical America. *Nutrient Cycling in Agroecosystems* (In review).
- Barahona, R.; Sanchez S.; Lascano, C.E.; Owen E.; Morris P.; Theodorou, M. 2005. Effect of condensed tannins from tropical legumes on the activity of fibrolytic enzymes from the rumen fungus *Neocallimastix hurleyensis*. *Enzyme and Microbial Technology* (Accepted)
- Barrios, E.; Cobo, J.G.; Rao, I.M.; Thomas, R.J.; Amézquita, E.; Jiménez, J.J. 2005. Fallow management for soil fertility recovery in tropical Andean agroecosystems in Colombia. *Agriculture, Ecosystems and Environment* 110:29-42.
- Begum, H.H.; Osaki, M.; Nanamori, M.; Watanabe, T.; Shinano, T.; Rao, I.M. 2006. Role of phosphoenolpyruvate carboxylase in the adaptation of a tropical forage grass, *Brachiaria* hybrid, to low phosphorus acid soils. *Plant Nutrition*. 29: 35-57.
- Fujisaka, S.; Holmann, F.; Peters, M.; Schmidt, A.; White, D.; Burgos, C.; Ordoñez, J.C.; Mena, M.; Posas, M.I.; Cruz, H.; Davis, C.; Hincapié, B. 2005. Forage Technologies to alleviate dry season feed Shortages: A diagnosis of Honduras and Nicaragua. *Agricultural Systems* (submitted).
- Gómez-Carabalí, A.; Rao, I.M.; Beck, R.F.; Ortiz, M. 2006. 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).
- Hausler, K.; Rao, I.M.; Schultze-Kraft, R.; Marschner, late. H. 2005. Shoot and root growth of two tropical grasses, *Brachiaria ruziziensis* and *B. dictyoneura* as influenced by aluminium toxicity and phosphorus deficiency in a sandy loam Oxisol of the eastern plains of Colombia. *Trop Grasslands* (In review).

- Holmann F, Rivas L, Argel P J and Pérez E 2004. Impact of the adoption of *Brachiaria* grasses: Central America and Mexico. *Livestock Research for Rural Development*. (16):98 (<http://www.cipav.org.co/lrrd/lrrd16/12/holm16098.htm>)\*.
- Holmann, F.; Rivas, L.; Urbina, N.; Giraldo, L.; Guzmán, S.; Martínez, M.; Rivera, B.; Medina, A.; Ramírez, G. 2005. The role of livestock in poverty alleviation: An analysis of Colombia. *Livestock Research for Rural Development* (17):1:2005 (<http://www.cipav.org.co/lrrd/lrrd17/1/holm17011.htm>)
- Ishitani, M.; Rao, I.; Wenzl, P.; Beebe, S.; Tohme, J. 2004. Integration of genomics approach with traditional breeding towards improving abiotic stress adaptation: drought and aluminum toxicity as case studies. *Field Crops Research (Netherlands)* 90:35-45.\*
- Kelemu, S.; Cardona, C.; Segura, G. 2004. Antimicrobial and insecticidal protein isolated from seeds of *Clitoria ternatea* (L.), a tropical forage legume. *Plant Physiology and Biochemistry* 42:867-873.\*
- Kelemu, S.; Changshun, J.; Guixiu, H.; Segura, G. 2005. Genetic transformation of the tropical forage legume *Stylosanthes guianensis* with a rice chitinase gene confers resistance to *Rhizoctonia* foliar blight disease. *African Journal of Biotechnology* 4(10):1025-1033. <http://www.academicjournals.org/ajb/PDF/Pdf2005/Oct/Kelemu%20et%20al.pdf>
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- Miles, J.W.; Cardona, C.; Sotelo, G. 2005. Recurrent selection in a synthetic brachiariagrass population improves resistance to three spittlebug species. *Crop Science* (accepted for publication November 1, 2005).
- Peters, M.; Hyman, G.; Jones, P. 2005. Identifying areas for field conservation of forages in Latin American disturbed environments. *Ecology and Society* 10(1):1. URL:<http://www.ecologyandsociety.org/vol10/iss1/art1/>
- Rivas, L.; Holmann, F. 2005. Potential Economic Impact in the adoption of new *Brachiarias* resistant to spittlebugs in the livestock systems of Colombia, Mexico and Central America. *Livestock Research for Rural Development* (17):5:2005. (<http://www.utafoundation.org/lrrd1705/holm17054.htm>).
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- Subbarao, G.; Ito, O.; Barry, W.; Sahrawat, K.L.; Rondon, M.; Rao, I.M.; Nakahara, K.; Ishikawa, T.; Suenaga, K. 2005. Scope and Strategies for Regulation of Nitrification in Agricultural Systems – Challenges and Opportunities. *Critical Reviews in Plant Sciences* (In review).
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- Tscherning, K.; Lascano C.E.; Barrios, E.; Schultze-Kraft, R.; Peters, M. 2006. The effect of mixing prunings of two tropical shrub legumes (*Calliandra houstoniana* and *Indigofera zollingeriana*) with contrasting quality on N release in the soil and apparent N degradation in the rumen *Plant and Soil* 280 (1/2): 357-368.
- Wagatsuma, T.; Khan, M.S.H.; Rao, I.M.; Wenzl, P.; Yamamoto, T.; Kawamura, T.; Hosogoe, K.; Tawarayama, K.; Ishikawa, S. 2006. Methylene blue stainability of root-tip protoplasts can serve as an indicator of aluminum tolerance in a wide range of plant species, cultivars and lines. *Soil Science and Plant Nutrition Soil Science and Plant Nutrition* 51: 991-998.
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Wünscher, T.; Schultze-Kraft, R.; Peters, M.; Rivas, L. 2004. Early adoption of the tropical forage legume *Arachis pintoi* in Huetar Norte, Costa Rica. *Experimental Agriculture* 40(2): 257-268. \*

### Articles in Non-Refereed Journals and Working Documents:

Beltrán, J.A.; Orozco, P.P.; Zapata, V.; Sanz, J.I.; Roa, M.C.; Schmidt, A. 2004. [Scaling out and scaling up: The importance of watershed management organizations](#) . In: Pachico, D.; Fujisaka, S. (eds.). *Scaling up and out: Achieving widespread impact through agricultural research* . Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. p. 153-171. (CIAT Publication no. 340; Economics and Impact series 3).\*

Cardona, C.; Sotelo, G. 2005. Mecanismos de resistencia a insectos: Naturaleza e importancia en la formulación de estrategias de mejoramiento para incorporar resistencia a salivazo en *Brachiaria*. *Pasturas Tropicales* 27 (2):2-11.

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Hare, M.D. and P.M. Horne (2004). Forage seeds for promoting animal production in Asia. Paper presented at the Asian Seed Congress in Seoul, Korea (13-17 September 2004). Published as Asia and Pacific Seed Association (APSA) Technical Report No. 41 (APSA, Bangkok).\*

Holmann, F.; Rivas, L. 2005. Los forrajes mejorados como promotores del crecimiento económico y la sostenibilidad: El caso de los pequeños ganaderos de Centroamérica. Centro Internacional de Agricultura Tropical (CIAT). Cali, CO. 70 p. (Documento de trabajo No. 202)

Rivas, L.; Holmann, F.; García, J. 2005. Nuevos sistemas diversificados de producción agropecuaria incluyendo componentes y servicios ambientales: Una evaluación económica en la altillanura colombiana. Centro Internacional de Agricultura Tropical (CIAT). Cali, CO. (Documento de trabajo No. 204)

Schoonhoven, A.D.; Holmann, F.; Argel, P.J.; Pérez, E.; Ordoñez, J.C.; Chaves, J. 2005. Costos y Beneficios del Suministro de Heno y Ensilaje Durante la Época Seca en Honduras y Costa Rica. Centro Internacional de Agricultura Tropical (CIAT); Internacional Livestock Research Institute (ILRI), Cali, CO. 34 p. (Documento de Trabajo No. 203)

### Monographs, Books and Book Chapters

Horne, P.M., Stür, W.W., Phengsavanh, P., Gabunada Jr., F. and Roothaert, R. (2005). New forages for smallholder livestock systems in Southeast Asia: recent development, impacts and opportunities. Chapter in S. Reynolds and J. Frame (eds.) "Grasslands: Developments, Opportunities, Perspectives". 556 pages. ISBN 1-57808-359-1 (FAO, Rome)

Horne, P.M. and W.W. Stür (2005). Developing agricultural solutions with smallholder farmers: how to get started with participatory approaches. In: J. Gonsalves, T. Becker, A. Braun, D. Campilan, H. de Chavez, E. Fajber, M. Kipiriri, J. Rivaca-Caminade and R. Vernooij (eds.) "Participatory Research and Development for Sustainable Agriculture and Natural Resource Management: A Sourcebook". pp. 172-180. (CIP-UPWARD and IDRC, Manila) (repackaged from Horne and Stür (2003)).

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- Linguist, B., Keoboulapha, B., Sodarak, H., Horne, P. and Lai C. (2005). Upland Research in Lao PDR: Experiences with Participatory Research Approaches. In: J. Gonsalves, T. Becker, A. Braun, D. Campilan, H. de Chavez, E. Fajber, M. Kapiriri, J. Rivaca-Caminade and R. Vernoooy (eds.) "Participatory Research and Development for Sustainable Agriculture and Natural Resource Management: A Sourcebook". pp. 58-65. (CIP-UPWARD and IDRC, Manila).
- Nagel, U.-J., Heidhues, F., Horne, P. and Neef, A. (2005). Participatory approaches for sustainable land use in Southeast Asia: lessons learned and challenges remaining. in: Neef, A. (ed.) "Participatory approaches for sustainable land use in Southeast Asia". 441 pp. ISBN 974-4800-67-4 (White Lotus, Bangkok).
- Miles, J.W.; do Valle, C.B.; Rao, I.M.; Euclides, V.P.B. 2004. [Brachiariagrasses](#). In: Moser, L.E.; Burson, B.; Sollenberger, L.E. (eds.). Warm-season (C4) Grasses . American Society of Agronomy (ASA); Crop Science Society of America (CSSA); Soil Science Society of America (SSSA), Madison, WI, USA. p. 745-783. (Agronomy Monographs 45).\*
- Nandwa S.M.; Bationo, A.; Obanyi, S.N.; Rao, I.M.; Sanginga, N.; Vanlauwe, B. 2005. Inter and intra-specific variation of legumes and mechanisms to access and adapt to less available soil phosphorus and rock phosphate. *In*: Bationo, A. (eds.). Fighting Poverty in Sub-Saharan Africa: The Multiple Roles of Legumes in Integrated Soil Fertility Management, Springer-Verlag, New York (In press).
- Phengvichith, V., Connell, J., Horne, P. and P. Kerridge. (2005). Institutional experiences with Participatory Technology Development in Lao PDR. In: Neef, A. (ed.) "Participatory approaches for sustainable land use in Southeast Asia" (White Lotus, Bangkok).. 441 pp. ISBN 974-4800-67-4
- Rondon, M.; Acevedo, D.; Hernandez, R. M.; Rubiano, Y.; Rivera, M.; Amezcua, E.; Romero, M.; Sarmiento, L.; Ayarza, M.; Barrios, E.; Rao, I.M. 2005. Carbon sequestration potential of the neotropical savannas (Llanos) of Colombia and Venezuela. In: Lal, R.; Kimble, J. (eds.). The Haworth Press, Inc., Binghamton, USA (in press).
- Rao, I.M. 2005. Minerals: Function. *In*: Raghavendra, A.S. (ed.). Crop Physiology. The Haworth Press, Inc., Binghamton, USA (under review).
- Rychter, A. M.; Rao, I. M. 2005. Role of phosphorus in photosynthetic carbon metabolism. In: M. Pessaraki (ed). Handbook of Photosynthesis. 2nd Edition. Marcel Dekker, Inc., New York. p. 123-148.
- Shelton, H.M.; Franzel, S.; Peters, M. 2005. Adoption of tropical legume technology around the world: analysis of success. *In*: McGilloway, D.A. (ed.). Grassland: a global resource. Wageningen Academic, The Netherlands. p. 149-166.

### Articles and Abstracts in Proceedings:

- Abello, J.F.; Kelemu, S. 2005. Transformación del hongo endofito *Acremonium implicatum* (J. Gilman & E.V. Abbott) W.Gams con el gen que codifica para la proteína verde fluorescente (*gfp*), mediada por *Agrobacterium tumefaciens* Smith & Townsend. *In*: XXVI congreso de Ascolfi. (2005, Bogotá, Colombia). Memorias. Asociación Colombiana de Fitopatología y Ciencias Afines. Bogotá, Colombia. p. 13.
- Amézquita, E., Rao, I.; Bernal, J.; Barrios, E.; Rondon, M.; Ayarza, M. 2005. Management of acid soils in the Llanos of Colombia. Invited paper presented at an international workshop on "Advances in improving acid soil adaptation of tropical crops and forages, and management of acid soils" held at Brasilia, Brazil. October 18 to 21, 2005.

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- Argel, P.J. 2005. Contribución de los Forrajes Mejorados a la Productividad Ganadera en Sistemas de Doble Propósito. *In*: Conference presented at XIX Congress of ALPA and the XXXIII of the Mexican Animal Production Association held in Tampico, 24. (October 26-28, 2005, Tampico, Mexico) p. 24.
- Ayarza M.; Raucher, F.; Vilela, L.; Amézquita, E.; Barrios, E.; Rondón, M.; Rao, I.M. 2005. Sustainable intensification of crop-livestock systems on sandy soils of Latin America: trade-offs between production and conservation. Proceedings of an International Symposium on Management of Sandy Soils, Thailand.
- Bestil, L., Balbarino, EA, Quirol, BF, Balina, FC, Gabunada, F, and Magboo, E. (2005). Developing efficient livestock systems using participatory approaches to improve the livelihood of dairy buffalo farmers in Leyte, Philippines: Small farm experimentation. . *In*: Gabunada, F., Phengsavanh, P., Lopez K. and Stür W. (eds) (2005). Proceedings of the 2005 Annual Review and Planning Meeting: RETA 6067 -Improving Livelihoods of Upland Farmers Using Participatory Approaches to Develop More Efficient Livestock Systems. Held in Buon Ma Thuot, Daklak, Vietnam, 24 – 28 January 2005. CIAT Asia, Vientiane, Lao PDR.
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- Cardona, C.; Sotelo, G.; Miles, J.W. 2005. Resistencia en *Brachiaria spp.* a seis especies de salivazo: Métodos, mecanismos y avances. *In*: Memorias III Seminario Regional Agrociencia y Tecnología Siglo XXI. (November 23–25, 2005, Villavicencio, Meta) p. 148.
- Claassen, N.; Castañeda-Ortiz, N.; Neumann, G.; Gweyi-Onyango, J.P.; Rao, I.M. 2005. Root exudation of organic acids and/or acid phosphatase cannot explain phosphorus mobilization by *Arachis pintoi*. *In*: Li, C.J.; Zhang, F.S.; Dobermann, A.; Lambers, H.; Li, X.L.; Marschner, P.; Maene, L.; McGrath, S.; Oenema, O.; Peng, S.B.; Rengel, Z.; Shen, Q.R.; Welch, R.; von Wiren, N.; Yan, X.L.; Zhu, Y.G.; (eds.). Plant Nutrition for Food and Security, Human Health and Environment Protection. XV IPNC 2005, p. 460-461. (Tsinghua University Press, Beijing, China).
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- Franco, L.H.; Peters, M. (eds.). 2005. Memorias del taller sobre semillas y de la reunión anual del Comité Técnico del Proyecto ‘Uso de forrajes impulsado por el mercado’. 24 al 29 de abril 2005, Yoro, Honduras. CD-ROM, CIAT.
- Gabunada, F., Phengsavanh, P., Lopez K. and Stür W. (eds.). 2005. Proceedings of the 2005 Annual Review and Planning Meeting: RETA 6067 -Improving Livelihoods of Upland Farmers Using Participatory Approaches to Develop More Efficient Livestock Systems. Held in Buon Ma Thuot, Daklak, Vietnam, 24 – 28 January 2005. CIAT Asia, Vientiane, Lao PDR.
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- Hess, H.D.; Romero, H.M.; Gómez, C.A; Wettstein, H.R.; Kreuzer, M. 2004. Effect of dry and wet season feeding on milk production and quality of cows kept at high altitude in the Peruvian Andes. In: Deutscher Tropentag, Rural Poverty Reduction through Research for Development, (October 5-7, 2004, Berlin). [http://www.tropentag.de/2004/abstracts/links/Hess\\_IIBRdS6s.php](http://www.tropentag.de/2004/abstracts/links/Hess_IIBRdS6s.php)\*
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- Hess, H.D.; Tiemann, T.T.; Stürm, Ch.; Carulla, J.E.; Lascano, C.E.; Kreuzer, M. 2005. Effects of dietary tannins on ruminal degradation and excretory pattern of N, and implications for the potential N emission from the manure. In Working Papers of the 2<sup>nd</sup> Int. Conf. on Greenhouse Gases and Animal Agriculture. In: Soliva, C.R.; Takahshi, J.; Kreuzer, M. (eds.). Publication Series, Institute of Animal Science, Nutrition – Products – Environment, ETH Zurich, Vol. 27: 548-551.
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- Horne, P.M. and Stür, W.W. (2005). Participatory research for smallholder livestock systems - applying common sense to complex problems. In: McGiloway D.A. (ed.) "Grassland: A Global Resource". Proceedings of the XX International Grassland Congress, Dublin, 27 June - 01 July 2005. pp. 359-373. (Wageningen Academic Publishers,).

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- Lascano, C.E.; Peters, M.; Holmann, F. 2005. *Arachis pintoi* in the humid tropics of Colombia: a forage legume success story. In: O'Mara, F.P.; Wilkins, R.J.; 't Mannelje, L.; Lovett, D.K.; Rogers, P.A.M.; Boland, T.M. (eds.). XX International Grassland Congress: Offered papers, Wageningen Academic Publishers, p. 327
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- Schultze-Kraft, R.; Peters, M.; Vivas, N.; Parra, F.; Franco, L.H. 2005. *Desmodium velutinum* – a high-quality legume shrub for acid soils in the tropics. In: O'Mara, F.P.; Wilkins, R.J.; 't Mannetje, L.; Lovett, D.K.; Rogers, P.A.M.; Boland, T.M. (eds.). XX International Grassland Congress: Offered papers, Wageningen Academic Publishers, p. 338.
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- Suparto, Djodi AH and Gabunada, F. 2005. Expansion of forage technologies to new sites in South Sumatra, Central Kalimantan, and South Kalimantan, Indonesia. In: Gabunada, F., Phengsavanh, P., Lopez K. and Stür W. (eds) (2005). Proceedings of the 2005 Annual Review and Planning Meeting: RETA 6067 -Improving Livelihoods of Upland Farmers Using Participatory Approaches to Develop More Efficient Livestock Systems. Held in Buon Ma Thuot, Daklak, Vietnam, 24 – 28 January 2005. CIAT Asia, Vientiane, Lao PDR.
- van der Hoek, R.; Peters, M.; Hoffmann, V. 2005. Potential and constraints for animal feed as an objective of poor farmers in participatory research with multipurpose forage crops in Central-America. In: O'Mara, F.P.; Wilkins, R.J.; 't Mannetje, L.; Lovett, D.K.; Rogers, P.A.M.; Boland, T.M.; (eds.). XX International Grassland Congress: Offered papers, Wageningen Academic Publishers, p. 809
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### Technical Bulletins

Argel, P.J.; Miles, J.W.; Guiot, J.D.; Lascano, C.E. 2006. Cultivar Mulato (*Brachiaria* híbrido CIAT 36061). Gramínea de alta producción y calidad forrajera para los trópicos. 24 p. Publication CIAT/Semillas Papalotla (In press).

Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J. L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M. and Schultze-Kraft, R. 2005. Tropical Forages: an interactive selection tool, [CD-ROM], CSIRO, DPI&F(Qld), CIAT and ILRI, Brisbane, Australia. [www.tropicalforages.info](http://www.tropicalforages.info).<<http://www.tropicalforages.info>>

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Reiber, C.; Cruz, H.; Peters, M.; Franco, L.H.; Lascano, C.; Ávila, P.; Schmidt, A.; Schultze-Kraft, R.; Burgos, C.; Mena, M.; Lentés, P. 2005. El ensilaje – alternativa para conservar forrajes. Leaflet, CIAT.

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\* These publications were not included in the 2004 Annual Report

## Awards to Staff in the Project

**Outstanding Research Publication Award (ORPA):** Cardona, César; Fory, Paola; Sotelo, Guillermo; Pabón, Alejandro; Díaz, Giovanna, and Miles, John. “Antibiosis and tolerance to five species of spittlebug (Homoptera: Cercopidae) in *Brachiaria spp*: Implications for breeding for resistance”. Apr. 2004. *Journal of Economic Entomology* 97(2): 635-645.

**Outstanding Support Staff Contribution Award (OSSCA):** Guillermo Sotelo, Research Assistant, Tropical Forages Entomology

**Francisco Luis Gallego Award:** Sotelo Paola; Cardona César; Guillermo Sotelo, and Montoya James. “Resistencia de *Brachiaria spp* al salivazo: Efectos subletales de cultivares resistentes sobre los adultos de *Aeneolamia varia* (S. (Homptera:Cercopidae))”

## Thesis list

### Internship

Name	Status	University	Title
Schoonhoven, Diane	Completed	Wageningen University, Holland	Estimation and comparison of benefits due to feeding silage and hay during the dry season on commercial dual-purpose cattle production systems in Honduras and Costa Rica
Zöfel, Katrin	Completed	University of Hohenheim, Germany	Morphological and phenological characterization and analysis of origin information of a collection of <i>Leucaena diversifolia</i>

### BS Thesis

Name	Status	University	Title
Abello Javier F.	Completed	Universidad Nacional, Bogotá, Colombia	<i>Brachiaria</i> endophytes as gene delivery system
Betancourth Martha	On-going	Universidad Nacional, Palmira, Colombia	Evaluación de la producción de leche con <i>Brachiaria</i> (Toledo y dos híbridos Mulato y Mulato 2) en suelos ácidos
Miller María Fernanda	Completed	Universidad del Valle, Cali, Colombia	Resistencia de <i>Brachiaria</i> spp. al salivazo: Efectos subletales de cultivares resistentes sobre los adultos de <i>Zulia carbonaria</i> (Lallemand) (Homoptera: Cercopidae)
Real Posada Franklin Rigoberto, Rayo Carazo Omar Antonio Ramírez Edwin José López Suárez Cheyla Matilde Romero Duarte Juan Adán Luna García Álvaro José	On-going	Universidad Nacional Agraria (UNA), Managua, Nicaragua	Survey on dry season feed resources in three different livestock regions of Nicaragua
Rincón Lozano Juisse Dayana	Completed	Universidad Nacional de Colombia, Palmira, Colombia	Evaluación del efecto de la sequía en genotipos de <i>Brachiaria</i> bajo condiciones de invernadero
Rosero Jaime	Completed	Universidad Nacional, Palmira	Ensayo Multilocacional de Sistemas de Establecimiento de <i>Cratylia argentea</i> cv. Veranera
Schöber Johanna	On-going		Literature review of <i>Pueraria phaseoloides</i> (in progress)

## MS students

Name	Status	University	Title
Atzmanstorfer Karl	On-going	University of Salzburg, Austria	2006. Semi commercial production of cowpea in Cauca and Valle
Castro Ulises	On-going	Colegio de Postgraduados de Chapingo, Chapingo, Mexico	Mechanisms of resistance to <i>Aeneolamia albofasciata</i> and <i>Prosapia simulans</i> en <i>Brachiaria</i> spp.
Cortés Cortés Javier E.	On-going	Universidad Nacional de Colombia, Bogotá, Colombia	Efecto de los taninos de leguminosas tropicales sobre la degradación in vitro de la proteína con fluido ruminal y pepsina
Husselman Madeleen	On-going	Wageningen Agricultural University	Evaluation of potential production of seed from the hybrid <i>Brachiaria</i> "Mulato" with small plot and on-farm trials on the Bolovens Plateau in southern Lao
Hernández Chaves Moisés	Completed	University of Costa Rica	Evaluación de la selectividad de herbicidas y el control de malezas durante la fase de establecimiento de los pastos <i>Panicum maximum</i> , <i>Brachiaria brizantha</i> y <i>B. decumbens</i>
López Francisco	On-going	Universidad del Valle	Caracterización de la tolerancia al daño causado por adultos como componente de resistencia a <i>Aeneolamia varia</i> (F.) en genotipos de <i>Brachiaria</i> spp
Monsalve Castro Lina Maria	On-going	Universidad Nacional de Colombia, Palmira, Colombia	Efectos sobre la fermentación ruminal, el flujo de proteína duodenal y la absorción de nitrógeno en ovinos alimentados con leguminosas con y sin taninos
Nieto B. Juan C.	Completed	Universidad de Costa Rica, Costa Rica	Caracterización nutricional de material fresco y ensilado de Maní forrajero ( <i>Arachis pintoi</i> ) cultivado en asocio con Maíz ( <i>Zea mays</i> ) a tres densidades de siembra
Pabón Alejandro	On-going	Universidad de Viçosa, Brazil	Mechanisms of resistance to <i>Deois incompleta</i> and <i>Notozulia entreriana</i> en <i>Brachiaria</i> spp.
Payan Arlen	On-going	Centro Agronómico de Investigación y Enseñanza (CATIE), Costa Rica	Efecto de <i>Cratylia argentea</i> sobre la producción animal en la cuenca de Jucuapa, Matagalpa, Nicaragua
Ricaurte José Jaumer	On-going	Universidad Nacional de Colombia, Palmira, Colombia	Impact of aluminum tolerant <i>Brachiaria</i> genotypes on soil quality characteristics of an oxisol of the altillanura of the Meta Department of Colombia
Schulz Tatjana	Completed	University of Hohenheim,, Germany	Evaluation of <i>Brachiaria brizantha</i> cv. Toledo and <i>Brachiaria</i> hybrids Mulato and Mulato II conserved as hay
Vivas Nelson	Completed	Universidad Nacional de Colombia, Palmira, Colombia	Evaluación agronómica de 144 accesiones de <i>Desmodium velutinum</i> como alternativa forrajera para las zonas de ladera del norte del departamento de Cauca

## PhD students

Name	Status	University	Title
Andersson Meike Stephanie	Completed	University of Hohenheim, Germany	Genetic diversity and core collection approaches in the multipurpose shrub legumes <i>Flemingia macrophylla</i> and <i>Cratylia argentea</i>
Bartl Karin	On-going	Swiss Federal Institute of Technology (ETH), Zurich, Switzerland	Effects of improved feeding systems for dairy cattle in tropical smallholder farms on milk production and quality at high altitudes
Castañeda Nelson	On-going	University of Goettingen, Germany	Genotypic variation in P acquisition and utilization in <i>Arachis pintoi</i>
Hernández Luis Alfredo	On-going	University of Hohenheim, Germany	A participatory procedure applied to selection and development of forages with farmers
Louw-Gaume Annabé	On-going	ETH, Zurich, Switzerland	Adaptation of <i>Brachiaria</i> grasses to low P soils
Mejia Sergio	On-going	Universidad Nacional de Colombia, Palmira, Colombia	Identification of candidate genes responsible for adaptation of tropical forage grass, <i>Brachiaria</i> to low phosphorus soils
Reiber Christoph	On-going	University of Hohenheim, Germany	Encouraging adoption of research-based offerings with contrasting extension approaches
Rincon Alvaro	On-going	Universidad Nacional de Colombia, Bogotá, Colombia	Integration of maize with forages to recuperate degraded pastures in the Llanos of Colombia
Tiemann Tassilo	On-going	Swiss Federal Institute of Technology (ETH), Zurich, Switzerland	The forage potential of tanniniferous legumes: Search for sustainable ways to cope with nutritional limitations in smallholder livestock
Van der Hoek Rein	On-going	University of Hohenheim, Germany	Participatory research methods for forage- based technologies in Central-American hillsides.

## List of Donors

### **Asian Development Bank**

Livelihood and Livestock Systems  
Project  
2003-2005

### **Australia – ACIAR**

Development of a knowledge system for the selection of forages for farming systems in the tropics (co-financed with BMZ-DFID), 2002-2005

### **Australia – AusAID**

Forages and Livestock Systems  
Project  
2000-2005

### **Austria - KEF Commission for Development Studies at the Austrian Academy of Sciences**

Development of low input systems such as organic farming by optimizing the use of legumes in a dry region of Nicaragua to strengthen soil fertility, yield, human nutrition and farm income. Use of legumes in low input systems (ULLIS), 2005-2007

### **Colombia - SAG Valle del Cauca**

Development of agricultural production in the Valle de Cauca (University; Universidad Nacional, Government), 2004-2006

### **Common Fund for Commodities (CFC)**

2003-2006  
Enhancing beef productivity, quality, safety, and trade in Central America (Guatemala, Nicaragua, Honduras)

### **FUNICA - Nicaragua 2003-2004**

Validación de sistemas de cultivos con introducción de leguminosas como abonos verdes y coberturas sobre la sostenibilidad de sistemas de producción tradicionales en una microcuenca, San Dionisio, Nicaragua

### **Germany- BMZ**

- Development of a knowledge system for the selection of forages for farming systems in the tropics (cofinanced with ACIAR-DFID), 2002-2005
- Demand-Driven Use of Forages in Fragile, Long Dry Season Environments of Central America to Improve Livelihoods of Smallholders, 2004-2007
- PostDoc proposal Understanding and Catalyzing Learning Selection processes, 2005-2008

### **Germany - Volkswagen Foundation**

- Research and development of multipurpose forage legumes for smallholders croplivestock systems in the hillsides of Latin America (with the U. of Hohenheim and CORPOICA, 2003-2006)

### **Japan – The Ministry of Foreign Affairs**

- The tropical Forage Project (core funds)

**Semillas Papalotla, S.A. de C.V.** 2001-2007  
Brachiaria Improvement Program

**Systemwide Livestock Program**, 2005-2006  
Jump-Starting Smallholder Farmer  
Participation in Public-Private Partnerships:  
Adapting Legume Forages for On-Farm  
Monogastric Production and the Feed Industry,  
Seed Grant

### **Switzerland – SDC- ZIL**

- Adaptation of Brachiaria to low P (with ETHZ), 2003-2005
- The forage potential of tanniferous legumes: The search for sustainable ways to cope with nutritional limitations on smallholder systems (with ETHZ), 2004-2006



## List of Collaborators

### Austria

Bernhard. Freyer, BOKU Vienna  
Gabriele Pietsch, BOKU Vienna  
Thomas Blaschke, University of Salzburg

### Australia

Bruce Cook, Ian Partridge, QDPI  
Bruce Pengelly, Stuart Brown, David Eagles CSIRO  
Rob Corner, Curtin University  
Sukumar Chakraborty, CSIRO  
Max Shelton, University of Queensland  
P. Wenzl, DarT P/L, Canberra

### Brazil

Cacilda Borges do Valle, EMBRAPA/ CNPGC, Campo Grande, MS

### Cambodia

Sorn San, NAHPIC

### China

Huang Dongyi, South China University  
Yi Kexian, CATAS

### Colombia

Alirio Martínez M., UMATA Restrepo, Valle del Cauca  
Antonio Pérez, Universidad de Sucre  
Carlos H. Cardona H., REVERDECER, Restrepo, Valle del Cauca  
Carlos Vicente Durán, Universidad Nacional de Colombia, Palmira, Valle del Cauca  
Carmen B. de Muñoz, Universidad de la Amazonía, Florencia, Caquetá  
Corpoica Macagual, Caquetá  
Daniel Villada, FIDAR, Valle del Cauca  
Edgar A. Cárdenas, Universidad Nacional de Colombia, Bogotá  
Freddy Parra, CORPOICA, Popayán, Cauca  
Henry Mateus, CORPOICA, Barrancabermeja, Santander  
Jaime Velásquez, Universidad de la Amazonía, Florencia, Caquetá  
Jairo Osorio, CORPOICA, Colombia  
Jorge Medrano, Corpoica, Villavicencio  
José Restrepo, FIDAR, Valle del Cauca  
Juan Carulla, Universidad Nacional de Colombia, Bogotá  
Marino Valderrama, Farmer group Ondina  
Martha Almanza, Universidad del Cauca  
Nelson Vivas, Universidad del Cauca  
Rafael Mora, Universidad de los Llanos, Villavicencio  
Rolando Barahona, Corpoica, Bogotá  
Silvio Guzmán, Fundación Universitaria San Martín, Barranquilla  
Tito Díaz, CORPOICA-Tibaitatá

### Costa Rica

Alberto Barbosa, CGUS  
Augusto Rojas, UCR  
Beatriz Sandoval, MAG  
Carlos Hidalgo, MAG  
Carlos Jiménez, UCR  
Carlos Zumbado, MAG  
Corporación de Fomento Ganadero, CORFOGA  
Francisco Romero, ECAG

Guillermo Pérez, CIAT  
Horacio Chi Chan, MAG  
Jesús González, ECAG  
Jobny Chávez, Cámara de Ganaderos de Cañas  
Luis Mesén, MAG  
Marco Lobo, MAG  
María Mesén, MAG  
Mauricio Chacón, MAG  
Milton Villareal, ITC  
Mohammed Ibrahim, CATIE  
Ricardo Guillen Montero, MAG  
Vidal Acuña, MAG  
William Sánchez, MAG

### Denmark

José Adalberto Fernández ([JoseA.Fernandez@agrsci.dk](mailto:JoseA.Fernandez@agrsci.dk)), DIAS/KVL, Denmark  
Nils Christian, Kyvsguard KVL

### Ethiopia

Areka Agricultural Research Institute, Ethiopia  
Endale Gebre, EARO, Ethiopia  
Ethiopia Agricultural Research Organization (EARO), Ethiopia  
FARM Africa, Ethiopia  
International Livestock Research Institute (ILRI), Ethiopia  
Jean Hanson, ILRI  
Melkassa Agricultural Research Center, Ethiopia  
Muluneh Minta, EARO, Ethiopia  
S.A. Tarawali, ILRI  
Salvador Fernandez, ILRI

### Germany

Brigitte Maass, University of Goettingen  
Norbert Claassen, University of Goettingen  
Rainer Schultze-Kraft, University of Hohenheim  
Volker Hoffmann, University of Hohenheim  
Walter Horst, University of Hannover,

### Guatemala

Asociación de Criaderos de Ganado Brahman, ASOBRAHMAN  
Ramiro Pérez, (MAGA)

### Honduras

Anreas Gettkant, GTZ  
Conrado Burgos, DICTA  
Ernesto Ehrler, DICTA  
Gustavo Agurcia, FENAGH  
J. Jimenez, IPCA  
Marlen Iveth Posas Ponce, SERTEDESO

### India

Michael Blummel, ILRI

### Indonesia

Dinas Peternakan Samarinda

### Italy

Stephen Reynolds, FAO  
Caterina Batello, FAO

**Japan**

G. V. Subbarao, JIRCAS, Tsukuba, Japan  
K. Okada, JIRCAS, Tsukuba, Japan  
M. Osaki, Hokkaido University, Sapporo  
O. Ito, JIRCAS, Tsukuba  
Sumio Miyawaki- Coordinador, JICA  
T. Ishikawa, JIRCAS, Tsukuba, Japan  
T. Shinano, Hokkaido University, Sapporo  
T. Wagatsuma, Yamagata University, Yamagata  
Tadano, Hokkaido University, Sapporo  
Y. Saito, National Grassland Research Institute,  
Kitasaku, Nagano

**Kenya**

James Smith, ILRI  
Dannie Rommney, ILRI  
D. Friesen, IFDC-CIMMYT  
Steve Franzel, ICRAF  
William Thorpe, ILRI

**Lao, PDR**

Bounthavong Kounnavongsa, NAFRI  
Viengsavanh Pimphachanhvongsod, NAFRI  
Viengxay Photakoun NAFE

**Malawi**

Department of Agricultural Research Service (DARS),  
Malawi  
Land-O-Lakes, Malawi

**México**

Andrei Nicolayevsky, Semillas Papalotla, Mexico, DF  
Armando Peralta M., Agroproductos de Iguala, S.A.,  
Iguala, Guerrero  
Eduardo Daniel Bolaños Aguilar, INIFAP,  
Huimanguillo, Tabasco  
Eduardo Stern, Semillas Papalotla, Mexico, DF  
Francisco Javier Henríquez, INIFAP, Isla, Veracruz  
Jorge David Guiot, Semillas Papalotla, Villahermosa,  
Tabasco

**Nicaragua**

Alejandro Blandón, INTA  
Dionisio Soto, MAG-FOR  
Humberto Sánchez, FAGANIC  
Instituto de Desarrollo Rural, IDR  
José Antonio Molina, INTA  
Lino Estrada, Asociación Campos Verdes, San Dionisio  
Martin A. Mena, INTA  
Octavio Menocal, INTA  
Yuri Mongalo, ASODEL

**Nigeria**

B.B. Singh, IITA  
Nicoline de Haan, IITA

**Philippines**

Eduedo Magboo, PCARRD  
Elsie Gabonada, Impasugong  
Francisco Gabunada, ViSCA  
Judith Saguinhon, MAO, Malitbog  
Leonardo Moneva, Mag-Uugmad Fdn.  
Perla Asis, City Veterinary Office, Cagayan de Oro

**Switzerland**

A. Gaume, ETH, Zurich  
A. Oberson, ETH, Zurich  
Andrea Machmüller, Methanogenesis, ETH Zurich  
Dieter Hess, ETH, Zurich  
E. Frossard, ETH, Zurich  
Michael Kreuzer, ETH, Zurich

**Thailand**

Chaisang Phaikaew, DLD  
Ganda Nakamane, PCANRC

**Uganda**

Africa 2000 Network  
African Highland Initiative, Kampala  
National Agricultural Research Organisation (NARO),  
Uganda

**United States**

C. Schardl, University of Kentucky  
Peter Andersen (University of Florida)  
James White, Rutgers University

**Vietnam**

Le Hoa Binh, NIAH  
Truong Tan Khanh, Tay Nguyen  
University Vu Thi Yen, DARD

## Project Staff List

### Principal Staff

Lascano Carlos E, Project Leader and Animal Nutritionist; Headquarters  
Argel Pedro, Forage Agronomist: 0.35% CFC and 0.25% Papalotla, San José, Costa Rica  
Cardona Cesar, Entomologist (Host Plant – Resistance): 37.5% IP-5 and 37.5% IP-1; Headquarters  
Holmann Federico, Animal Production Systems/Economics: 50% CIAT and 50% ILRI; Headquarters  
Horne Peter, Forage Agronomist-Asia- 100% IP- 5 (until April, 2005)  
Kelemu Segenet, Pathologist: 50% in IP-5 and 50% PE-1; Headquarters  
Miles John, Plant Breeder: 100% in IP-5; Headquarters  
Peters Michael, Forage Biologist: 100% in IP-5; Headquarters  
Rao Idupulapati, Plant Nutritionist/Physiologist: 30% in IP-5, 30% in IP-1 and 40% in PE-2; Headquarters  
Schmidt Axel, Forage Agronomist: 100% in IP-5, Managua, Nicaragua, (until July, 2005)  
Stur Werner, Forage Agronomist: 50% IP-5; Asia

### Consultants

Wenzl Peter, CAMBIA, Canberra, Australia

### PostDoc

Lentes, Peter, Socio-Economics and GIS, Honduras

### Visiting Scientists

Castro Ulises, Colegio de Postgraduados, Chapingo, Mexico  
Pabón Alejandro, Universidad Federal de Vicosa, Vicosa, Brasil  
Sakai Tomoko, Japan Overseas Cooperation Volunteers (JOCV), JICA, Japan  
Subbarao Guntur, JIRCAS, Tsukuba, Japan

### Biometrics Specialist

Ramírez Gerardo

### Research Associates and Assistants

Avila Patricia, Forage Quality  
Cruz Flores Heraldo, Regional evaluation (Yorito, Honduras)  
Davies Salmeron Clark Sydney, Regional evaluation (San Dionisio, Nicaragua)  
Franco Luis Horacio, Germplasm  
Franco Manuel Arturo, Forage Database  
Fory Paola, Plant Pathology  
Hernández Luis Alfredo (Participatory research from SN3)  
Plazas Camilo, Regional evaluation, (Llanos)

Rodriguez Martin, Plant Pathology  
Sotelo Guillermo, Entomology  
Phonepaseuth Phengsavanh, - Animal Science, Asia  
Francisco Gabunada, Animal Science, Asia  
Samson Jindra, Regional evaluation, Asia

### Specialists

Betancourt Aristipo, Seed production  
García Ramiro, Plant Nutrition  
Hincapié Belisario, Germplasm  
Segura Gustavo, Plant Pathology

### Technicians

Baena Alvaro, Plant Pathology  
Bonilla Ximena Patricia, Phytopathology  
Córdoba Gilberto, Entomology  
Fejoo Fernando, Plant Nutrition  
Franco Humberto, Seed Unit (Palmira)  
Mera William, Entomology (Caquetá)  
Muñoz Perea Jacqueline, Seed Unit (Palmira)  
Ospinal Gustavo, Forage Quality  
Pareja José Reinaldo, Entomology  
Pérez Guillermo, Seed Unit, (Atenas, Costa Rica)  
Rojas Castillo Claudia Ximena, Plant Nutrition  
Vergara Daniel, Genetics (Villavicencio)  
Viveros Darío H., Phytopathology

### Workers

Amaya José Nelson, Genetics  
Aragón José Ever, Forage Evaluation (Quilichao)  
Arce Crisanto, Seed Unit, Atenas, Costa Rica  
Carabalí Néstor, Forage Evaluation (Quilichao)  
Hernández Gutiérrez Isled Yomar, Plant Nutrition  
García Benilda, Forage Quality  
Gutiérrez Pedro José, Genetics (Popayán)  
Lasso Jesús, Forage Germplasm, (Quilichao)  
López Luis Alberto, Plant Nutrition  
Mona Alvarez Héctor Fabio, Genetics  
Mora José Manuel, Costa Rica  
Recio Maria Eugenia, Plant Nutrition  
Trujillo Filigrana Orlando, Forage Quality  
Viveros Roso Hernando, Forage Evaluation (Quilichao)  
Zúñiga Harold Orlando, Forage Evaluation (Quilichao)

### Ph.D. Students

Andersson Meike Stephanie, University of Hohenheim, Germany (Completed)  
Bartl Karin, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland  
Castañeda, Nelson, University of Goettingen, Germany (Completed)

Hernández, Luis Alfredo, University of Hohenheim, Germany  
Reiber Christoph, University Hohenheim, Germany  
Rincón, Alvaro, Universidad Nacional de Colombia, Bogota, Colombia  
Tiemann Tassilo, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland  
Mejia Kerguelen Sergio Luis, National University-Palmira, Colombia  
Louw-Gaume Annabé, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland  
Van der Hoek, Rein, University of Hohenheim, Germany

#### **MSc. Students**

Atzmanstorfer Karl, University of Salzburg, Austria  
Castro, Ulises, Colegio de Postgraduados, Chapingo, Mexico. (finishes in March 2006)  
Cortés Cortés Javier Eduardo, Universidad Nacional de Colombia, Bogotá  
López Machado Francisco, Universidad del Valle, Cali  
Monsalve Castro Lina Maria, Universidad Nacional de Colombia - Sede Palmira.  
Nieto Betancur, Juan C., Universidad de Costa Rica. Sistemas de Estudios de Posgrado  
Pabón Alejandro, University of Vicosa, Brazil  
Schulz Tatjana, University of Hohenheim, Germany  
Vivas, Nelson, Universidad Nacional, Palmira  
Ricaurte Jaumer, National University-Palmira, Colombia

#### **Pre-Graduate Students**

Abello Javier Francisco, Universidad Nacional de Colombia, Bogotá, Colombia  
Betancourt Martha, Universidad Nacional de Colombia, Palmira, Colombia  
Bertrand Ramón Iván, Universidad Católica Agropecuaria del Trópico Seco, Esteli, Nicaragua, (finishes Feb 2004)  
Cuellar Ortega Diana Cecilia, Universidad del Cauca, Colombia  
Franklin Rigoberto Real Posada, Omar Antonio Rayo Carazo, Edwin José Ramirez Ramirez, Cheyla Matilde

Lopez Suarez, Juan Adán Romero Duarte, Álvaro José Luna García, Universidad Nacional Agraria (UNA), Managua, Nicaragua, 2004  
López Erwin and Alejandro Vargas, Universidad Nacional Autónoma de Nicaragua - UNAN CUR Matagalpa, Nicaragua, (completed).  
Mera Mónica Lorena, Universidad Nacional de Colombia, Facultad de Ciencias Agropecuarias-Zootecnia, Colombia  
Miller, Maria Fernanda, Universidad del Valle, Facultad de Ciencias, Cali  
Monsalve C., Lina Maria, Universidad de Santa Rosa de Cabal, Facultad de Zootecnia, Pereira, Colombia  
Rincón Lozano Joisse Dayana, Universidad Nacional de Colombia, Facultad de Ciencias Agropecuarias-Agonomía, Colombia  
Rosero Jaime, Universidad Nacional, Palmira completed, Colombia  
Schöber, Johanna, BSc thesis University of Hohenheim, Germany

#### **Trainees**

Calderón Juan Carlos, Student in Practice, Base de Datos (with Systems Unit)  
Dohmeyer Caroline, University of Hohenheim, (organic matter survey San Dionisio)  
Plata César Aurelio, Student in Practice, Universidad Javeriana, Base de Datos (with Systems Unit)  
Schloen Marie, University of Hohenheim, Student in Practice (SoFT, literatura revision *Canavalia brasiliensis*)  
Schoonhoven Diane,  
Zöfel, Katrin, University of Hohenheim

#### **Secretaries**

Arenas, Beatriz  
Bonilla Diadema, Philippines  
Burbano Jenny Milena  
Gómez Quintero Julia  
Salazar Marielos, Costa Rica