

## **CURRICULUM VITA**

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Born 7 October 1940, Havana, Cuba  
Citizenship: United States  
Married, three children, six grandchildren

### **Education**

Raised in Cuba; family farm and fertilizer business.  
Colegio de la Salle, Havana, Cuba: Elementary and Secondary (cum laude).  
Cornell University:  
    B.S. Agronomy 1962  
    M.S. Soil Science 1964  
    Ph.D. Soil Science 1968  
Several leadership and management short courses since 1991

**Languages:** English, Spanish, and Portuguese

### **Employment**

September 2016 - . Research Professor, Institute for Sustainable Food Systems and Soil and Water Sciences Department, University of Florida.

2003 - June 2016. Director, Agriculture and Food Security Center, the Earth Institute at Columbia University, Senior Research Scholar and Adjunct Professor, Department of Ecology, Environment and Evolutionary Biology, Columbia University, New York.

- 2009 - 2012. Director, Africa Soils Information Service (AfSIS), the Earth Institute at Columbia University.
- 2004 – 2010. Director, Millennium Villages Project, the Earth Institute at Columbia University.
- 2003- 2006. Co-Chair, UN Millennium Project Task Force on Hunger, United Nations, New York.
- 2002: Visiting Professor of Tropical Resources, Department of Environmental Science, Policy and Management, and Senior Research Fellow, Center for Sustainable Resource Development, University of California, Berkeley.
- 1991 - 2001: Director General, World Agroforestry Centre (ICRAF), Nairobi, Kenya.
- 1991-: Professor Emeritus of Soil Science and Forestry, North Carolina State University.
- 1990-91: Director, Center for World Environment and Sustainable Development - Duke University, North Carolina State University and the University of North Carolina at Chapel Hill.
- 1984-91: Coordinator, Tropical Soils Program, North Carolina State University, with activities expanded to Indonesia, Bolivia, and Madagascar.
- 1982-83: Chief, North Carolina State University Mission to Peru, Lima, and concurrently Technical Chief, Instituto Nacional de Investigación y Promoción Agropecuaria (INIPA) and Senior Advisor, World Bank project. Led the institutional development of Peru's agricultural research, extension and education system.
- 1979 - 91: Professor of Soil Science, North Carolina State University.
- 1979-82: Coordinator, Tropical Soils Program, North Carolina State University, with similar responsibilities as previously.
- 1977-79: Coordinator, Tropical Pastures Program, Centro Internacional de Agricultural Tropical (CIAT), Cali, Colombia.
- 1973-79: Associate Professor of Soil Science, North Carolina State University.
- 1971-76: Leader of the Tropical Soils Program, Soil Science Department, North Carolina State University. Responsible for field soil research projects in the Cerrado of Brazil, the Amazon of Peru, and in Central America in cooperation with various research institutions; taught a graduate course in tropical soil management, major professor of Ph.D. and M.S. degree candidates.

- 1968-71: Co-leader, National Rice Program of Peru, North Carolina State University Agricultural Mission to Peru, Lambayeque. In charge of cooperative research and extension program aimed at achieving rice self-sufficiency
- 1968-73: Assistant Professor of Soil Science, North Carolina State University.
- 1965-68: Graduate Assistant in Soil Science, University of the Philippines-Cornell Graduate Education Program sponsored by the Ford Foundation, Los Baños, Philippines. Taught soil fertility courses at the University and conducted research for Ph.D. degree at the International Rice Research Institute.

## Recognition

- Doctor of Science Honoris Causa, North Carolina State University (Dec. 2015).
- Presidential Award, Soil Science Society of America (Nov. 2012).
- Elected to the National Academy of Sciences of the US (May, 2012).
- Honorary member, Cuban Society of Soil Science (July 2010).
- Honorary member, Colombian Society of Soil Science (October 2008).
- Medal “Honra ao Mérito”, Universidade Federal de Lavras, Brazil (July 2008).
- Elected to the American Academy of Arts and Sciences (May 2008).
- Certificate of contribution to the Intergovernmental Panel on Climate Change’s Nobel Peace Prize of 2007.
- Charles A. Black Award from the Council of Agricultural Science and Technology, “for exemplary contributions to the understanding of agricultural science and technology” (March 2008).
- USDA Beltsville Area Distinguished Lecturer certificate for “revolutionary contributions to soils research” (Oct. 2007).
- Chief Atunluse of the Ikaram, Nigeria (August 2007).
- Doctor of Science Honoris Causa, Ohio State University (December 2006).
- Hero of Humanity, Heifer International (November 2006).
- Honorary Fellow, ISRIC-World Soil Information, Wageningen, Netherlands (March 2006).
- Fellow of the American Association for the Advancement of Science (Sept. 2005).
- Doctor of Science Honoris Causa, University of Guelph, Canada (June 2004).
- MacArthur Fellow (2004 – 2008).
- World Food Prize (October 2002).
- Presidential Award, Crop Science Society of America (2003)
- Anointed Luo Elder with the name of Odera Akang’o by the Luo community of Western Kenya (August 2001).
- Doctor Honoris Causa, Katholieke Universiteit Leuven, Belgium (February 2001).
- Elected Chairman, Soil Fertility and Plant Nutrition Commission, International Society of Soil Science (1994).
- International Service in Agronomy Award, American Society of Agronomy (1993).
- International Soil Science Award, Soil Science Society of America (1993).
- Appointed Adjunct Professor of Tropical Conservation, Duke University (1990).
- Appointed Honorary Professor, Universidad Nacional de la Amazonia Peruana, Iquitos, Peru (1987).

- Elected Vice Chairman, Commission VI, International Society of Soil Science (1986).
- Awarded the Orden de Mérito Agrícola, Government of Peru (1984).
- Fellow of the American Society of Agronomy (1983).
- Fellow of the Soil Science Society of America (1983).
- Diploma de Honor, Instituto Colombiano Agropecuario (1979).
- American Men and Women of Science (1972).
- Diploma de Mérito, Ministerio de Agricultura del Peru (1971).
- President, Cornell Agronomy Club (1962).
- President, Alpha Delta Phi fraternity, Cornell chapter (1962).
- National Plant Food Institute Agronomy Achievement Award (1960).

### Professional Assignments

- Daniel Carrasco Prize Selection Panel. Paris, (2011-12).
- Reviewer, National Academy of Sciences, Achieving Research Synergies for Food/Energy/Environment Challenges Committee (2010). *A Workshop to Explore the Potential Contributions of the "New Biology". Board on Life Sciences, National Academy of Sciences*
- DuPont Committee on Agricultural Innovation and Productivity in the 21<sup>st</sup> Century (2010-2015).
- Leaders Group, The Chicago Initiative on Global Agricultural Development. Chicago Council on Global Affairs. 2008.
- Ad Hoc Advisory Group to the FAO Madrid Conference on Food Security, January 26-27, 2009.
- US National Committee for Soil Science, National Academy of Sciences (2008-
- Board on Agriculture and Natural Resources, National Research Council (2006 - 10).
- Board of Directors, Yara Foundation, Oslo (2005-2010).
- Board of Trustees, Millennium Promise Alliance, New York (2006 -09).
- Co-Chair, Task Force on Hunger, United Nations Millennium Development Goals (2002- 2006).
- Advisory Board, Center for the Study of Science and Religion, Columbia University (2005-2008).
- Advisory Council, IFPRI 2020 Vision (2004-2008).
- Earth Institute Faculty, Columbia University (2004 – 2016)
- Advisory Board, World Agricultural Forum (2003).
- Board of Directors, Africa Biotechnology Centre, Nairobi (2003)
- Selection committee for the International Soil Science Award, Soil Science Society of America (2002-).
- Advisory Board, Beahrs Environmental Leadership Program, University of California, Berkeley (2000 - 02).
- Co-editor in Chief "Agroforestry Systems" (1991 - 2001).
- Chair, CGIAR Intercentre Working Group on Climate Change (1998 – 2001).
- Member, Soil Fertility Initiative for Africa (World Bank, FAO), representing the CGIAR (1995 – 2001).
- Member, Advisory Council, CGIAR Gender and Diversity Program (1998- 2001).

- Lead author, Special Report on Forestry, Land Cover and Land Use Change, Intergovernmental Panel on Climate Change (1998 – 2000).
- Chair, CGIAR Center Directors Committee (1998-99).
- Chair, Global Steering Group, Alternatives to Slash and Burn Program (1991-99).
- Chair, Sustainability and Environment Committee, CGIAR Centre Directors (1995-98).
- Sub-Saharan Africa Committee, CGIAR Center Directors (1991-2001).
- Committee on CGIAR Response to Agenda 21 (1993-1994).
- Chair, Board of Management, Tropical Soil Biology and Fertility Program (1989-91).
- Chair, Committee on Sustainable Agriculture and the Environment in the Humid Tropics, National Academy of Sciences, Washington (1988-91).
- International Committee on Plant-Soil Interactions at Low pH (1990)
- Technical Committee, Soil Management CRSP (1989-91).
- Co-director of the joint Duke-N.C. State Program on Tropical Conservation and Sustainable Development (1986-88).
- Committee on Tropical Deforestation, Office of Technology Assessment, U.S. Congress (1984).
- Coordinating Committee, Tropical Soil Biology and Fertility (TSBF) Program (1983-87).
- Coordinator, Soil Management Collaborative Research Support Program Planning Grant, USAID/BIFAD, Washington, D.C. (1980-82).
- Editorial Advisory Board "Field Crops Research" (1981-84).
- International Committee on Land Clearing and Development (1984-86).
- Editorial Board "Geoderma".
- Board of Directors, American Society of Agronomy (1985).
- Advisory Council, Centro de Pesquisa Agropecuaria dos Cerrados, EMBRAPA, Brasilia, Brazil (1982-85).
- Committee on Selected Biological Problems of the Humid Tropics, National Academy of Sciences, Washington (1981-82).
- Chair, IBSRAM Acid Tropical Soils Network Coordinating Committee (1982-84).
- Chair, Executive Committee, University Consortium on Soils of the Tropics (1980)
- Consejo Directivo del Centro Nacional de Investigación Agropecuaria de Carimagua, ICA-CIAT, Carimagua, Colombia (1977-79).
- Vice-Chairman, International Steering Committee, Red de Investigación Agroecológica para la Amazonía-REDINAA (Amazon Research Network)-1979-82.
- Board of Directors, Sociedad Colombiana de la Ciencia del Suelo (1978-80).
- Leader, Soils Project, REDINAA (1979-82).
- Steering Committee for the Formation of an International Board on Soils Research and Management (IBSRAM) (1979-80).
- Technical Advisory Board, Cocoa Research Institute (CEPLAC), Itabuna, Bahia, Brazil (1978-82).
- Editorial Board "Tropical Agriculture".
- Lead Analyst, Land and Water Section, World Food and Nutrition Study, National Academy of Sciences, Washington (1972-74)
- Chair; International Agronomy Division, American Society of Agronomy (1972)
- Consultant to, or on special assignments with: Ford Foundation, USAID, Instituto Interamericano de Ciencias Agrícolas, Rockefeller Foundation, Tennessee Valley Authority, Venezuelan Society of Soil Science, World Bank, New Zealand Society of Soil Science, Embrapa, FAO, Royal Swedish Academy of Sciences, Ecosystems Center-Marine Biological Laboratory, IBSRAM, Consejo Nacional de Ciencia y Tecnología (Peru), UNESCO-Man in the Biosphere Program, U.S. Environmental

Protection Agency, CIAT, World Wildlife Fund, Rainforest Alliance, U.S. Congress, Spanish Society of Soil Science.

### **Membership in Professional and Honorary Societies**

- National Academy of Sciences of the United States of America
- American Academy of Arts and Sciences
- American Society of Agronomy
- Soil Science Society of America
- International Society of Soil Science
- American Association for the Advancement of Science (AAAS)
- Council on Agricultural Science and Technology.
- Asociación Latinoamericana de Ciencias Agrícolas
- Asociación Latinoamericana de Ciencias Pecuarias del Peru
- Asociación de Investigadores Agrícolas y Pecuarios del Peru
- Sociedad Cubana de la Ciencia del Suelo (miembro honorario)
- Sociedad Colombiana de la Ciencia del Suelo (miembro honorario)
- Sociedad Peruana de la Ciencia del Suelo (miembro honorario)
- Sociedad Latinoamericana de la Ciencia del Suelo.
- Soil Science Society of North Carolina.
- Gamma Sigma Delta.
- Sigma Xi.
- Sigma Iota Rho (honorary society for international studies).
- East Africa Soil Science Society.
- World Overview of Conservation Approaches and Technologies.

### **Professional Travel Experience (68 countries, 44 in the tropics)**

Australia, Austria, Benin, Belgium, Brazil, Burkina Faso, Burundi, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Cuba, Czech Republic, Denmark, Democratic Republic of Congo; Dominican Republic, Ecuador, El Salvador, Ethiopia, Finland, France, Germany, Ghana, Guatemala, Haiti, India, Indonesia, Ireland, Italy, Japan, Kenya, Luxembourg, Madagascar, Malawi, Malaysia, Mali, Martinique, Mexico, Mozambique, Netherlands, New Zealand, Niger, Nigeria, Norway, Panama, Peru, Philippines, Rwanda, Senegal, Singapore, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand, Togo, Trinidad, Turkey, United States, United Kingdom, Venezuela, Zambia, Zimbabwe.

### **Teaching Experience**

#### ***Formal courses:***

- EEEB G4136. Tropical Agriculture and Sustainable Development. Graduate Course, Columbia University Fall 2007 3 credits. Co-taught with Cheryl Palm and Markus Walsh,

- EEEB G9509- African Rural Development in Perspective: the Millennium Villages. Columbia University Fall 2006 1 credit.
- ESPM 298 - Tropical Resources Seminar (2 hrs. graduate), University of California, Berkeley. Co-taught with Cheryl Palm. 2002.
- FOR 699 - Conservation and Sustainable Development (2 hrs. graduate) North Carolina State University, co-listed at Duke University and the University of North Carolina at Chapel Hill. Co- taught with John Terborgh, Duke University. 1990.
- SSC 501 - Tropical Soils (3 hrs. graduate) North Carolina State University, co-listed at Duke University and the University of North Carolina at Chapel Hill. 1972 – 1991, in alternate years.
- Soils 50 - Soil Fertility (3 hours-undergraduate) University of the Philippines, Los Baños. 1966-67.
- Summer Course on Tropical Soils at the University of Puerto Rico Mayagüez. 1972.
- Summer courses in Latin American Culture and Spanish for Peace Corps trainees at Cornell. 1963 –66.
- Teaching assistant Agronomy 1 (elementary soil science course), Cornell University 1962-63.

**Short courses or invited lectures in courses at:** In the **US:** World Bank Rural Week; Crop Science Society of America's Keppeler Endowed Lecture; University of Florida York Distinguished Lecture; University of Missouri; Kansas State University; New York Academy of Sciences; United Nations Standing Committee on Nutrition; Woods Hole Marine Biological Laboratory Distinguished Scientist Lecture; Ohio State University, Distinguished Scientist Lecture; Cornell University, Iowa State University, Iona College; University of Rhode Island. In **Europe:** Katholieke Universiteit Leuven, Belgium; Donor Platform, OECD, Paris; Bonn University, Germany; Agricultural University, Wageningen, Netherlands; Swedish University of Agricultural Sciences, Uppsala; Royal Agricultural and Veterinary University and the University of Copenhagen, Denmark; Agricultural University of Norway, Ås; University of Agriculture, Vienna, Austria; University of Berne, Switzerland. In **Africa:** Kenyatta University, Kenya; University of Zimbabwe; CGIAR Women Leadership Course, Nyeri, Kenya. Also lectured at many short courses at ICRAF from 1991 – 2001; University of the Witwatersrand, South Africa. Princeton-Columbia Field Course lectures 2013 and 2015 Mpala Ranch, Kenya. In **Latin America:** Universidad de Chapingo, Universidad de Campeche, Colegio de Agricultura Tropical, Tabasco, all in Mexico; Universidad de Costa Rica; Universidad Nacional de Colombia; Universidad Nacional Agraria La Molina, Universidad Nacional Pedro Ruiz Gallo, Universidad Nacional de Ucayali, Universidad Nacional de la Amazonia Peruana, all in Peru; Universidade Federal do Rio de Janeiro, Universidade Federal do Para, both in Brazil. In **Asia:** Kasetsart University, Khon Kaen University, both in Thailand; Bogor Agricultural University, Indonesia; Kyoto University; University of Queensland, Australia.

**Graduate advising:** Major Professor of 6 MS degree students and 11 PhD students at North Carolina State University.

## Professional Publications

193 (as of Dec. 2015). 131 refereed; 62 not refereed

### Media:

How to triple food production in Africa. Huffington Post, March 19, 2013.

Meals, not myths. *The Broker* 23:14 – 16. 2010.

On soil. Long regarded as lowly dirt, soil is gaining attention as a vital natural resource. *Seed Global Reset*, p. 34-35. *Seedmagazine.com* 2010

Our Noble Attempts to 'Feed the World' Are Simply Not Working, *Guardian*, March 11, 2009.

Crisis presents opportunity. Guest column, *Des Moines Journal*, p 40 (July 13, 2008).

An African revolution. *Newsweek International*, April 16, 2007 issue

*Des Moines Register*, Op-Ed "Small-scale projects transforming Africa" October 24, 2006. page 13A

*New York Times*, Op-ed "The Next Green Revolution". October 6, 2004, A29

*Le Monde*, Op-ed "A Green Revolution for Africa". August 11, 2004.

*The Economist*. "Trees for Life". August 22, 2002.

### Book authored:

Sanchez, P.A. 2017. *Properties and Management of Soils in the Tropics*, Second Edition. Cambridge University Press, New York.

Sanchez, P.A. 1976. *Properties and Management of Soils in the Tropics*. John Wiley and Sons, New York, 618 pp. Spanish version published by IICA, San José, Costa Rica, 632 pp., 1981. Also translated into Bahasa Indonesia. (Rated 7th among the top twenty monographs in Soil Science in 1994).

### Books edited:

Uphoff, N., A. S. Ball. E. Fernandes, H. Herren, O. Hudson, M. Laing, C. A., Palm, J. Pretty, N. Sanginga, P. A. Sanchez and Janice Thies (eds.). 2006.



*Biological Approaches to Sustainable Soil Systems*. CRC-Taylor and Francis, London. 796 p.

Palm, C. A., S. A., Vosti, P. A. Sanchez and P. J. Ericson (eds.). 2005. *Slash and Burn Agriculture: the Search for Alternatives*, New York: Columbia University press. 463 p.

Sanchez, P. A., Swaminathan, M. S., Dobie, P. Yuksel, N. 2005. *Halving hunger: it can be done*. UN Millennium Project, Task Force on Hunger. Earthscan, London and Sterling, VA, 245p.

Sachs, J. D., Sanchez, P.A., et al. 2005. *Investing in Development : A Practical Plan to Achieve the Millennium Development Goals*. UN Millennium Project. Earthscan London and Sterling, VA, 74p.

Buresh, R. J., Sanchez, P. A. and Calhoun, F. J. (eds.) 1997. *Soil fertility replenishment in Africa*. SSSA Special Publication No. 51. Soil Science Society of America, Madison, WI. 272p.

Sanchez, P.A. and Hailu, M. (guest eds.) 1996. *Alternatives to Slash and Burn Agriculture*. *Agriculture, Ecosystems & Environment* 58: 1- 86.

Lal, R. and Sanchez, P.A. (eds.). 1992. *Myths and Science of Soils of the Tropics*. SSSA Special Publication 29. Soil Science Society of America, Madison, Wisconsin. 185 pp.

Sanchez, P.A., Stoner, E. R. and Pusparajah, E. (eds.) 1987. *Management of Acid Tropical Soils for Sustainable Agriculture*. IBSRAM Proceedings No. 2. International Board for Soils Research and Management, Bangkok, 299 pp

Lal, R., Sanchez, P. A. and Cummings, R. W., Jr. (eds.). 1986. *Land Clearing and Development in the Tropics*. Balkema, Rotterdam. 450 pp.

Hecht, S. B., Nores, G. A., Sanchez, P. A., Spain, J. M. and Toenniessen, G. H. (eds.). 1982. *Amazonia: Agriculture and Land Use Research*. CIAT, Cali, Colombia. 428 pp. (Spanish version: 448 pp.).

Sanchez, P. A. and Tergas, L. E. (ed.). 1979. *Pasture Production in Acid Soils of the Tropics*. Series 03EG-5. CIAT, Cali Colombia. 488 pp. (In Spanish: Series 035G-5, 524 pp., published in Portuguese by EMBRAPA).

Papendick, R. I., Sanchez, P. A. and Triplett, G. B. (eds.) 1976. *Multiple Cropping*. American Society of Agronomy Special Publication 27. American Society of Agronomy, Madison, Wisconsin. 378 pp.

Sanchez, P. A. (ed.). 1973. *A Review of Soils Research in Tropical Latin America*. N. C. Agr. Exp. Sta. Tech. Bull. 219. 197 pp. (English version) and 215 pp. (Spanish version).

Sanchez, P. A., Hernandez, J. y Arrasco, R. (eds.). 1969. *Curso de Capacitación sobre el Cultivo del Arroz*. Programa Nacional de Arroz, Ministerio de Agricultura, Lambayeque, Peru. 537 pp.

## Publications

### 2015

Sanchez PA. 2015. En route to plentiful food production in Africa. *Nature Plants* 1: 1-2.

### 2013

Pedro Sanchez, Ray Weil and Alison Rose.2013. SOILDOC. An innovative soil test kit that provides real-time fertilizer recommendations. IFA Fertilizers and Agriculture, February 2013, p. 6- 7.

### 2012

DeFries, R.S., E. E. Ellis, F. S. Chapin III, P.A. Matson, B.L. Turner II, A. Agrawal, P. J. Crutzen, C. Field, P. Gleick, P. M. Kareiva, E. Lambin, D. Liverman, E. Ostrom, **P. A. Sanchez**, J. Syvistky.2012. Planetary Opportunities: A Social Contract for Global Change Science to Contribute to a Sustainable Future. *BioScience* 62:603– 606.

Sachs JD, Remans R, Smukler SM, Winowiecki L, Andelman SJ, Cassman KG, Castle D, DeFries R, Denning G, Fanzo J, Jackson LE, Leemans R, Lehmann J, Milder JC, Naeem S, Nziguheba G, Palm CA, Pingali PL, Reganold JP, Richter DD, Scherr SJ, Sircely J, Sullivan C, Tomich TP, **Sanchez PA** (2012). Effective monitoring of agriculture: a response. *Journal of Environment Monitoring* 14:738-742.

Remans, R. Pronyk PM, Fanzo JC, Chen J, Palm CA, Nemser B, Muniz M, Radunsky A, Abay AH, Coulibaly M, Mensah-Homiah J, Wagah M, An, X, Mwaura C, Quintana E, Somers MA, **Sanchez PA**, Sachs SE, McArthur JW, Sachs JD; Millennium Villages Study Group (2011). Multisector intervention to accelerate reductions in child stunting: an observational study from 9 sub-Saharan African countries. *American Journal of Clinical Nutrition* 94:1632-1642.

### 2011

Fanzo, J., R. Remans and P. A. Sanchez. 2011. The role of chemistry in addressing hunger and food security. *The Chemical Element*, J. García-Martínez and E. Serrano-Torregosa, eds. Wiley-VCH p. 71-98.

Fanzo, J., R. Remans, P. M. Pronyk, J. Negin, J. Wariero, P. Mutuo, J. Masira, W. Diru, E. Lerelai, D. Kim. B. Nemser, M Muñiz, C. A. Palm. **P. A. Sanchez**, S Ehrlich-Sachs, J. D. Sachs, 2011. A 3-year cohort study to assess the impact of an integrated food and livelihood-based model on undernutrition in rural Western Kenya. *Combating Macronutrient Deficiencies: Food-based Approaches* eds. B. Thompson and L. Amoroso, p 76-91. FAO, Rome.

## 2010

Sanchez, P. A. 2010. Tripling crop yields in tropical Africa. *Nature Geoscience* 3: 299 – 300.

Sachs, J., R. Remans, S. Smuckler, I. Winowiecki, S. J. Andelman, K. G. Cassman, D. Castle, R. DeFries, G. Denning, J. Fanzo, L. E. Jackson, R. Leemans, J. Lehmann, J. C. Miller, S. Naeem, G. Nziguheba, C. A. Palm, P. L. Pingali, J. P. Reganold, D. D. Richter, S. J. Scherr, J. Sircely, C. Sullivan, T. P. Tomich and **P. A. Sanchez**. 2010. Monitoring the world's agriculture. *Nature* 466: 558 – 560.

Nziguheba, G., C. A. Palm, T. Berhe, G. Denning, A. Dicko, O. Diouf, W. Diru, R. Flor, F. Frimpong, R. Harawa, B. Kaya, E. Manumbu, J. McArthur, P. Mutuo, M. Ndiaye, A. Niang, P. Nkhoma, G. Nyadzi, J. Sachs, C. Sullivan, G. Teklu, L. Tobe and **P. A. Sanchez**. 2010. The African Green Revolution: Results from the Millennium Villages Project. *Advances in Agronomy* 109: 75 – 115.

N. V. Fedoroff, D. S. Battisti, R. N. Beachy, P. J. M. Cooper, D. A. Fischhoff, C. N. Hodges, V. C. Knauf, D. Lobell, B. J. Mazur, D. Molden, M. P. Reynolds P. C. Ronald, M. W. Rosegrant, **P. A. Sanchez**, A. Vonshak, J.-K. Zhu. 2010. Radically Rethinking Agriculture for the 21st Century. *Science* 327: 833-834

## 2009

Sanchez, P. A., S. Ahamed, F. Carré, A. E. Hartemink, J. Hempel, J. Huising, P. Lagacherie, A. B. McBratney, N. J. McKenzie, M. I. Mendonça-Santos, B. Minasny, L. Montanarella, P. Okoth, C. A. Palm, J. D. Sachs, K. D. Shepherd, T-G. Vågen, B. Vanlauwe, M. G. Walsh, L. A. Winowiecki, G-L Zhang. 2009. Digital soil map of the world. *Science* 325: 680 – 681.

Sanchez, P. A. 2009. A smarter way to combat hunger. *Nature* 458: 148.

Sanchez, P. A., G. L. Denning, G. Nziguheba. 2009. The African Green Revolution moves forward. *Food Security* 1: 37 – 44.

Denning G, Kabambe **P. Sanchez** P, Malik A, Flor R, et al. (2009) Input subsidies to improve smallholder maize productivity in Malawi: Toward an African green revolution. *PLoS Biology* 7(1): e1000023 [doi:10.1371/journal.pbio.1000023](https://doi.org/10.1371/journal.pbio.1000023) .

Catherine Bertini, Dan Glickman (co-chairs), Carol Bellamy, Doug Bereuter, Eva Clayton, Tony Hall, Peter McPherson, Phyllis Oakley, Thomas Pickering, Per Pinstrup-Andersen, **Pedro Sanchez**, Robert Thompson, Richard Williamson (2009), *Renewing America's Leadership in the Fight Against Global Hunger and Poverty*, Chicago Council on Global Affairs, 227p.

Jeffrey Sachs, Akin Adesina, Jose Antonio Alonso, Tom Arnold, Thijs Berman, Norman Borlaug, Niels Christiansen, Partha Dasgupta, Glenn Denning, Aberra Deressa, Chris Dowswell, Hans Eenhoorn, Thorleif Enger, Dean Fairchild, Gabriel Ferrero de Loma-Osorio, Lawrence Haddad, Carlos Mulas-Granados, Amadou Niang, **Pedro Sanchez**, Tiémoko Sangare, Ad-hoc Advisory Group to the Madrid Conference on Food Security, (2009). *Smallholder Food Production and Poverty Reduction. Principles for a Financial Coordination Mechanism to Support Smallholder Farmers*. IDEAS Foundation, Madrid, 50 p.

Vitousek PM, Naylor R, Crews T, David MB, Drinkwater E, Holland E, Johnes PJ, Katzenberger J, Martinelli LA, Matson PA, Nziguheba G, Ojima D, Palm CA, Robertson GP, **Sanchez PA**, Townsend AR, Zhang FS. 2009. Nutrient Imbalances in Agricultural Development. *Policy forum. Science* 324: 1519 – 1520.

## 2007

Sanchez PA, Palm CA, Sachs JD, Denning GL, Flor R, Harawa J, Jama B, Kiflemariam T, Konecky B, Kozar R, Lelera E, Malik A, Modi V, Mutuo P, Niang A, Okoth H, Place F, Sachs SE, Said A, Siriri D, Teklehaimanot A, Wang K, Wangila J and Zamba C. 2007. *The African Millennium Villages*. *Proceedings of the National Academy of Sciences* 104: 16775 – 16780.

Palm, C.A., P. A. Sanchez, S. Ahamed and A. Awiti. 2007. Soils: A contemporary perspective. *Annual Review of Environment and Resources* 32: 99 – 121.

## 2005

Sanchez, P.A., Swaminathan, M.S. 2005. Cutting world hunger in half. *Science*. 307: 357-359.

Sanchez, P.A., Swaminathan, M.S. 2005. Hunger in Africa: the link between unhealthy people and unhealthy soils. *The Lancet*. 365: 442-444.

Sanchez, P. A., Swaminathan, M. S., Dobie, P. Yuksel, N. 2005. Halving hunger: it can be done. UN Millennium Project, Task Force on Hunger. Earthscan, London and Sterling, VA, 245p.

Sachs, J. D., Sanchez, P.A., et al. 2005. Investing in Development: A Practical Plan to Achieve the Millennium Development Goals. UN Millennium Project. Earthscan London and Sterling, VA, 74p.

Sanchez, P. A, 2005. Reducing hunger in tropical Africa while coping with climate change. *Climate Change and Global Food Security*, R. Lal, N. Uphoff, B. A. Stewart, D. O. Hansen (eds.) CRC Press, p. 1 – 20.

## **2004**

The UN mobilizes against hunger in Africa. A development strategy rooted in good soil. New York Academy of Sciences Update, March 2004, pp. 4 – 7.

## **2003**

Sanchez, P. A., Palm, C. A. and Buol, S. W. 2003. Fertility capability soil classification: a tool to help assess soil quality in the tropics. *Geoderma* 114: 157 – 185.

Sanchez, P. A. 2003. Tropical soils: an asset to world development. *Chronica Horticulturae* 42 (4): 4 – 7.

## **2002**

Sanchez, P. A. 2002. Soil science as a major player in world development. 17<sup>th</sup> World Congress of Soil Science, Keynote Lectures, pp. 53 - 64. The Soil and Fertilizer Society of Thailand, Bangkok.

Sanchez, P. A. 2002. Soil fertility and hunger in Africa. *Science* 295: 2019 – 2020.

Sanchez, P. A. and Jama, B. A. 2002. Soil fertility replenishment takes off in East and Southern Africa. In *Integrated nutrient management in sub-Saharan Africa* (B. Vanlauwe, J. Diels, N. Sanginga and R. Merckx, (eds.) pp. 23 – 45. CABI Publishing, Wallingford, UK.

## **2001**

Sanchez, P. A. 2001. Overcoming the soil fertility crisis in East and Southern Africa. In: Farina, M., M de Villiers, R. Barnard and M. Walters (eds.), *Integrated management and use of acid soils for sustainable production*, pp. 33 – 48. Proceedings 5<sup>th</sup> International Symposium on Plant-Soil Interactions at Low pH. Agricultural Research Council, Pretoria, South Africa

Smithson, P. C., and Sanchez, P. A. 2001. Plant nutritional problems in marginal soils of developing countries. In, *Plant nutrient acquisition; new perspectives* (N. Ae, K. Okada and A. Srinivasan, eds.) pp. 32 – 68. Springer, Tokyo.

Sanchez, P. A., Jama, B., Niang, A. I. and Palm, C. A. 2001. Soil fertility, small-farm intensification and the environment in Africa. In D. R. Lee and C. B. Barrett (eds.): Tradeoffs or synergies? Agricultural intensification, economic development and the environment, pp. 325 - 344. CABI Publishing, Wallingford, UK.

Izac, A-M. N, and Sanchez, P. A. 2001. Towards a natural resource management research paradigm: an example of agroforestry research. *Agricultural Systems* 65: 5 – 25.

Sanchez, P. A. 2001. Trees of change: harnessing agroforestry to end hunger, reduce poverty and improve the environment in Sub-Saharan Africa. ICRAF, Nairobi, 16p.

## **2000**

Sampson, R. N., Scholes, R. J., Sanchez, P. A., et al. 2000. Additional human-induced activities - Article 3.4.. In: Watson, R. T., Noble, I. R., Bolin, B., Ravindranath, N. H., Verardo, D. J. and Dokken, D. J. (eds.): *Land Use, Land Use Change and Forestry*. Chapter 4, pp. 181 – 281. Intergovernmental Panel on Climate Change, Cambridge University Press, UK.

Sanchez, P. A. 2000. Linking climate change research with food security and poverty reduction in the tropics. *Agriculture, Ecosystems and Environment* 82: 371 - 383.

Sanchez, P. A. 2000. Trees on farms: improving land, improving livelihoods. In, H. Cadman (ed.), *The Food and Environment Tightrope*, pp 60 - 71. Australian Council for International Agricultural Research, Canberra.

Sanchez, P. A. 2000. Agricultural research and climate change: why CGIAR science is relevant to the need of poor farmers. In, *Annual Report for 2000*, Consultative Group on International Agricultural Research, World bank, Washington pp. 15 – 17.

## **1999**

Sanchez, P. A. 1999. Improved fallows come of age in the tropics. *Agroforestry Systems* 47: 3 – 12.

Sanchez, P. A. 1999. Delivering on the promise of agroforestry. *Environment, Development and Sustainability* 1: 275 284.

Sanchez, P. A. 1999. Natural resources management research: soil fertility replenishment in Kenya. *East African Agriculture and Forestry Journal* 65 (1 - 2): ix – xiii.

Sanchez, P. A., Denning, G. L., Izac, A-M. N. and Scott, R. B.. 1999. Delivering on the promise of agroforestry. *CGIAR News* Sept. 99, pp. 3 – 4. World Bank, Washington.

## **1998**

Woomer, P. L., Okalebo, J. R. and Sanchez, P. A. 1998. Phosphorus replenishment in western Kenya: from field experiments to an operational strategy. African Crop Science Conference Proceedings 3: 559 – 570 (1997). African Crop Science Society, Kampala, Uganda.

Altieri, M. A., Beneist, J., Sanchez, P. A., Swift, M. J. and van Houten, H. 1998. Approaches to replenishing soil fertility in Africa—NGO Perspectives. ICRAF Nairobi 32pp (English version); 42 pp (French version).

### 1997

Leakey, R. R. B., and Sanchez, P. A. 1997. How many people use agroforestry products? *Agroforestry Today* 9 (3): 4-5.

Sanchez, P. A. 1997. Changing tropical soil fertility paradigms: from Brazil to Africa and back. In: A. C. Moniz et al., (eds.): *Plant-soil interactions at low pH*. Brazilian Society of Soil Science, Piracicaba, SP, Brazil, pp. 19-28.

Sanchez, P.A. 1997. Centres Forum, Session I: Sub-Saharan Africa. ICRAF. In, *The CGIAR at 25: into the future*. CGIAR Secretariat, World Bank, Washington, p. 33.

Sanchez, P. A., Shepherd, K. D., Soule, M. J., Place, F. M., Buresh, R. J., Izac, A-M. N., Mokwunye, A. U., Ndiritu, C. G. and Woomer, P. L. 1997. Soil fertility replenishment: an investment in natural resource capital. In: Buresh, R. J., Sanchez, P. A. and F. J. Calhoun (eds.). *Replenishing soil fertility in Africa*. SSSA Special Publication 51: 1-46. Soil Science Society of America, Madison, WI, USA.

Sanchez, P. A., Buresh, R. J. and Leakey, R. R. B. 1997. Trees, soils and food security. *Philosophical Transactions, The Royal Society, London B* 352: 949-961.

Sanchez, P.A., and Leakey, R.R.B. 1997. Land-use transformation in Africa: Three determinants for balancing food security with natural resource utilization. *European Journal of Agronomy* 7: 1-9.

### 1996

Beck, M. A. and Sanchez, P. A. 1996. Soil phosphorus movement and budget after 13 years of fertilized cultivation in the Amazon basin. *Plant and Soil* 184: 23-31.

Sanchez, P. A and Hailu, M. (eds.). 1996. Special issue on alternatives to slash and burn agriculture. *Agriculture, Ecosystems & Environment* 58.

Sanchez, P. A. and Palm, C. A. 1996. Nutrient cycling and agroforestry in Africa. *Unasylva* 185 (47): 24-28.

Sanchez, P. A. and Palm, C. A. 1996. Nitrogen and phosphorus in African soils----- what role of agroforestry? *Agroforestry Today* 8 (4): 14-16.

Sanchez, P. A. and Leakey, R. R. B. 1996. Land use transformation in Africa: Three imperatives for balancing food security with natural resource conservation. In, M. K. van

Ittersum, G. E. G. T. Venner, S. C. van de Giejn and T. H. Jetten (eds.), Fourth Congress European Society of Agronomy Book of Abstracts 1:2-3. Veldhoven, Netherlands.

Sanchez, P. A., Izac, A-M. N., Valencia, I. M. and Pieri, C. 1996. Soil fertility replenishment in Africa: a concept note. In, S. A. Breth (ed.), Achieving greater impact from research investments in Africa. Sasakawa African Association, Mexico City, pp. 200-207.

### **1995**

Castilla, C. E., Ayarza, M. A. and Sanchez, P.A. 1995. Carbon and potassium dynamics in grass/legume grazing systems in the Amazon. In: J. M. Powell, S. Fernandez-Rivera, T. O. Williams and C. Renard (eds.): Livestock and sustainable nutrient cycling in mixed farming systems of sub-Saharan Africa. Vol. 2: 141-170. ILCA, Addis Ababa, Ethiopia.

Sanchez, P.A. 1995. Science in Agroforestry. *Agroforestry Systems* 30: 5-55.

Sanchez, P.A. 1995. Hacia donde va la agroforesteria? *Agroforesteria en las Americas* 2 (5): 4-5.

### **1994**

Alegre, J. C., Gichuru, M. P. y Sanchez, P. A. 1994. Fertilizacion fosforica en sistemas con bajos insumos en los tropicos humedos del Peru. *Terra* 12: 117-124.

Bandy, D. E., Garrity, D. P. y Sanchez, P. A. 1994. El problema mundial de la agricultura de tala y quema. *Agroforesteria en las Americas* 1 (3): 14-20.

Beck, M. A and Sanchez, P.A. 1994. Soil phosphorus fraction dynamics during 18 years of cultivation on a Typic Paleudult. *Soil Science Society of America Journal* 34: 1424-1431.

Sanchez, P.A. 1994. Enhancing research quality at ICRAF. Policy guidelines no. 1. ICRAF, Nairobi. 4p.

Sanchez, P.A. 1994. Alternatives to slash and burn agriculture, a pragmatic approach for mitigating tropical deforestation. In: J. R. Anderson (ed), *Agricultural technology: Policy issues for the international community*, pp. 451-480. CABI, Wallingford, UK.

Sanchez, P.A. 1994. Tropical soil fertility research: towards the second paradigm. *Transactions 15th World Congress of Soil Science (Acapulco, Mexico)* 1: 65-88.

Sanchez, P.A. and van Houten, H. (eds.). 1994. Alternatives to slash and burn agriculture. Symposium ID-6. Supplement to transactions. 15th World Congress of Soil Science (Acapulco, Mexico). Mexican Society of Soil Science, Chapingo, Mexico. 120p.

Sanchez, P. A., Woome, P. L. and Palm, C. A. 1994. Agroforestry approaches for rehabilitating degraded lands after tropical deforestation. *JIRCAS International Symposium Series* 1: 108-119. Tsukuba, Japan.



Scholes, M. C., Swift, M. J., Heal, O. W., Sanchez, P. A., Ingram, J. S. I. and Dalal, R. C.. 1994. Soil fertility research in response to the demand for sustainability. In: P. L. Woomer and M. J. Swift (eds): The biological management of tropical soil fertility, pp. 1-14. Wiley, Chichester, UK.

### 1993

Sanchez, P.A. 1993. Alternatives to slash and burn agriculture. ASA Special Publication 56: 33-40. American Society of Agronomy, Madison, Wisconsin.

Ara, M. A., Sanchez, P. A. y Vela, J. W. 1991. Contribución nitrogenada de Desmodium ovalifolium CIAT 350 a su respectiva mezcla con Brachiaria decumbens. Proyecto Suelos Tropicales, Informe Técnico ST 03:5-12, INIAA, Pucallpa, Peru (Published in 1993).

Bandy, D.E., Garrity, D.P. and Sanchez, P.A. 1993. The world wide problem of slash and burn agriculture. *Agroforestry Today* 5(3): 2 - 6.

Bie, S.W., MacGillivray, I.C., Sanchez, P.A., Zandstra, H.G. and Zulberti, C. 1993. Action plan to follow up on UNCED. Report of the CGIAR Task Force. Document ICW 93/10, CGIAR Secretariat, World Bank, Washington. 27 p.

Sanchez, P.A. 1992. Sifat dan pengelolaan tanah tropica. Jilid 1. Penerbit ITB, Bandung 395 p. (Translation of "Properties and Management of Soils in the Tropics", Volume 1 into Bahasa Indonesia).

### 1992

Sanchez, P. A. and Logan, T. J. 1992. Myths and science about the chemistry and fertility of soils in the tropics. In: R. Lal and P.A. Sanchez (eds.). Myths and Science of Soils of the Tropics. SSSA Special Publication 29:35-46.

Melgar, R. J., Smyth, T. J., Sanchez, P. A. and Cravo, M. S. 1992. Fertilizer nitrogen movement in a Central Amazon Oxisol and Entisol cropped to corn. *Fertilizer Research*. 31: 241-252.

### 1991

Palm, C.A. and Sanchez, P.A. 1991. Nitrogen release from the leaves of some tropical legumes as affected by their lignin and polyphenolic contents. *Soil Biol. Biochem.* 23; 83-88.

Szott, L.T., Palm, C.A., and Sanchez, P.A. 1991. Agroforestry in acid soils of the humid tropics. *Advances in Agronomy*. 45: 257-301.

Sanchez, P.A., Palm, C.A. and Smyth, T.J. 1991. Phosphorous dynamics in cultivation systems in the Amazon. In: Phosphorus Cycles in Terrestrial and Aquatic Ecosystems. Scope-UNEP Regional Workshop 3: South and Central America (H. Tiessen, D. Lopez-Hernandez and I.H. Salcedo, eds.). Saskatschewan, Institute of Pedology, Saskatoon. pp. 142-160.

Melgar, R.J., Smyth, T.J., Cravo, M.S. and Sanchez, P.A. 1991. Doses e épocas de aplicação de fertilizante nitrogenado para milho em Latossolo da Amazonia Central. *Revista Brasileira da Ciencia do Solo* 15: 289-296

Szott, L.T., Fernandes, E.C.M. and Sanchez, P.A. 1991. Soil-plant interactions in agroforestry systems. *Forest Ecology and Management* 45: 127-152.

Sanchez, P.A., y Benites, J.R. 1991. Cultivo de bajos insumos para suelos ácidos de los Trópicos húmedos. En: T.J. Smyth, W.R. Raun y F. Bertsch (eds.): *Manejo de Suelos tropicales en Latinoamérica*. pp 48-57. North Carolina State University, Raleigh.

Lara, D., Castilla, C. y Sanchez, P.A. 1991. Productividad y persistencia de pasturas asociadas bajo pastoreo en un Ultisol de Yurimaguas. En: T.J. Smyth, W.R. Raun y F. Bertsch (eds.): *Manejo de Suelos Tropicales en Latinoamérica*. pp 86-89. North Carolina State University, Raleigh.

Alegre, J.C., Sanchez, P.A. y Smyth, T.J. 1991. Manejo de suelos con cultivos continuos en les tropicos húmedos del Peru. En: T.J. Smyth, W.R. Raun y F. Bertsch (eds.): *Manejo de Suelos Tropicales en Latinoamérica*. pp 169-174. North Carolina State University, Raleigh.

Sanchez, P.A. 1991. Iniciativa para reducir la deforestación: un imperativo para la sostenibilidad del mundo en el siglo XXI. En: T.J. Smyth, W.R. Raun y F. Bertsch (eds.): *Manejo de Suelos Tropicales en Latinoamérica*. pp 298-302. North Carolina State University, Raleigh.

Sanchez, P.A. 1991. What's in a name? Well actually quite a bit. *Agroforestry Today* 3(4):15.

Sanchez, P. A., Buol, S. W., Swift, M. J., Mokwunye, U., Latham, M. and Dvorak, K. 1991. *Soils research in Africa, a report to the Rockefeller Foundation*. Rockefeller Foundation, New York, 25 p.

## **1990**

Sanchez, P.A. 1990. Deforestation reduction initiative: An imperative for world sustainability in the twenty-first century. *North Carolina Agricultural Research Service Bulletin* 470: 46-51.

Buol, S.W., Sanchez, P.A., Weed, S.B. and Kimble, J.M. 1990. Predicted impact of climatic warming on soil properties and use. In: *Impact of Carbon Dioxide, Trace Gases, and Climate Change on Global Agriculture*. ASA Special Publication 53: 71-82.

Buol, S.W. and Sanchez, P.A. 1990. Soil characteristics and agronomic practices for sustainable dryland farming. In: P.W. Unger, W.R. Jordan, T.V. Sned and R.W. Jensen (eds.): *Challenges in Dryland Agriculture: A Global Perspective*, USDA, Bushland, Texas. pp. 367-370.

## **1989**

Sanchez, P.A. 1989. Soils, In : H. Leith and M.J.A. Werger (eds.): Tropical Rain Forest Ecosystems: Elsevier, Netherlands pp. 73-88.

Sanchez, P.A., Palm, C.A., Szott, L.T., Cuevas, E. and Lal R. 1989. Organic input management in tropical Agroecosystems. In: D.C. Coleman, J.M. Oades and G. Uehara (eds.): Dynamics of Soil Organic Matter in Tropical Ecosystems. University of Hawaii Press, Honolulu. pp. 125-152.

Parton, W.J., Sanford, R.L., Jr., Sanchez, P.A. and Stewart, J.W.B. 1989. Modelling soil organic matter dynamics in tropical soils. In: D.C. Coleman, J.M. Oades and G. Uehara (eds.): Dynamics of Soil Organic Matter in Tropical Ecosystems. University of Hawaii Press, Honolulu. pp. 157-171.

Sanchez, P.A. 1989. Overview of the global food and population situation. Hearings before the Subcommittee on Natural Resources, Agriculture Research and Environment. Congressional Record. U.S. House of Representatives. One Hundred First Congress. First Session. 3:60-97.

### **1988**

Gichuru, M.P. and Sanchez, P.A. 1988. Phosphate rock fertilization in tilled and no-till low input systems in the humid tropics. *Agronomy Journal*. 80:943-947.

Wade, M.K., Gill, D.W., Subagjo, H., Sudjadi, M. and Sanchez, P.A. 1988. Overcoming Soil Fertility Constraints in a Transmigration area of Indonesia. *TropSoils Bulletin* 88-1. North Carolina State University, 60p.

Sanchez, P.A. and Smyth, T.J. 1988. Acid tropical soils network: A progress report. In: Africaland-Land Development and Management of Acid Soils in Africa -II. IBSRAM Proceedings 7:19-40, Bangkok.

Sanchez, P.A. and Benites, J.R. 1988. Low-input cropping for acid soils in the humid tropics: A transition technology between shifting and continuous cultivation. In: Africaland-Land Development and Management of Acid Soils in Africa -II. IBSRAM Proceedings 7:85-106, Bangkok.

### **1987**

Ayarza, M.A., Dextre, R., Ara, M., Schaus, R., Reategui, K. and Sanchez, P.A. 1987. Produccion animal y cambios de fertilidad del suelo en cinco asociaciones bajo pastoreo en un Ultisol de Yurimaguas, Peru. *Suelos Ecuatoriales* 28:204-208.

Sanchez, P.A. and Benites, J. R. 1987. Low input cropping for acid soils of the humid tropics. *Science* 238:1521-1527.

Sanchez, P.A. 1987. North Carolina State University's Tropical Soils Program. International Ecology Congress (INTERCOL) Bulletin 14:55-58.

Sanchez, P.A. 1987. Edaphic parameters for characterizing IBSRAM's acid tropical soils network sites. In: M. Latham (ed.): Land Development and Management of Acid Tropical Soils. IBSRAM Proceedings 4:133-133. Bangkok.

Sanchez, P.A. 1987. Management of acid soils in the humid tropics of Latin America. In: P.A. Sanchez, E. R. Stoner and E. Pusparajah (eds.): Management of Acid Tropical Soils for Sustainable Agriculture. IBSRAM Proceedings 2:63-107, Bangkok.

Sanchez, P.A. 1987. Soil productivity and sustainability in agroforestry systems. In: H.A. Steppler and P.K.R. Nair (eds.): Agroforestry: A Decade of Development. International Center for Research in Agroforestry, Nairobi; pp 205-223.

## 1986

Sanchez, PA and GM Scobie. 1986. *Cuba and the CGIAR Centers. A study of their collaboration in agricultural research.* Consultative Group on International Agricultural Research Study Paper Number 14, World Bank, Washington DC. 120 p.

Sanchez, P.A. and Miller, R.H. 1986. Organic matter and soil fertility management in acid soils of the humid tropics. Transactions 13th International Soil Science Congress (Hamburg) 6:609-625.

Alegre, J.C., Cassel, D.K., Bandy, D.E. and Sanchez, P.A. 1986. Effect of land clearing on soil properties of an ultisol and subsequent crop production in Yurimaguas, Peru, pp. 167-177. In: R. Lal, P.A. Sanchez and R.W. Cummings, Jr. (eds.): Land Clearing and Development in the Tropics. Balkema, Rotterdam.

Bandy, D.E. and Sanchez, P.A. 1986. Post-clearing soil management alternatives for sustained production in the amazon, pp. 347-362. In: R. Lal, P.A. Sanchez and R.W. Cummings, Jr. (eds.): Land Clearing and Development in the Tropics. Balkema, Rotterdam.

## 1985

Sanchez, P. A., Palm, C. A., Davey, C. B., Szott, L. T. and Russell, C. E. 1985. Tree crops as soil improvers in the humid tropics. pp. 331-362. In: M. G. R. Cannell and J.E. Jackson (eds.): Attributes of Trees as Crop Plants. Institute of Terrestrial Ecology, Huntingdon, U.K.

Sanchez, P. A. and Buol, S. W. 1985. Agronomic taxonomy for wetland soils, pp. 207-228. In: Wetland Soils: Characterization, Classification and Utilization. IRRI, Los Baños, Philippines.

Nicholaides, J.J., Bandy, D.E., Sanchez, P.A., Benites, J.R., Villachica, J.H., Coutu, A.J. and Valverde, C.S. 1985. Agricultural alternatives in the Amazon Basin. BioScience 35: 279-285.

Sanchez, P.A. 1985. Fertilizers make continuous cropping possible in the Amazon. Better Crops International 1 (1): 12-15.

Sanchez, P.A. 1985. The redevelopment of Peru's agricultural research, extension and education System: 1982-1983. NSCU International Program Series 12, 44 pp.

Ayarza, M.A. and Sanchez, P.A. 1985. Effect of sulfur in solution on dry matter and tannin content of Desmodium ovalifolium. NSCU Phytotron 1984 Report. pp. 38-42

#### 1984

Swift, M.G. and Sanchez, P.A. 1984. Biological management of tropical soil fertility and sustained productivity. *Nature and Resources* 20 (4): 2-10. Also in Spanish and French.

Sanchez, P.A. 1984. Nutrient dynamics following rainforest clearing and cultivation, pp. 52-56. In: *Proceedings of the International Workshop on Soils, Townsville*. Australian Centre for International Agricultural Research, Canberra.

Wade, M.K. and Sanchez, P.A. 1984. Productive potential of an annual intercropping scheme in the Amazon. *Field Crops Res.* 9: 253-263.

Sanchez, P.A. y da Silva, L.F. 1984. Proyecto de Investigación en Suelos. REDINAA Executive Secretariat, Lima 100, Peru 37 pp.

#### 1983

Benites, J.R., Bandy, D.E., Nicholaidis, J.J., Piha, M.I. and Sanchez, P.A. 1983. Successful soil management technologies and their transfer to small farms in the Peruvian Amazon, pp. 337-366. In: *Communications of Weed Science Technologies in Developing Countries*. St. Louis, MO.

Sanchez, P.A. y Benites, J.R. 1983. Opciones Tecnológicas para el manejo racional de suelos en la selva peruana. CIPA XVI - Estación Experimental de Yurimaguas Serie 6. INIPA, Lima, Peru. 68 pp.

Sanchez, P. A., Villachica, J. H. and Bandy, D. E. 1983. Soil fertility dynamics after clearing a tropical rainforest in Peru. *Soil Science Society of America Journal* 47:1171-1178.

Sanchez, P.A. and Benites, J.R. 1983. Posibilidades tecnológicas para el manejo racional de los suelos en la Selva Peruana, pp. 115-120. En: *El Desarrollo de la Selva Alta*. Centro Peruano de Investigación Aplicada, Lima, Peru.

Wade, M.K. and Sanchez, P.A. 1983. Mulching and green manure applications for continuous crop production in the Amazon Basin. *Agronomy Journal* 75:39-45.

Miller, R.H., Nicholaidis, J.J., Sanchez, P.A. and Bandy, D.E. 1983. Soil organic matter considerations in agricultural systems of the humid tropics, pp. 105-110. In: *Proc. Regional Colloq. Soil Organic Matter Studies; Piracicaba, Brazil*.

Nicholaides, J.J., Sanchez, P.A., Bandy, D.E., Villachica, J.H., Coutu, A.J. and Valverde, C. 1983. Crop production systems in the Amazon Basin, pp. 101-153. In: E.F. Morán (ed.): *The Dilemma of Amazonian Development*. Westview Press, Boulder, Colorado.

Sanchez, P.A. 1983. Productivity of soils in rainfed farming systems: Examples of long-term experiments, pp. 441- 465. In: *Potential Productivity of Field Crops Under Different Environments*. International Rice Research Institute, Los Baños, Philippines.

## 1982

Cochrane, T.T. and Sanchez, P.A. 1982. Land resources, soils and their management in the Amazon region: A state of knowledge report. pp. 137-210. In: S.B. Hecht (ed.): *Amazonia: Agriculture and Land Use Research*. CIAT, Cali, Colombia (also in Spanish).

Gallegos, C.M., Davey C.B., Kellison, R.C., Sanchez, P.A., and Zobel, B.J. 1982. *Technologies for Reforestation of Degraded Lands in the Tropics*. Office of Technology Assessment, Congress of the U.S., Washington, DC. 134 pp.

Sanchez, P.A. 1982. A legume-based pasture production strategy for acid infertile soils of Tropical America. In: *Soil Erosion and Conservation in the Tropics*. pp. 97-120. American Society of Agronomy, Madison, Wisconsin.

Sanchez, P.A. 1982. Soils of the humid tropics. *Studies in Third World Societies*. 14:347-410.

Sanchez, P. A., Couto, W. and Buol, S. W. 1982. The fertility capability classification system: interpretation, applicability and modification. *Geoderma*. 27:283-309.

Sanchez, P.A., Gichuru, M.P. and Katz, L. B. 1982. Organic matter in major soils of the tropical and temperate regions. In: *12th International Congress of Soil Science (New Delhi)* 1:99-114

Sanchez, P. A., Bandy, D. E., Villachica, J. H., and Nicholaides, J. J. 1982. Amazon basin soils: Management for continuous crop production. *Science* 216: 821-827.

Savage, J.M., Goldman, C.R., Lugo, A.E., Raven, P.H., Sanchez, P.A. and Wilkes, H.G. 1982. *Ecological Aspects of Development in the Humid Tropics*. National Academy Press, Washington. 297 pp.

Smyth, T.J. and Sanchez, P.A. 1982. Phosphate rock and superphosphate combinations for soyabeans in a Cerrado Oxisol. *Agronomy Journal* 74:730-735.

Smyth, T.J. and Sanchez, P.A. 1982. Phosphate rock and availability in Cerrado soils as affected by phosphorus sorption capacity. *Soil Science Society of America Journal* 46:339-345.

Bandy, D.E. and Sanchez, P.A. 1982. Continuous crop cultivation in acid soils of the Amazon basin of Peru, pp. 153-174. In: J.F. Wienk and H.A. de Witt (eds.): *Management of Low Fertility Acid Soils of the American Humid Tropics*. University of Suriname, Paramaribo.

Nicholaides, J.J., Sanchez, P.A., Bandy, D.E., Villachica, J. H., Coutu, A.J. and Valverde, C.S. 1982. Fertilizer management for continuous production on Ultisols of the Amazon jungle basin of Peru. *Proceedings Ninth International Plant Nutrition Colloq.* 2:425-430. Commonwealth Agric. Bureau, Harpenden, U.K.

Sanchez, P.A. 1982. Nitrogen in shifting cultivation systems of Latin America. *Plant and Soil* 67:91-103.

Sanchez, P.A. and Bandy, D.E.. 1982. Suelos de la Amazonia y su manejo para la produccion continua de cultivos. *Suelos Ecuatoriales* 12:301-315.

### **1981**

Sanchez, P.A. and Salinas, J.G. 1981. Low-input technology for managing Oxisols and Ultisols in tropical America. *Advances in Agronomy* 34: 279-406.

Sanchez, P.A. 1981. *Suelos del Tropico- Caracteristicas y Manejo*. IICA, San José, Costa Rica. 632 pp.

Sanchez, P.A. 1981, Soil management in the Oxisol savannas and Ultisol jungles of tropical South America, pp. 215-253. In: D.J. Greenland (ed.): *Characterization of Soils*. Clarendon Press, Oxford, U.K.

Sanchez, P.A., Perrin, R.K., and Buol, S.W. 1981. Concepts of program design for soils research and information transferral in developing countries. *Hawaii Institute of Tropical Agriculture and Human Resources Departmental Paper*. 49:55-67.

### **1980**

Sanchez, P.A. 1980. The subhumid tropics: technology and management strategies for rainfed agriculture. In: *Proceedings, Agricultural Sector Symposium*. The World Bank, Washington, D.C. pp. 35-65.

Sanchez, P.A. and Cochrane, T.T. 1980. Soil constraints in relation to major farming systems of tropical America, pp. 107-139. In: *Priorities for Alleviating Soil-Related Constraints to Food Production in the Tropics*. International Rice Research Institute, Los Baños, Philippines.

Sanchez, P.A. and Uehara, G. 1980. Management considerations for acid soils with high phosphorus fixation capacity. In: F.E. Khasawney, E.C. Sample and E.J. Kamprath (eds.): *The Role of Phosphorus in Agriculture* pp.471-514. American Society of Agronomy, Madison, Wisconsin.

Naderman, G.C. and Sanchez, P.A. 1980. Soil fertility and moisture studies in the Cerrado of Brazil. In: H.B. Obeng and P.K. Kwakye (eds.): *International Soil Science Society Conference on Savanna Soils and their Management*. Soil Science Society of Ghana, Kumasi, Ghana. pp. 113-132.

Smyth, T.J. and Sanchez, P.A. 1980. Effects of lime, silicate and phosphorus application to an Oxisol on phosphorus sorption and ion retention. *Soil Sci. Soc. Amer. J.* 44:500-505.

Smyth, T.J. and Sanchez, P.A. 1980. Níveis críticos de fósforo para arroz de sequeiro em um Latossolo do Cerrado. *Rev. Bras. Ciencia Solo* 4:88-92.

Cochrane, T.T., Salinas, J.G. and Sanchez, P.A. 1980. An equation for liming acid mineral soils to compensate for crop aluminium tolerance. *Trop. Agric.* 57:133-140.

Bentley, C.F., Dudal, R.J., Arlosoroff, S., Buringh, P., Dobereiner, J., Greenland, D.J., Hopper, W.D., Jrabovsky, J.P., Lueken, H., Sanchez, P.A. and Swindale, L.D. 1980. Soils. In: *Agricultural Production, Research and Development Strategies for the 1980's*. The Rockefeller Foundation, New York, pp. 6-15.

## 1979

Sanchez, P.A. 1979. Soil fertility and conservation considerations for agroforestry systems in the humid tropics of Latin America. In: H.O. Mongi and P.A. Huxley (eds.): *Soil Research in Agroforestry*. International Council for Research in Agroforestry, Nairobi, Kenya, pp. 79-124.

Sanchez, P.A. 1979. Tropical pasture research in acid, infertile soils of Latin America: present status and needs for the future. In: P.A. Sanchez and L.E. Tergas (eds.): *Pasture Production in Acid Soils of the Tropics*. CIAT, Cali, Colombia. pp. 471-476.

Sanchez, P.A. 1979. Soil puddling. In: R.W. Fearbridge and C.W. Finkl, Jr. (eds.): *Encyclopedia of Soil Science*. Part I:406-409. Dalton, Hutcheson and Ross, Inc., Stroudsburg, Pa.

Sanchez, P.A. and Isbell, R.F. 1979. A comparison of the soils of tropical Latin America and tropical Australia. In: P.A. Sanchez and L.E. Tergas (eds.): *Pasture Production in Acid Soils of the Tropics*. CIAT, Cali, Colombia. pp. 25-53

Leon, L.A., Fenster, W.E., and Sanchez, P.A. 1979. Soil sample collection and procedures. In: G.O. Mott (ed.): *Handbook for the collection, Preservation and Characterization of Tropical Forage Germplasm Resources*. Series 05GE-1, CIAT, Cali, Colombia (also in Spanish).

## 1978

Buol, S.W. and Sanchez, P.A. 1978. Rainy tropical climates: Physical potential, present and improved farming systems. *Transactions XI International Congress Soil Science* (Edmonton) 2:292-312.

Sertsu, S.M. and Sanchez, P.A. 1978. Effect of heating on some changes in soil properties in relation to an Ethiopian management practice. *Soil Sci. Soc. Amer. J.* 42:940-944.



Tyler, E.J., Buol, S.W. and Sanchez, P.A. 1978. Genetic association of soil properties encountered in a detailed soil survey in the Upper Amazon Basin of Peru. *Soil Sci. Soc. Amer. J.* 42:771-776.

### 1977

Sanchez, P.A. 1977. Advances in the management of Oxisols and Ultisols in tropical South America. In: Proc. International Seminar on Soil Environment and Fertility Management in Intensive Agriculture. The Society of the Science of Soil and Manure, Japan. pp. 535-566.

Sanchez, P.A. 1977. Manejo de suelos tropicales en la Amazonía sudamericana. *Suelos Ecuatoriales* 8:1-11.

Sanchez, P.A. 1977b. Manejo do solos da Amazônia para produção agropecuária intensiva. *Bol. Inf. Soc. Bras. Ciencia Solo* 2(3):60-63.

Sanchez, P.A. 1977. Alternativas al sistema de agricultura migratoria en America Latina. CIAT, Cali, Colombia.

Sanchez, P.A., Seubert, C.E. y Valverde, C. 1977. Investigaciones sobre el manejo de suelos tropicales en la selva amazonica del Peru. *Investigaciones Agropecuarias* 5:71-93.

Seubert, C.E., Sanchez, P.A. and Valverde, C. 1977. Effects of land clearing methods on soil properties of an Ultisol and crop performance in the Amazon Jungle of Peru. *Tropical Agriculture* 54:307-321.

### 1976

Sanchez, P.A. 1976. Multiple cropping: An appraisal of present knowledge and future needs. *ASA Spec. Publ.* 27:373-378. American Society of Agronomy, Madison, Wisconsin.

Salinas, J.G. and Sanchez, P.A. 1976. Soil-plant relationships affecting varietal and species tolerance to low available soil phosphorus. *Ciencia e Cultura* 28(2):156-168.

### 1975

Sanchez, P. A. and S. W. Buol. 1975. Soils of the tropics and the world food crisis. *Science* 188:598-603.

Sanchez, P.A., Ramirez, G.E. and Perez, C. Y. 1975. Effects of solar radiation on the varietal response of rice to nitrogen in the Coast of Peru. In: E. Bornemisza and A. Alvarado (eds.): *Soil Management in Tropical America*. pp. 246-260 (English Version) and pp. 253-266 (Spanish version). Soil Sci. Dept., NCSU, Raleigh, NC.

Buol, S.W., Sanchez, P.A., Cate, R.B., Jr. and Granger, M.A. 1975. Soil fertility capability classification. In: E. Bornemisza and A. Alvarado (eds.): *Soil Management in Tropical America*. pp. 126-145 (Spanish version). Soil Sci. Dept., NCSU, Raleigh, NC.

**1974**

Sanchez, P.A. and Buol, S.W. 1974. Properties of some soils from the upper Amazon Basin of Peru. *Soil Sci. Soc. Amer. Proc.* 38:117-121.

Sanchez, PA, AS Lopes e SW Buol. 1974. *Centro de Pesquisa Agropecuária dos Cerrados. Projeto Preliminar Sugestão.* Embrapa –CPAC, Brasília.

Sanchez, P.A., Seubert, C.E., Tyler, E.J., Valverde, C., Nureña, M. and Wade, M.K. 1974. Investigaciones en manejo de suelos tropicales en Yurimaguas, Selva Baja del Peru. En: Reunion Internacional sobre Sistemas de Producción para el Tropico Americano. pp. II B-1 II - 37. IICA, Lima, Peru.

**1973**

Sanchez, P.A. 1973. Soil management under shifting cultivation. In: P.A. Sanchez (ed.): *A Review of Soils Research in tropical Latin America.* N.C. Agr. Exp. Sta. Tech. Bull. 291 pp. 46-47 (English version) and pp. 51-74 (Spanish version).

Sanchez, P.A. 1973. Nitrogen fertilization. In: P.A. Sanchez (ed.): *A Review of Soils Research in Tropical Latin America.* N.C. Agr. Exp. Sta. Tech. Bull. 219 pp. 90-125 (English version) and pp. 97-136 (Spanish version).

Sanchez, P.A. 1973. Puddling tropical rice soils. In: *Growth and nutritional aspects.* *Soil Science*, 155: 149-158.

Sanchez, P.A. 1973. Puddling tropical rice soils II. Effects of water losses. *Soil Sci.* 115:303-308.

Sanchez, P.A. and Briones, A.M. 1973. Phosphorus availability of some Philippine rice soils as affected by soil and water management practices. *Agron. J.* 65:226-228.

Sanchez, P.A., Ramirez, G.E. and de Calderon, M.V. 1973. Rice responses to nitrogen under high solar radiation and intermittent flooding in Peru. *Agron. J.* 65:523-529.

Sanchez, P.A., Gavidia, A., Ramirez, G.E., Vergara, R., and Minguillo, F. 1973. Performance of sulfur-coated area under intermittently flooded rice culture in Peru. *Soil Sci. Soc. Amer. Proc.* 37:789-791.

**1972**

Sanchez, P.A. 1972. Fertilización y manejo de nitrógeno en el cultivo de arroz tropical. *Suelos Ecuatoriales* 4(1): 197-240.

Sanchez, P.A. 1972. Técnicas agronómicas para optimizar el potencial productivo de las nuevas variedades de arroz en América Latina. En *CIAT: Políticas Arroceras en America Latina.* Cali, Colombia. pp. 27-43.

Sanchez, P.A. and Larrea N. 1972. Influence of age of seedlings at transplanting on rice performance. *Agron. J.* 53:828-833. (Spanish version In: Programa Nacional de Arroz Informe Técnico 51).

Sanchez, P.A. and Nureña, M.A. 1972. Upland rice improvement under shifting cultivation in the Amazon Basin of Peru. *N.C. Agr. Exp. Sta. Tech. Bull.* 210.

Kawano, K., Sanchez, P.A., Nureña, M.A. and Vélez, J. 1972. Upland rice in the Peruvian Jungle. In: *Rice Breeding*. Los Baños: International Rice Research Institute. pp. 637-643.

### **1971**

Sanchez, P.A. and Calderon, M.V. 1971. Timing of nitrogen applications for rice grown under intermittent flooding in the coast of Peru. *Proc. Int'l Symp. Soil Fert. Eval. (New Delhi)* 1:595-602.

Sanchez, P.A. y Buol, S.W. 1971. Características morfológicas, químicas y mineralógicas de algunos suelos principales de la Selva Baja del Perú. Programa Nacional de Arroz Informe Técnico 56. Lambayeque, Peru. 22 pp.

Larrea, N. y Sanchez, P.A. 1971. Potencial de la siembra directa de arroz en la costa del Perú. Programa Nacional de Arroz Informe Técnico 54.

Ramirez, G.E. y Sanchez, P.A. 1971. Factores que afectan la eficiencia de utilización de nitrógeno por el arroz bajo riego intermitente en la costa del Perú. Programa Nacional de Arroz Informe Técnico 59. Lambayeque, Perú.

### **1970**

Sanchez, P.A. y Calderon, M.V. 1970. Respuesta varietal a niveles de nitrógeno en sistemas de trasplante y siembra directa en la costa norte del Perú. Programa Nacional de Arroz Informe Técnico 16. 29 pp.

Sanchez, P.A. y Calderon, M.V. 1970. Epocas de aplicación de nitrógeno en sistemas de trasplante y siembra directa en la costa norte del Perú. Programa Nacional de Arroz Informe Técnico 17. 30 pp.

Larrea, N. y Sanchez, P.A. 1970. Epocas óptimas de cosecha para rendimientos y calidad molinera en la costa del Perú. Programa Nacional de Arroz Informe Técnico 44. Lambayeque, Peru. 27 pp.

Nureña, M.A. y Sanchez, P.A. 1970. Cultivo continuo de arroz seco en la Selva Baja del Perú. Programa Nacional de Arroz Informe Técnico. 25. Lambayeque, Peru. 14 pp.

Velázquez, R.S., Huerta, H.R. and Sanchez, P.A. 1970. Performance of short statured plant types in Peru (English and Spanish versions). Programa Nacional de Arroz Informe Técnico 30. Lambayeque, Peru. 30 pp.

### **1969**

Sanchez, P.A. 1969. Producción arrocería del Perú. Estrategias para incrementarla a corto y largo plazo. Arroz (Peru) 3 (13): 28-30.

Sanchez, P.A. 1969. Influencia de los factores climáticos al cultivo del arroz en el Perú. En: Curso de Capacitación e Arroz. Capítulo 7, Lambayeque, Perú. 28 pp.

Sanchez, P.A. 1969. Present status of rice research in Peru. NCSU Mission Report 371, Lima, Perú.

Sanchez, P.A. y Delgado, A. 1969. Propiedades de los suelos en relación al cultivo del arroz en condiciones peruanas. En: Curso de Capacitación de Arroz. Capítulo 8, Lambayeque, Perú. 37 pp.

Sanchez, P. A. y Nureña, M. A. 1969. Estudio preliminar sobre sistemas y densidades de siembra en arroz seco en la Selva Baja. Programa Nacional de Arroz Informe Técnico 22. Lambayeque, Perú. 12 pp.

Salhuana, A. y Sanchez, P. A. 1969. Sistemas de cultivo del arroz en el Perú. En: Curso de Capacitación de Arroz. Capítulo 10, Lambayeque, Perú. 28 pp.

Velazquez, R. S. y Sanchez, P. A. 1969. Comportamiento de variedades introducidas de Colombia en la Estación Experimental Agropecuaria de Lambayeque, Perú. 20 pp.

#### **1968**

Sanchez, P. A. 1968. Rice performance under puddled and granulated soil cropping systems in Southeast Asia. PhD. Thesis, Cornell University. 381 pp.

#### **1964**

Sanchez, P. A. 1964. Soil survey interpretation for a new crop in an area: sugar beets in Central New York State. MS Thesis, Cornell University.