

ASCE'S CONTRIBUTION TO THE STUDY OF CUBAN AGRICULTURE: IMPLICATIONS FOR THE TRANSITION

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The announcement of July 31, 2006, that President Fidel Castro had temporarily transferred his duties to his brother Raúl while recovering from a serious illness² resulted in increased interest in the long-standing succession versus transition issue. Three days later, the Association for the Study of the Cuban Economy began its sixteenth annual meeting in Miami, Florida, amidst renewed hope for a prompt resolution of Cuba's future. Many members believed the moment had come to reflect on the contribution ASCE could make to Cuba's transition to a market economy. Article II of the Association's bylaws (www.ascecuba.org) states as one of its purposes, "offering recommendations on the social, economic, legal and environmental aspects of a transition to a free market economy and the development of a democratic society in Cuba." However, one has to admit that, despite sixteen years of (what we would like to call) productive work, very little information existed in a ready-to-use form.

This does not mean that absolutely nothing had been done. To be noted among several initiatives are:

- A compilation of a dozen papers (Pujol, 2004) that was distributed to ASCE members and sent

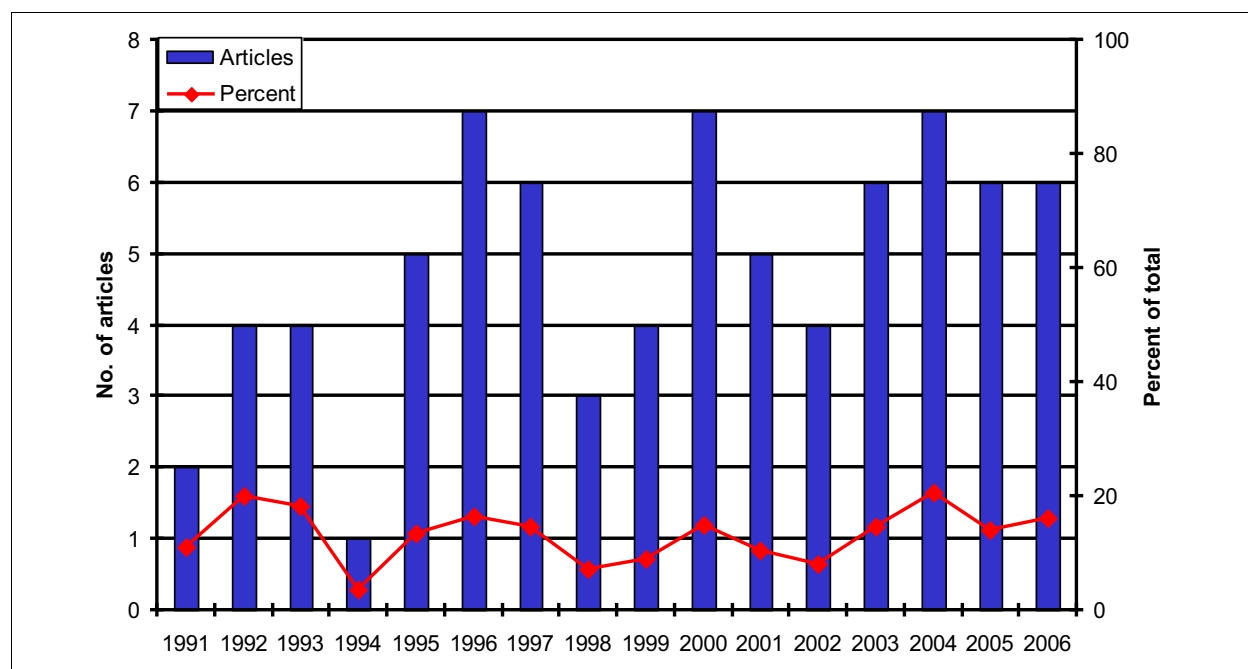
to Cuba. Each paper deals with a specific subject.

- Two annexes to the annual proceedings are posted on ASCE's website: (1) "Names and Affiliations of Persons Presenting Papers Published in *Cuba in Transition*, Volumes I to XIV" and (2) "Index of Papers Published in *Cuba in Transition*, Volumes I to XIV, Grouped by Subject Matter and Authors."
- The Saturday morning session of the 2006 meeting was devoted to a panel under the title "Meeting to Define Economic Policy Actions for Submission to the Council of Ministers of Cuba: A Simulation." A DVD, "An Example of Economic Measures by a Transition Government," was produced and distributed in Cuba.

A few members interested on sector-specific topics exchanged ideas at last year's meeting on how to assemble a comprehensive summary of the current literature. Some of us felt that change (however defined) in Cuba was going to surprise us and catch us empty-handed. (Such surprise would be ironic after predicting "Next Christmas in Havana!" for almost fifty years.) I myself suggested to ASCE's President and other members of the Board that the sole theme of the 2007 conference should be the compilation of information by topics, and not individual papers, on what we had done and failed to do in each sector and

1. The author thanks Jerry Hagelberg for this comments and thorough editing of an earlier draft. The usual caveats apply.

2. The transfer of presidential duties is in accord with Article 94 of the Cuban Constitution, which states: "In cases of the absence, illness or death of the President of the Council of State, the first vice president assumes the president's duties" (*Constitución*, 1996, p. 47).

Figure 1. Agriculture-Related Papers in ASCE Annual Proceedings, 1991–2006

sub-sector of the Cuban economy. As this year's program shows, that suggestion was not entirely followed.

Another year has passed and we are holding our seventeenth annual meeting in a continued state of suspense regarding developments in Cuba. Less-happy faces than last year's should serve as an incentive to move forward and produce the documents that we should have assembled in the last 12 months, if not long ago.

Several sectors of the Cuban economy — but particularly agriculture — along with an uncertain political leadership signal the existence of what we call a “teachable moment.” The report of the commission for economic affairs to the National Assembly of People's Power of December 22, 2006, points to an agricultural sector in disarray and on the verge of collapse. In another panel of this conference, Hagelberg and Alvarez analyze the situation in a paper entitled “Cuba's Dysfunctional Agriculture: The Challenge Facing the Government.” Complementing that, this paper summarizes the contribution made by a small

group of researchers who has been working on the agricultural and agribusiness areas since ASCE first began to meet in 1991.³

It also identifies some of the missing issues that need to be studied and incorporated into the current state of knowledge. Since the Association is mostly composed by professionals working in the areas of social sciences (anthropology, economics, finance, political science, sociology, etc), law, banking, and several fields of entrepreneurship, the agricultural professionals are a relatively small group. Despite their small number, the record shows that they have developed a solid base of knowledge that could be used to help in the transformation of Cuba's agricultural sector.

NUMBER AND CLASSIFICATION OF ARTICLES

The proceedings of the sixteen annual meetings from 1991 to 2006 contain 77 agriculture-related papers (excluding comments) out of a total of 595 in all fields (Figure 1). The average number was 4.8 per meeting, ranging from one in 1994 to seven in 1996,

3. The agricultural scientists have covered a wide range of sub-disciplines, including agronomy, economics, the environment, finance, law, marketing, natural resources, processing, trade and investment, among others.

2000 and 2004. The relative share of agriculture in the total number of papers in the annual proceedings volume ranged between 3.4% in 1994 to 20.6% in 2004, the annual average being 13.3%.

Appendix 1 lists the 77 presentations in chronological order, showing the name(s) of the author(s), the title and page numbers in the corresponding volume of proceedings. Appendix 2 groups the papers somewhat arbitrarily under 13 different headings, again with name(s), title, and volume and pages. The breakdown by heading, in alphabetical order, is as follows:

- Agricultural Organization: 5
- Citrus: 1
- Environment: 7
- Forestry: 5
- Livestock: 2
- Markets and Marketing: 6
- Performance: 11
- Remote Sensing: 5
- Sector Policy: 4
- Social Issues: 1
- Sugar: 8
- Trade and Investment: 9
- Transition Policy: 13

Although not all topics received the desirable level of rigorous treatment, I believe that the papers contain sufficient material to elaborate a report with recommendations. From a casual look at the list it is obvious that there are important gaps that should have received attention. Some major issues to be addressed are outlined below.

AGRICULTURAL ISSUES DESERVING ATTENTION

The Need to Break the Myth of a Prodigal Nature

A Spanish scientist is the latest to speak of a fundamental myth that arose in the middle of the 19th century and still persists today. According to Fernández Prieto (2005, p. 19), this is the belief in “the kindness

of the climate and the extreme fertility of Cuban lands; it states that it is just enough to place a seed on the ground to obtain quality crops.” Many Cubans hold this belief without any scientific basis.⁴ It is one of the reasons for some of the failures of Cuba’s socialist agriculture in that it underpinned unrealistic plans on the assumption of ideal year-round weather and inexhaustible soil fertility, true in some but not in all regions of Cuba, and ignoring the problems of soil maintenance in the tropics (Hagelberg and Alvarez, 2006, p.129). The falsity of this myth cannot be demonstrated too often.

Despite the importance of agriculture in the Cuban economy since Colonial times, it was not until 1928 that a thorough survey of the characteristics of the island’s soils was published (Bennett and Allison, 1962). This book has been the foundation for all subsequent studies. From the 16 families and 111 series of soils described by Bennett and Allison, four major categories have been identified according to their quality, use limitation, and agricultural potential (Table 1).

Table 1. Classification of Cuban Soils Based on Their Suitability for Agricultural Production, 1928

Classification	Hectares	Percent of total
Good or excellent	2,496,120	24.4
Mediocre	2,724,260	26.7
Poor	2,654,612	26.0
Little or no value	2,335,080	22.9
Total	10,210,072	100.0

Source: Bennett and Allison (1962).

Out of the island’s total area of some 10 million hectares (ha), 50% consists of coastal marshes, mangroves, mountainous and rocky areas, and plains with limited or no agricultural value (Aranda, 1975, p. 221). Only half of the remaining 50% was considered good or excellent at the time the study was conducted.

4. See, for example, Whitbeck (1922, pp. 225–226; 228–230). The prodigal virtue of tropical agriculture was criticized by Cardoso and Pérez Brignoli in the 1970s when stating that it was a terrible mistake to believe in the presence of a static nature (“without histories”) in tropical agriculture (1977, p. 22).

A Reliable Update of the Soils Inventory

This poses the question: How many more hectares from Cuba's stock of cultivable soils would have to be eliminated now because of environmental damage from agricultural practices? Bennett and Allison discussed the main causes for land degradation: erosion, compaction, salinization, drainage and acidification. The growth model adopted by the postrevolutionary state, in general, and the indiscriminate application of chemicals, in particular, have greatly worsened that situation. It is imperative to conduct a new soil survey in order to define the areas suitable for crop and/or livestock production and those where the damage could be remedied.

This task could be performed by an interdisciplinary team. Some information is available in Cuban journals. Recently, an Inter Press Service's correspondent in Havana wrote that "the degradation of soil is one of the environmental challenges faced by Cuba in terms of making agriculture sustainable" (Grogg, 2007). Based on official statistics and statements by an agronomist, she depicted the current situation. There are 6.6 million ha of arable land, but 75% is affected by one or more of the following problems: low fertility, 3.0 million ha; extremely low content of organic matter, 4.6 million ha; salinity, 1.0 million ha; and medium to severe erosion, 2.5 million ha. The problem is that we do not know the location of those soils.

The problem of updating the soils inventory has a solution, but it would cost a large sum of money. Here is a challenge for an interdisciplinary team: develop a proposal to obtain grant money and, with the use of remote sensing technology, map the current status of Cuban soils. The images have been collected since 1971 by Landsat satellites and stored by the U.S. Geological Survey. They need to be purchased and classified before they can be used. This project would provide valuable information to scientists studying different sectors of the Cuban economy, especially those issues related to the environment.

A Complete Analysis of the Infrastructure

Although intended as an inventory for analysis of privatization, Babún (1999) presents information on

important aspects of Cuba's infrastructure. The profile by Alvarez (1994) is outdated, although it provides some useful information. Cuba-Caribbean Development, a division of Babún Group Consulting, Inc., is perhaps the best source of information developed for sale to companies interested in trading and/or investing in a future Cuba (see <http://www.cuba-data.com>). Their reports cover from infrastructure to individual commodity profiles. Some of them however, have information only until 1989.

Classification and Number of Agricultural Production Units

With respect to land, chapter X of the *Anuario Estadístico de Cuba* is a good source of general information. It has data on agricultural and non-agricultural lands by type of land tenure, crops, yields by sector, and other matters. Concerning agricultural units, Alvarez (2006) compiled the available statistics for state-owned enterprises (Table 2). The number of units outside the state sector has varied tremendously over the years and it is difficult to come up with a reliable figure.

Table 2. Estimated Number, Total, and Average Areas of Agricultural State Owned Enterprises (SOE) and Basic Units of Cooperative Production (UBPC), 2004

Type of unit	Number of units			Total area (1,000 ha)			Average area (ha)		
	Cane	Other	Total	Cane	Other	Total	Cane	Other	Total
State enterprises	231	401	632	141	561	702	612	1398	1111
State farms	90	87	177	42	75	117	470	860	662
Total	321	488	809	184	635	819	572	1302	1012
UBPCs	707	189	896	1199	1767	2966	1696	9347	3344

Source: Alvarez (2006, p. 38).

A Comprehensive Roadmap to Privatization

This topic has attracted special attention by ASCE members. A considerable number of papers have been presented, but they are mainly based on the experiences of former socialist countries and relate to the economy in general. Despite the recent effort by Alvarez (2006), a comprehensive blueprint for the privatization of Cuba's agricultural sector is still urgently needed.

An Inventory of Agricultural Production and Processing Plants

The information on production and processing plants has always been scattered and not totally reliable. The situation worsened during the Special Period and the advent of foreign investment on the island. Today, it is almost impossible to develop a list of plants in the agricultural and agribusiness sectors, and one is needed.

The Sugar Agroindustry

The amount of data accumulated on the sugar industry is only matched by the degree of our ignorance concerning the real status of the industry. From current statistics one can conclude that the industry is about to fulfill Castro's requiescat. Recent efforts at partially resurrecting sugar have failed. A few years ago, several ASCE members joined international experts in a volume on the sugar sector (Pérez-López and Alvarez, 2005) which made a series of recommendations based on sugarcane as an energy crop and the production of different output combinations (sugar-energy-specialty products) according to market requirements.

Evidently inspired by Brazil's success and world oil prices, some Cuban exiles who were sugarcane growers or processors before the revolution are promoting the idea of devoting all sugarcane lands to ethanol production in Cuba. Although ethanol could well become an important part of the product mix of the industry, a total shift to this commodity appears unrealistic. Aside from the many political and other considerations that speak against this proposal, the lack of knowledge about the real status of the industry and the condition of its lands would require a thorough feasibility study in Cuba itself to establish the extent of a possible diversion of sugarcane to ethanol.

Market Profiles of Agricultural Products

Future investors are likely to demand more knowledge about potential areas than there is today. Even now, this presents an opportunity for consulting firms or individual experts. Market profiles for a particular commodity or group of commodities are needed. Collaborative work between the University of Florida's Institute of Food and Agricultural Sci-

ences, especially its Food and Resource Economics Department, and the University of Havana led to a series of reports that could be updated relatively easily. The website <http://www.cubanag.ifas.ufl.edu> contains commodity reports, other publications, general information and a series of useful links. Additional information about Cuba can be found at the website of the Florida Cooperative Extension Service at <http://edis.ifas.ufl.edu> searching in the Food and Resource Economics Department.

Exporting agricultural products from Cuba to the United States will not be an easy process. It will be cumbersome undertaken involving field trials in Cuba and extensive inspections and sanitary evaluations. Lifting the embargo will be a necessary but not a sufficient condition for agricultural exports to start flowing from Cuba to the United States.

A FINAL WORD AND CALL FOR ACTION

For those disciplines lacking enough papers in the ASCE proceedings for immediate compilation, it is not too late to start new lines of research, establish contacts on the island, and work together. Despite our long wait, change is unlikely to come as quickly as we thought last year, and nobody can predict its path. I challenge the specialists in other fields to develop similar inventories and an agenda to work in teams, and to those working on agriculture to expand this work. Data can be found in many places already familiar to most of us.

However, the most important source of information is on the island, from people working inside and outside the government. There are those who would have nothing to do with anybody in Cuba who do not fully share their political views. Efforts to develop and maintain contact with government economists during ASCE's early years showed intolerance on both sides. For obvious reasons, ASCE strengthened its ties with the dissident economists on the island. It has been a productive relationship. But, "official economists" — so called to distinguish them from the "dissident economists" — have also produced very useful publications. I believe the official and the dissident tend to complement each other. Dissidents have limited freedom to write and speak, and no access to the public and restricted access to

statistics. The reverse is true for official economists, and some of them have shown their bravery in numerous occasions. The bottom line is that they are in Cuba and we are not. This applies to all disciplines.

It is time to join forces and work together. It is not the time for a self-appointed “petit comité.” Just as no one can claim the monopoly of truth or love for Cuba, nobody can claim the monopoly of knowledge about Cuba’s transition.

EPILOG

At ASCE’s first meeting in 1991, my brother Fernando and I presented a paper (Alvarez and Alvarez, 1991) introducing the potential of commodity-linked transactions to generate capital for reconstructing Cuba’s sugar industry. At the beginning, we placed a short quote from Nicolás Guillén’s “Eulogy to Jesús Menéndez” (1951):

Behold: Here is sugar without tears,
To say,
I have returned, do not fear;
To say,
Long was the journey, and bitter the road.

Both of us were aware that tolerance and mutual respect were the right way to walk the remaining part of the journey, and we decided to share our personal experience while working on the paper:

Although both authors agree with the French philosopher Bastiat (1850) that laws should minimize the ability of politicians to grant favors, they disagree on

other future roles of the Cuban State. One of the authors believes with Thomas Jefferson that “government governs best that governs least,” the other sees a larger role for the State. Yet, by sharing the same goals, they were able to find a solution to accommodate both preferences. We hope that this experience will be shared by Cubans engaged in the problems of transition to a free and democratic Cuba. Then, and only then, the “here is sugar without tears; to say, I have returned, do not fear” will become truly relevant (1991, p. 176).

Sixteen years — and sixteen meetings — later, I would like to conclude with the ending of the poem in its original language, and extending the hope for the revival of sugarcane to the entire agricultural sector:

Entonces llegará,
General de las Cañas, con su sable
hecho de un gran relámpago bruñido;
entonces llegará,
jinete en un caballo de agua y humo,
lenta sonrisa en el saludo lento,
entonces llegará para decir,
Jesús, para decir:
— Mirad, he aquí el azúcar ya sin lágrimas,
Para decir:
— Fue largo el viaje y áspero el camino.
Creció un árbol con sangre de mi herida.
Canta desde él un pájaro a la vida.
La mañana se anuncia con un trino.

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5. This is a translation of the original book published in English in 1928 as *The Soils of Cuba*.

APPENDIX 1

Agriculture-Related Articles Published in *Cuba in Transition*, in Chronological Order, 1991–2006

Volume (Year)/Author(s)	Title	Page Nos.
VOLUME 1 (1991)		
Alvarez, Fernando and José Alvarez	Commodity-Linked Transactions and Recapitalization Needs for Privatizing the Economy in a Democratic Cuba: The Case of Sugar	143–184
Fernández, Raúl	Notas Sobre una Estrategia Agropecuaria para Cuba	185–192
VOLUME 2 (1992)		
Rivero, Nicolás	Thoughts on the Cuban Sugar Industry	126–132
Alvarez, José	Cuba's Sugar Industry in the 1990s: Potential Exports to the U.S. and World Markets	133–151
Alonso, José F.	The Free Farmers Market: A Rejected Approach, but a Possible Solution	166–184
Fernández, Raúl	Política Agrícola a Mediano y Largo Plazos para Cuba: Principales Objetivos	343–350
VOLUME 3 (1993)		
Fernández, Raúl	Renacimiento de la Agricultura Cubana	80–90
Puerta, Ricardo A. and José Alvarez	Organization and Performance of Cuban Agriculture at Different Levels of State Intervention	91–122
Díaz-Briquets, Sergio and Jorge F. Pérez-López	Water, Development, and Environment in Cuba: A First Look	123–138
Himes, Joshua	Cuban Development and the Sugar Economy: The Effects on Cuban Development of Changing International Relations	329–336
VOLUME 4 (1994)		
Riera, Arturo J.	Cattle: The Forgotten Industry	254–259
VOLUME 5 (1995)		
Espinosa, Juan Carlos	Markets Redux: The Politics of Farmers' Markets in Cuba	51–73
Díaz-Briquets, Sergio and Jorge F. Pérez-López	The Special Period and the Environment	281–292
Peña Castellanos, Lázaro and José Alvarez	The Transformation of the State Extensive Growth Model in Cuba's Sugarcane Agriculture	348–362
Echevarría, Oscar A	Cuba and the International Sugar Market	363–373
Perry, Joseph M. and Louis A. Woods	Cuban Citrus Production in a Post-Transition Economy	374–390
VOLUME 6 (1996)		
Messina, Jr., William A., Thomas H. Spreen, Anne E. Mosley and Charles M. Adams	Cuba's Non-Sugar Agriculture: Current Situation and Prospects	16–22
Ross, James E.	Agribusiness Investment in Cuba's Post-Embargo Period	163–168
Alvarez, José and William A. Messina, Jr.	Cuba's New Agricultural Cooperatives and Markets: Antecedents, Organization, Early Performance and Prospects	175–195
Blanco, Jr., Alfredo	The 1995–1996 Cuban Zafrá: Results and Implications — The Machinery Sector	253–259
Sánchez, Juan Tomás	Cuba: An Unreliable Producer of Sugar	260–261
Gutiérrez Jr., Nicolás J.	Righting Old Wrongs: A Survey of Restitution Schemes for Possible Application to a Democratic Cuba	406–424
Díaz-Briquets, Sergio	Forestry Policies of Cuba's Socialist Government: An Appraisal	425–437
VOLUME 7 (1997)		
Messina, Jr., William A., Richard N. Brown, James E. Ross and José Alvarez	Cuban Non-Sugarcane Agricultural Trade Patterns: Historical Perspective and Future Prospects	13–20
Daley, Larry	Bioprospecting in a Post-Castro Cuba	382–392
Radell, Willard W.	Avoiding Managerial Human Capital Loss in Transition II Sugar Factories	445–446
Royce, Frederick S., William A. Messina, Jr. and José Alvarez	An Empirical Study of Income and Performance Incentives in a Cuban Sugarcane CPA	457–471
Sáez, Héctor	Property Rights, Technology and Land Degradation: A Case Study of Santo Domingo, Cuba	472–485
Díaz-Briquets, Sergio and Jorge F. Pérez-López	The Environment and the Cuban Transition	488–498
VOLUME 8 (1998)		
Leiva, Aldo M.	Promoting and Financing the Development of an Environmental Infrastructure in a Post-Castro Cuba	85–99
Díaz-Briquets, Sergio and Jorge Pérez-López	Socialism and Environmental Disruption: Implications for Cuba	154–172
Sánchez Herrero, Manuel and Arnaldo Ramos Lauzurique	El Sector Agropecuario Cubano Bajo el Socialismo de Estado	439–464
VOLUME 9 (1999)		
Ross, James E.	Factors Affecting the Potential Market in Cuba for Selected U.S. Forest Products	103–108
Alvarez, José	Independent Agricultural Cooperatives in Cuba?	157–164

Agriculture-Related Articles Published in *Cuba in Transition*, in Chronological Order, 1991–2006 (Continued)

Volume (Year)/Author(s)	Title	Page Nos.
Daley, Larry S.	A Preliminary Evaluation of the Needs for Agricultural Extension in a Free Cuba	165–172
Messina, Jr., William A.	Agricultural Reform in Cuba: Implications for Agricultural Production, Markets and Trade	433–442
VOLUME 10 (2000)		
Burchardt, Hans-Jürgen	La Descentralización de las Granjas Estatales en Cuba: ¿Germen para una Reforma Empresarial Pendiente?	64–71
Alvarez, José	Differences in Agricultural Productivity in Cuba's State and Nonstate Sectors: Further Evidence	98–107
Ross, James E.	Market Potential for U.S. Livestock Genetics in a Free Market Cuban Economy	108–117
Díaz-Briquets, Sergio	Land Use in Cuba Before and After the Revolution: Economic and Environmental Implications	162–170
Cepero, Eudel Eduardo	La Situación Ambiental de Cuba al Finalizar el Siglo XX	173–189
Vega, Alberto and Federico Poey	Preliminary Environmental Action Plan for a Post-Castro Cuba	190–206
Daley, Larry S.	Cuban Flora, Endophytic and Other, as a Potential Source of Bioactive Compounds: Two Technical Approaches to Bioactive Compound Discovery	391–398
VOLUME 11 (2001)		
Messina, Jr., William A.	Agriculture in the U.S. International Trade Commission Report	102–104
Ross, James E. and María Antonia Fernández Mayo	International Economic Associations in Cuba's Agricultural Sector	146–152
Messina, Jr., William A., Eric T. Bonnett and Timothy G. Taylor	Cuba: A View of Revealed Export Advantage	153–163
Daley, Larry	Orographic Influences on Vegetation and Bioprospecting Potential at the Confluence of the Bayamo, Guamá and Guisa Rivers	179–184
Alvarez, José	Rationed Products and Something Else: Food Availability and Distribution in 2000 Cuba	305–322
VOLUME 12 (2002)		
Daley, Larry S.	Restoration of Cuba's Gallery Forests, Especially on the Banks of the Bayamo and Other Rivers of the Cauto Basin	225–232
Ross, James E. and María Antonia Fernández Mayo	Overview of Cuba's Dollar Food Market: An Exploration of the Purchasing and Distribution System	276–284
Carreño, Pablo A.	Action Plan for the Reconstruction of the Cuban Sugar Industry	431–434
Alvarez, José	Theoretical and Empirical Reflections on the Future of Cuban Agriculture	435–444
VOLUME 13 (2003)		
Maldonado, Argelio	Cuba's Environment: Today and Tomorrow — An Action Plan	63–73
Alvarez, José	Natural Disasters and Cuba's Agricultural Performance: Is There a Correlation?	227–233
Ricardo, José M.	Family Farms: The Cornerstone of the Agricultural Sector in the Cuba of the Future	234–246
Sánchez, Juan Tomás	La Reconstrucción de la Industria Azucarera Cubana	247–260
González Suárez, Dominga	La Discriminación Racial en el Campo Cubano	339–347
Ross, James E. and María Antonia Fernández Mayo	Cuba's Dollar Food Market and U.S. Exports	370–383
VOLUME 14 (2004)		
Alvarez, José	The Sugarcane UBPCs Ten Years Later	246–253
Royce, Frederick S.	Agricultural Production Cooperatives in Cuba: Toward Sustainability	254–273
Kost, William E.	Cuban Agriculture: To Be or Not to Be Organic?	274–281
Ricardo, José	Role and Importance of the Agricultural Processing Sector in the Cuba of the Future	352–359
Sánchez, Juan Tomás	La Transición, la Industria Azucarera Cubana, y el Mundo del Azúcar	360–36
Ross, James E.	Cuba: U.S. Agribusiness Exports Prospects Under Three Scenarios	369–380
Daley, Larry	Land Management: Modeling Deforestation and Desertification in Oriente Province, Cuba	395–402
VOLUME 15 (2005)		
Sánchez, Juan Tomás	La Globalización en la Industria Cañera (Sucro-alcoholera) y el Brasil: El Interés para Cuba	127–132
Maris, Terry L.	The Agricultural Export Facilitation Act of 2005: Its Rationale and Relevance for U.S.-Cuba Trade	178–189
O'Connell, Michael	General Equilibrium Analysis of Florida Agricultural Exports to Cuba	190–196
Daley, Larry	The Riverine Gallery Forest: The Chill Abode of the Jigüe	221–234
Ross, James E. and María Antonia Fernández Mayo	Cuba's 'New' Peso Food Chain: Linkages and Implications for U.S. Exporters	453–457
Hagelberg, G.B. and José Alvarez	Historical Overview of Cuba's Costs of Sugar Production: Implications for the Future	458–469
VOLUME 16 (2006)		
Espinosa Chepe, Oscar	La Crisis de la Producción Agropecuaria Cubana: Causas y Posibles Soluciones	14–23
Hagelberg, G.B. and José Alvarez	Command and Countermand: Cuba's Sugar Industry Under Fidel Castro	123–139
Cepero, Eudel and Angélique Lawrence	Before and After the Cayo Coco Causeway, Cuba: A Critical View From Space	202–220

Agriculture-Related Articles Published in *Cuba in Transition*, in Chronological Order, 1991–2006 (Continued)

Volume (Year)/Author(s)	Title	Page Nos.
Pérez-López, Kathleen G.	Comment: Analyzing the Cuban Environment Using Remote Sensing	221–224
Ashby, Timothy and Scott R. Jablonski	Land Tenure in Cuba: Implications and Potential Models for Foreign Real Property Holdings and Investments in a Future Cuba	268–284
Harper, Vanessa K., Lianne Fernández Granda, Peter E. Hildebrand and William A. Messina, Jr.	Farm Household Livelihood Strategies: Preliminary Findings of a Case Study of Fifteen Households with Limited Resources in the Sierra del Rosario of Western Cuba	381–388

APPENDIX 2

Agriculture-Related Articles Published in *Cuba in Transition*, by Topic and Chronological Order, 1991–2006

Topic/Author(s)	Title	(Year): pages
Agricultural Organization		
Peña Castellanos, Lázaro and José Alvarez	The Transformation of the State Extensive Growth Model in Cuba's Sugarcane Agriculture	(1995):348–362
Alvarez, José	Independent Agricultural Cooperatives in Cuba?	(1999): 157–164
Daley, Larry S.	A Preliminary Evaluation of the Needs for Agricultural Extension in a Free Cuba	(1999): 165–172
Burchardt, Hans-Jürgen	La Descentralización de las Granjas Estatales en Cuba: ¿Germen para una Reforma Empresarial Pendiente?	(2000): 64–71
Harper, Vanessa K., Lianne Fernández Granda, Peter E. Hildebrand and William A. Messina, Jr.	Farm Household Livelihood Strategies: Preliminary Findings of a Case Study of Fifteen Households with Limited Resources in the Sierra del Rosario of Western Cuba	(2006): 381–388
Performance		
Puerta, Ricardo A. and José Alvarez	Organization and Performance of Cuban Agriculture at Different Levels of State Intervention	(1993): 91–122
Messina Jr., William A., Thomas H. Spreen, Anne E. Mosley and Charles M. Adams	Cuba's Non-Sugar Agriculture: Current Situation and Prospects	(1996): 16–22
Blanco, Jr., Alfredo	The 1995–1996 Cuban Zafra: Results and Implications — The Machinery Sector	(1996): 253–259
Radell, Willard W.	Avoiding Managerial Human Capital Loss in Transition II Sugar Factories	(1997): 445–446
Royce, Frederick S., William A. Messina, Jr. and José Alvarez	An Empirical Study of Income and Performance Incentives in a Cuban Sugarcane CPA	(1997): 457–471
Sánchez Herrero, Manuel and Arnaldo Ramos Lauzurique	El Sector Agropecuario Cubano Bajo el Socialismo de Estado	(1998): 439–464
Messina, Jr., William A.	Agricultural Reform in Cuba: Implications for Agricultural Production, Markets and Trade	(1999): 433–442
Alvarez, José	Differences in Agricultural Productivity in Cuba's State and Nonstate Sectors: Further Evidence	(2000): 98–107
Alvarez, José	Natural Disasters and Cuba's Agricultural Performance: Is There a Correlation?	(2003): 227–233
Alvarez, José	The Sugarcane UBPCs Ten Years Later	(2004): 246–253
Royce, Frederick S.	Agricultural Production Cooperatives in Cuba: Toward Sustainability	(2004): 254–273
Sector Policy		
Fernández, Raúl	Renacimiento de la Agricultura Cubana	(1993): 80–90
Alvarez, José and William A. Messina, Jr.	Cuba's New Agricultural Cooperatives and Markets: Antecedents, Organization, Early Performance and Prospects	(1996): 175–195
Kost, William E.	Cuban Agriculture: To Be or Not to Be Organic?	(2004): 274–281
Ricardo, José	Role and Importance of the Agricultural Processing Sector in the Cuba of the Future	(2004): 352–359
Trade and Investment		
Echevarría, Oscar A.	Cuba and the International Sugar Market	(1995): 363–373
Ross, James E.	Agribusiness Investment in Cuba's Post-Embargo Period	(1996): 163–168
Messina, Jr., William A., Richard N. Brown, James E. Ross and José Alvarez	Cuban Non-Sugarcane Agricultural Trade Patterns: Historical Perspective and Future Prospects	(1997): 13–20
Messina, Jr., William A.	Agriculture in the U.S. International Trade Commission Report	(2001): 102–104
Ross, James E. and María Antonia Fernández Mayo	International Economic Associations in Cuba's Agricultural Sector	(2001): 146–152
Messina, Jr., William A., Eric T. Bonnett and Timothy G. Taylor	Cuba: A View of Revealed Export Advantage	(2001): 153–163
Ross, James E.	Cuba: U.S. Agribusiness Exports Prospects Under Three Scenarios	(2004): 369–380
Maris, Terry L.	The Agricultural Export Facilitation Act of 2005: Its Rationale and Relevance for U.S.-Cuba Trade	(2005): 178–189

Agriculture-Related Articles Published in *Cuba in Transition*, by Topic and Chronological Order, 1991–2006 (Continued)

Topic/Author(s)	Title	(Year): pages
O'Connell, Michael	General Equilibrium Analysis of Florida Agricultural Exports to Cuba	(2005): 190–196
Remote Sensing		
Daley, Larry	Bioprospecting in a Post-Castro Cuba	(1997): 382–392
Daley, Larry	Cuban Flora, Endophytic and Other, as a Potential Source of Bioactive Compounds: Two Technical Approaches to Bioactive Compound Discovery	(2000): 391–398
Daley, Larry	Orographic Influences on Vegetation and Bioprospecting Potential at the Confluence of the Bayamo, Guamá and Guisa Rivers	(2001): 179–184
Cepero, Eudel and Angélique Lawrence	Before and After the Cayo Coco Causeway: A Critical View From Space	(2006): 202–220
Pérez-López, Kathleen G.	Comment: Analyzing the Cuban Environment Using Remote Sensing	(2006): 221–224
Citrus		
Perry, Joseph M. and Louis A. Woods	Cuban Citrus Production in a Post-Transition Economy	(1995): 374–390
Environment		
Díaz-Briquets, Sergio and Jorge F. Pérez-López	Water, Development, and Environment in Cuba: A First Look	(1993): 123–138
Díaz-Briquets, Sergio and Jorge F. Pérez-López	The Special Period and the Environment	(1995): 281–292
Sáez, Héctor	Property Rights, Technology and Land Degradation: A Case Study of Santo Domingo, Cuba	(1997): 472–485
Díaz-Briquets, Sergio and Jorge F. Pérez-López	The Environment and the Cuban Transition	(1997): 488–498
Díaz-Briquets, Sergio and Jorge Pérez-López	Socialism and Environmental Disruption: Implications for Cuba	(1998): 154–172
Díaz-Briquets, Sergio	Land Use in Cuba Before and After the Revolution: Economic and Environmental Implications	(2000): 162–170
Cepero, Eudel Eduardo	La Situación Ambiental de Cuba al Finalizar el Siglo XX	(2000): 173–189
Forestry		
Díaz-Briquets, Sergio	Forestry Policies of Cuba's Socialist Government: An Appraisal	(1996): 425–437
Ross, James E.	Factors Affecting the Potential Market in Cuba for Selected U.S. Forest Products	(1999): 103–108
Daley, Larry	Restoration of Cuba's Gallery Forests, Especially on the Banks of the Bayamo and Other Rivers of the Cauto Basin.	(2002): 225–232
Daley, Larry	Land Management: Modeling Deforestation and Desertification in Oriente Province, Cuba	(2004): 395–402
Daley, Larry	The Riverine Gallery Forest: The Chill Abode of the Jigüe	(2005): 221–234
Livestock		
Riera, Arturo J.	Cattle: The Forgotten Industry	(1994): 254–259
Ross, James E.	Market Potential for U.S. Livestock Genetics in a Free Market Cuban Economy	(2000): 108–117
Markets and Marketing		
Alonso, José F.	The Free Farmers Market: A Rejected Approach, but a Possible Solution	(1992): 166–184
Espinosa, Juan Carlos	Markets Redux: The Politics of Farmers' Markets in Cuba	(1995): 51–73
Alvarez, José	Rationed Products and Something Else: Food Availability and Distribution in 2000 Cuba	(2001): 305–322
Ross, James E. and María Antonia Fernández Mayo	Overview of Cuba's Dollar Food Market: An Exploration of the Purchasing and Distribution System	(2002): 276–284
Ross, James E. and María Antonia Fernández Mayo	Cuba's Dollar Food Market and U.S. Exports	(2003): 370–383
Ross, James E. and María Antonia Fernández Mayo	Cuba's "New" Peso Food Chain: Linkages and Implications for U.S. Exporters	(2005): 453–457
Social Issues		
González Suárez, Domingo	La Discriminación Racial en el Campo Cubano	(2003): 339–347
Sugar		
Rivero, Nicolás	Thoughts on the Cuban Sugar Industry	(1992): 126–132
Alvarez, José	Cuba's Sugar Industry in the 1990s: Potential Exports to the U.S. and World Markets	(1992): 133–151
Himes, Joshua	Cuban Development and the Sugar Economy: The Effects on Cuban Development of Changing International Relations	(1993): 329–336
Sánchez, Juan Tomás	Cuba: An Unreliable Producer of Sugar	(1996): 260–261
Sánchez, Juan Tomás	La Transición, la Industria Azucarera Cubana, y el Mundo del Azúcar	(2004): 360–368
Sánchez, Juan Tomás	La Globalización en la Industria Cañera (Sucro-alcoholera) y el Brasil: El Interés para Cuba	(2005): 127–132
Hagelberg, G.B. and José Alvarez	Historical Overview of Cuba's Costs of Sugar Production: Implications for the Future	(2005): 458–469
Hagelberg, G.B. and José Alvarez	Command and Countermand: Cuba's Sugar Industry Under Fidel Castro	(2006): 123–139
Transition Policy		
Alvarez, Fernando and José Alvarez	Commodity-Linked Transactions and Recapitalization Needs for Privatizing the Economy in a Democratic Cuba: The Case of Sugar	(1991): 143–184

Agriculture-Related Articles Published in *Cuba in Transition*, by Topic and Chronological Order, 1991–2006 (Continued)

Topic/Author(s)	Title	(Year): pages
Fernández, Raúl	Notas Sobre una Estrategia Agropecuaria para Cuba	(1991): 185–192
Fernández, Raúl	Política Agrícola a Mediano y Largo Plazos para Cuba: Principales Objetivos	(1992): 343–350
Gutiérrez Jr., Nicolás J.	Righting Old Wrongs: A Survey of Restitution Schemes for Possible Application to a Democratic Cuba	(1996): 406–424
Leiva, Aldo M.	Promoting and Financing the Development of an Environmental Infrastructure in a Post-Castro Cuba	(1998): 85–99
Vega, Alberto and Federico Poey	Preliminary Environmental Action Plan for a Post-Castro Cuba	(2000): 190–206
Carreño, Pablo A.	Action Plan for the Reconstruction of the Cuban Sugar Industry	(2002): 431–434
Alvarez, José	Theoretical and Empirical Reflections on the Future of Cuban Agriculture	(2002): 435–444
Maldonado, Argelio	Cuba's Environment: Today and Tomorrow — An Action Plan	(2003): 63–73
Ricardo, José M.	Family Farms: The Cornerstone of the Agricultural Sector in the Cuba of the Future	(2003): 234–246
Sánchez, Juan Tomás	La Reconstrucción de la Industria Azucarera Cubana	(2003): 247–260
Espinosa Chepe, Oscar	La Crisis de la Producción Agropecuaria Cubana: Causas y Posibles Soluciones	(206): 14–23
Ashby, Timothy and Scott R. Jablonski	Land Tenure in Cuba: Implications and Potential Models for Foreign Real Property Holdings and Investments in a Future Cuba	(2006): 268–284