CUBA TODAY

Agricultural Production Cooperatives: The Future of Cuban Agriculture?

Frederick S. Royce

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I. INTRODUCTION: SUSTAINABILITY AND CUBAN COOPERATIVE AGRICULTURE

Cuba's farming cooperatives are not as well known as the country's widely recognized health and education systems, yet these unusual collectives constitute the organizational basis of Cuban agriculture today. Some 3600 cooperative farms manage about fifty-five percent of Cuba's cropland. They grow food for national consumption and for export, provide full-time jobs for around 300,000 cooperative members, and supply a variety of social benefits for those members and their families, impacting over a million people. But how do Cuba's agricultural cooperatives actually function? As Cuba's economy, and agriculture in particular, enters

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3 Álvarez, supra note 1, at 80.
increasingly into world market economic competition, can these worker-managed organizations survive? After briefly recounting the history of agricultural production cooperatives in Cuba, this paper describes the current reality of these cooperatives, based on a literature survey supplemented by details from two specific agricultural production cooperatives that have been visited by the author on several occasions. Finally, the paper addresses issues relating to the sustainability of Cuba's agricultural production cooperatives.

II. HISTORY OF AGRICULTURAL PRODUCTION COOPERATIVES IN CUBA

Five types of production cooperatives have been established since the revolution of 1959. The general definition that follows fits some more precisely than others. According to Edward Reed, an agricultural production cooperative is a farm where,

the land and major capital items are held in joint ownership by the farm workers themselves, the bulk of the land is collectively cultivated, and any profits from the enterprise are shared by the cooperative members. Ideally, as joint owners, members of production cooperatives participate in the decision-making process concerning all aspects of production, distribution, and investment. Thus, this type of group farm is distinguished from the state farm, where workers are wage employees of the state, and forms of cooperation where farmers cultivate their individual plots while carrying out some operations jointly.

A. First Period of Cooperative Formation

“Since the Cuban revolution of 1959, there have been three periods during which the government has promoted the formation of agricultural production cooperatives.” The first period, from 1959 through 1963, saw the formation of three types of cooperatives. The earliest, called simply agricultural cooperatives, were established on large non-sugarcane farms or ranches that had been expropriated during the first months of the revolution under the first agrarian reform law. Between May 1959 and May 1960, 881 of these agricultural production cooperatives, mostly in the size range of 200 to 300 hectares, were organized. This first co-op experience was short-lived,

4 The historical section, infra at Part II, draws heavily on an earlier work Frederick S. Royce et al., An Empirical Study of Income and Performance Incentives on a Cuban Sugarcane CPA, in CUBA IN TRANSITION 7 (1997) [hereinafter Royce Empirical Study].


6 Royce Empirical Study, supra note 4, at 458.

however. In January 1961, these cooperatives were merged into the centrally-managed network of state farms. Meanwhile, in June 1960, similar cooperatives were established on the lands of large sugarcane plantations. Within two months over 600 of these sugarcane cooperatives were established, and by May 1961, 622 cooperatives, with a total of 122,000 members, controlled 809,000 hectares of land. Like the agricultural cooperatives, the sugarcane cooperatives were a brief institutional interlude on the road to centrally managed agriculture. After only two harvests, in August 1962, the National Congress of Sugarcane Cooperatives voted almost unanimously to transform their cooperatives into state farms.

The National Association of Small Farmers (Asociación Nacional de Agricultores Pequeños, or ANAP) initiated a somewhat more enduring effort at cooperative agricultural production. Between May 1961, and May 1962, ANAP organized 229 "agrarian societies" (Sociedades Agropecuarios, or SA). These cooperatives differed from those previously discussed in three major ways. First, they were composed of small farmers who pooled their land in order to work it collectively, sharing draft animals and implements. Second, they were much smaller than either the agricultural or sugarcane cooperatives: the average size of the 345 agrarian societies reported in August 1963, was 137 hectares, with an average membership just under thirteen farmers. Finally, the SA were more democratic, with members electing their own authorities, whereas the government appointed the managers at the agricultural and sugarcane cooperatives. Although over 500 SA were organized in 1962 and 1963, they failed to generate broad interest among the small farmers. By late 1967 only 126 remained, and four years later, the count had dropped to 41. Among the causes for the failure of the SA cooperative model were the timing of the effort, so soon after many small farmers had received individual land titles from the agrarian reform, and the much higher priority accorded to expansion of the state-run agricultural sector during those years.

B. Second Period of Cooperative Formation

Beginning in 1975, the Cuban government began a gradual, voluntary process of attracting farmers into agricultural production cooperatives of

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8 *Id.* at 108.


their own making. The agricultural production cooperatives (cooperativa de producción agropecuaria, or CPAs) organized during this period were structurally very similar to the earlier SA cooperatives, though usually larger. The small producer association, ANAP, carried out the practical task of organizing the CPAs. Beginning in the early 1960s, ANAP's membership was increasingly organized into mutual aid groups and credit and service cooperatives (cooperativas de crédito y servicios or CCS) that “enable the sharing of irrigation and other installations, services and productive means, as well as collective arrangements for credit, even though the land, tools and production of each farm remain private.”

This organized, small-farmer base proved to be fertile ground for the creation of production cooperatives, over 1000 of which were established between 1977 and 1980. A good deal of the success of this effort seems to have been due to the emphasis placed on persuasion, rather than coercion. By pooling his or her lands and working collectively, each farmer was no longer tied to a particular, often isolated, plot of ground. Cooperatives brought cooperative members and their families together, often closer to towns or villages, and permitted access to electricity, improved housing, schools, and medical care. This new form of production was based on the use of machinery to lighten the farmer's burden and to increase productivity. Cooperatives provided for paid vacations and retirement pensions, benefits which small farmers had never known. As a final incentive, those who entered the cooperatives with land would be gradually paid off by the cooperative for the land “contributed.” According to Cuban economist Victor Figueroa, these changes in rural life brought about by the process of voluntary collectivization into CPAs constituted no less than a “profound cultural revolution in the countryside.”

Throughout the first few years of CPA development, a typical cooperative would comprise less than thirty socially homogeneous members. Thereafter, due to the entry of new members and to a tendency to amalgamate smaller cooperatives into fewer, larger units, the average membership size grew to around fifty, where it has remained. The social origins of the membership also became more diverse, with new members increasingly from the ranks of

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17 MARTÍN BARRIOS, supra note 10, at 154.

18 Deere Periodization, supra note 15, at 121; DHARAM GHAI ET AL., LABOUR AND DEVELOPMENT IN RURAL CUBA, 70-83 (1988); Asamblea Nacional del Poder Popular, supra note 16, Art. 25.

19 Cooperativización de Campesinado, supra note 14.

20 Deere Periodization, supra note 15, at 123.
landless agricultural laborers, skilled workers (e.g., mechanics and welders) and professionals (e.g., accountants and agronomists). The latter category has been particularly important, with 2750 professionals and para-professionals (técnicos medios) reported among CPA members by 1992. Although the presence of a core of former small farmers and their family members remained a very important characteristic of the CPAs, the tendency is for the cooperatives to become numerically dominated by the other groups mentioned. In 1983, there were 1472 CPAs, with a total of over 82,000 members. By December 2000, there were 1146 CPAs, with 61,083 members. Almost ninety percent of the decline in membership had occurred by 1990 due largely to older members taking advantage of the retirement benefits. Also, restrictions on CPA economic activities throughout the 1980s led to reductions of economic autonomy and income, weakening the appeal of the cooperatives. Since the initiation of the Special Period in 1991, the overall membership numbers have been quite stable. In spite of the overall decline in membership since the early 1980s, the CPA has proved to be a much more successful model for cooperatives than any of the previous attempts.

C. Third Period of Cooperative Formation

The most recent period of cooperative formation, from September 1993 through early 1995, constitutes a reversal of the early 1960s policies that converted the agricultural and sugarcane cooperatives to state farms. During the crisis of the early 1990s, the inefficiencies of the huge state-managed farms that controlled over eighty-five percent of Cuba’s agricultural land area became increasingly untenable. The relatively more efficient CPA would provide the organizational model for a fundamental, widespread, and permanent transformation of the structure of agricultural production. This process of transformation of state farms into cooperatives, called basic units of cooperative production (UBPC), began in September of 1993 and unfolded very rapidly during the following year and a half. In early 1995, there were a


22 Cooperativización de Campesinado, supra note 14, at 10.


24 Cooperativización de Campesinado, supra note 14, at 17.

A total of 2855 UBPCs, with 1415 in sugarcane and 1440 in other crops and livestock. These farms, with a total membership of about 260,000, occupied 3,161,000 hectares, or forty-eight percent, of Cuba’s agricultural lands. While the UBPCs were patterned after the CPA model, they differ in that the CPAs were formed by small farmers pooling their lands, whereas the UBPCs were populated by former state farm workers, on lands still owned by the state, with open-ended, rent-free usufruct granted to the cooperative, and soft credit for the purchase of existing crops, infrastructure, machinery, and irrigation works. The situations under which each type of cooperative was created were very different. A more favorable economic situation had surrounded the establishment of the CPAs a decade or more before. One of the most important effects of this difference was the generally poor condition of agricultural production and transport machinery with which the UBPCs began.

III. PRESENT SITUATION

A. Macro View

1. Cultivated Land Area, Land Tenure, and Distribution of Farming Population by Type of Farm

Taken together, the UBPC and CPA production cooperatives farm 56% of Cuba’s cultivated lands (Table 1). The remaining 44% is evenly divided between state and individual producers. These general proportions do not provide much insight into the relative importance of each management organizational form for a particular crop. For example, sugar is heavily dominated (86%) by cooperative producers, whereas individual farms overwhelmingly manage the important tobacco crop.

26 Nova González UBPC, supra note 2, at Tabla 10.
Table 1  Cultivated Land Area\textsuperscript{30} by Management (December, 2000)\textsuperscript{31}

<table>
<thead>
<tr>
<th></th>
<th>Total Area (1000 ha)</th>
<th>State (%)</th>
<th>UBPC (%)</th>
<th>CPA (%)</th>
<th>Individual (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Crops \textsuperscript{32}</td>
<td>3 599.6</td>
<td>23</td>
<td>46</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Sugar</td>
<td>1 681.1</td>
<td>10</td>
<td>73</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Coffee</td>
<td>139.4</td>
<td>29</td>
<td>22</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Cocoa</td>
<td>8.3</td>
<td>12</td>
<td>35</td>
<td>16</td>
<td>37</td>
</tr>
<tr>
<td>Bananas</td>
<td>112.6</td>
<td>42</td>
<td>28</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Citrus</td>
<td>83.6</td>
<td>44</td>
<td>43</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Other Fruit</td>
<td>84.8</td>
<td>37</td>
<td>23</td>
<td>11</td>
<td>29</td>
</tr>
<tr>
<td>Perennial Pasture &amp; Forage</td>
<td>298.8</td>
<td>56</td>
<td>40</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Rice</td>
<td>200.0</td>
<td>53</td>
<td>29</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Vegetables &amp; Root Crops</td>
<td>727.1</td>
<td>26</td>
<td>16</td>
<td>9</td>
<td>49</td>
</tr>
<tr>
<td>Tobacco</td>
<td>70.3</td>
<td>10</td>
<td>8</td>
<td>14</td>
<td>68</td>
</tr>
<tr>
<td>Annual Forage</td>
<td>17.2</td>
<td>61</td>
<td>36</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Production cooperatives also dominate Cuban agriculture demographically (Table 2). It is worth noting that the “Individual” sectors in Tables 1 and 2 consist largely of credit and service cooperative members.

\textsuperscript{30} “The land dedicated to a particular crop, including the area planted, under preparation, fallow, awaiting planting, and including the access roads, borders, irrigation and drainage canals, and other areas that are necessary for farming operations.” Does not include natural pasture or forest lands. \textit{Oficina Nacional de Estadísticas, Anuario Estadístico de Cuba 2000}, supra note 23, Ch. 9, at 190.

\textsuperscript{31} \textit{Oficina Nacional de Estadísticas, Anuario Estadístico de Cuba 2001}, at tbl. IX.2 (Havana 2002).

\textsuperscript{32} All crops total is greater than sum of crops listed, because not all minor crops are included.
Table 2: Farmer Demographics by Organization, Year 2000

<table>
<thead>
<tr>
<th></th>
<th>UBPC\textsuperscript{33}</th>
<th>CPA\textsuperscript{34}</th>
<th>Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Farms</td>
<td>2,565</td>
<td>1,146</td>
<td></td>
</tr>
<tr>
<td>Number of Members or Farmers</td>
<td>241,607</td>
<td>61,083</td>
<td>210,000 (approx.)</td>
</tr>
</tbody>
</table>

2. Legal Status of Agricultural Production Cooperatives: CPAs and UBPCs

The effort to organize small farmers into the CPAs in the late 1970s and early 1980s found its legal expression in Law Number 36, Law of Agricultural Cooperatives of 1982.\textsuperscript{35} This law formalized and detailed the social contract between the socialist state and the agricultural cooperatives, principally the CPAs, with a brief treatment of the credit and service cooperatives (CCS). Operating within the Cuba’s “Unified Economic and Social Development Plan” (Artículo 5), the CPAs would sell a planned amount of their production to the state (Artículo 31), which would in turn provide economic and technical support to the cooperatives (Artículo 8). Other important elements in the 1982 law were the voluntary nature of cooperative membership (Artículo 4) and the democratic norms for decision-making within the cooperatives (Artículo 21). Also, the law stipulates that the cooperatives are subject to Law 36, the General Regulations, and the internal by-laws of each cooperative (Artículo 14). The “General Regulations for the Agricultural Production Cooperatives” were anticipated by Law 36, but were not published until eight years later by the Cuban Council of Ministers.\textsuperscript{36} Offering greater detail regarding internal rules than the 1982 law, it provided a framework for the specific internal by-laws or regulations of each cooperative. Since the CPAs to which it referred had already been in existence for thirteen years, its apparent purpose was to standardize and institutionalize the existing situation.

Although the 1990 General Regulations are still in effect, in November 2002 the Cuban National Assembly replaced the 1982 law with Law Number 95, the Law of Agricultural Production Cooperatives and Credit and Service Cooperatives.\textsuperscript{37} According to Ricardo Ronquillo Bello, the new law was needed

\textsuperscript{33} Nova González UBPC, \textit{supra} note 2, at 9, 26.

\textsuperscript{34} OFICINA NACIONAL DE ESTADÍSTICAS, \textit{ANUARIO ESTADÍSTICO DE CUBA} 2002, at tbl. IX.2 (2003).


\textsuperscript{36} Consejo de Ministros, Decreto No. 159: Reglamento General de las Cooperativas de Producción Agropecuaria, \textit{GACETA OFICIAL DE LA REPUBLICA DE CUBA} (Havana), Edición Especial, Sept. 20 1990, at 15.

\textsuperscript{37} Asemblea Nacional del Poder Popular, \textit{supra} note 16.
to improve the institutional framework of the credit and service cooperatives, which at the time of the 1982 law were seen as a transitory step toward the CPA, yet this purpose received little attention within that legislation.\footnote{Ricardo Ronquillo Bello, \textit{Tierra de Ley El Economista de Cuba—Online Edition} (172) (2002), \textit{at} http://www.eleconomista.cubaweb.cu/2002/nro172/172_353.html (last visited Aug. 31, 2004).} Twenty years later, with state lands being made available to individual producers, it became clear that the credit and service cooperatives would continue to exist, and would probably expand. With respect to the CPAs, the new law repeated the pattern of the 1982 law and the 1990 decree, each of which formalized or made explicit rules already in practice. This cooperative law does not address the UBPCs.

In early September 1993, the ruling Communist Party of Cuba established the following fundamental guidelines for the transformation of the state-run farms into the new Basic Units of Cooperative Production (the UBPC):\footnote{BURÓ POLÍTICO, \textit{Acuerdo del Buró Político: Para Llevar a Cabo Importantes Innovaciones en la Agricultura Estatal}, GRANMA (1993) \textit{at} 1 [hereinafter Acuerdo del Buró Político].}

- Creation of a direct relationship between each productive worker and specific agricultural management areas (field, orchard, etc.)
- Raising the standard of living of members and their families, especially through on-farm production of food and improvement of housing
- Linking member incomes to achieved production
- Autonomy for the cooperative in administration and management of production operations

Subsequent legislation\footnote{Consejo de Estado, Decreto Ley No. 142: Sobre las unidades básicas de producción, \textit{GACETA OFICIAL DE LA REPÚBLICA DE CUBA} (Havana), Sept. 21, 1993.} provided a formal legal basis for the UBPCs, and further defined the principle rights and obligations of these new cooperatives and their members:

- To be owners of the means of production and of the crop
- Have the right to use the land assigned to it for an open-ended period, with land ownership remaining with the Cuban government
- Possess juridical personality
- Sell crops to the government purchasing agency, or other entity as authorized
- Manage bank accounts

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• Elect a cooperative administrator and board of directors
• Hold regular meetings during which the administration must report to the membership regarding co-op management
• Purchase crop insurance
• Be responsible for fiscal obligations to the nation

By October 1993, the Ministry of Sugar (MINAZ) and the Ministry of Agriculture (MINAGRI) established more detailed regulations, including General Bylaws, to govern the UBPCs that fell under their oversight, including sugarcane UBPCs for MINAZ, and other agricultural or livestock UBPCs for MINAGRI.41

3. Recent Reduction of Sugar Production

In April 2002, the Cuban government announced a drastic reduction of sugar production capacity.42 Information on this downsizing has focused principally on the closing of nearly half of Cuba’s 156 sugar mills, but a key part of the strategy also involves the reduction of the area planted in sugarcane.43 Recent land-use statistics make clear that the reduction of sugarcane lands has been underway for several years. Between January 1994, the end of the period of formation of the sugarcane UBPCs, and September 2001, there was a 40% reduction in total number of sugarcane UBPCs from 1533 to 920. Yet, during the same period the total agricultural area controlled by these co-ops decreased by only 11%, and the average area of agricultural lands managed by each UBPC increased from 1022 to 1541 hectares.44 This indicates that although some UBPCs failed to the point that their lands were returned to state administration or withdrawn from production, mergers reduced most of the total number of UBPCs. The reduction of area devoted to sugarcane within these cooperatives during the 1994-2001 period was 1,494,000 to 1,223,000 hectares, or about 18%. Apparently, the shift from sugarcane to other crops began well before the announcement of April 2002. The process of conversion did, however, accelerate around that time. Between September 2001 and September 2003,

44 Id. at 4, 5.
there was a reduction of 29% (1.223 million to 865 thousand hectares) in area devoted to sugarcane on the UBPCs. Since the same period saw reductions of less than 4% in the number of cooperatives and agricultural lands, the drastic reduction in sugarcane area was carried out by dedicating sugarcane lands to other crops. Although few of the UBPCs that grew sugarcane disappeared, the number specializing in cane fell by 23% (by 178 UBPCs) from 2001 to 2003. A 29% reduction in area devoted to sugarcane accompanied by a 23% reduction in farms specializing in that crop seems to imply that most of this recent reduction took place by entirely changing the crop specialization of about 178 cooperatives. Interestingly, it appears that these former sugar cooperatives will continue to be administered under the Ministry of Sugar, rather than the Ministry of Agriculture, as is the case of other non-sugarcane UBPCs.45 Several thousand workers moved from closed mills to cooperatives, increasing the membership of the sugarcane and former sugarcane UBPCs.46

B. Micro View: Agricultural Production Cooperatives’ Internal Functioning, Based on Interviews, Documents, and Observations from the Amistad Cuba Laos Sugarcane CPA and the 9 de Abril Citrus UBPC

While the sugarcane CPA data were sufficient for a formal case study,47 the less detailed data from the citrus UBPC does not yet constitute a formal study. For this reason, more attention is devoted here to the sugarcane example. Other differences between the cases should also be taken into account, specifically, the sugarcane cooperative data were collected between 1995 and 1996, whereas the citrus cooperatives were visited between 2002 and 2003. Furthermore, the sugarcane and citrus industries in Cuba are of entirely different scales. Even after the current downsizing of the sugar sector, sugarcane lands will occupy approximately ten-fold the area of citrus.

1. Organizational Structure Based on Two Specific Examples

The election of cooperative directors by the membership constitutes a defining characteristic of the CPA and UBPC. In both cases, the term of office is five years, although recall is permitted before the term expires. Therefore, the General Assembly is shown as the highest authority in each of the organizational diagrams (Figures 1 and 2). The positions occupied by members of the board of directors (CPA-junta directiva; UBPC-junta administrativa) are shaded. In both the CPA and the UBPC, the department heads are generally members of the board of directors, but each of the two co-ops had one department head that was not included. Additionally, each co-op board includes some non-administrative workers among those elected. Note

45 PETERS, supra note 42, at 12.
46 MINAZ, supra note 43, at 7.
that the CPA includes two staff positions: agronomist (ingeniero agrónomo) and mechanization expert (ingeniero mecanizador). Each of these individuals has functional, but not formal, authority within a vital activity, as indicated by the dotted lines in Figure 1.

The similarity of the organizational diagrams of these two cooperatives implies that the CPA model served as an inspiration for the UBPCs. There are some differences, however. The designation of the cooperative executive as “administrator” instead of president may be symptomatic of the more limited managerial autonomy available to the UBPCs. The relative importance given to food production, for example, self-provisioning, at the UBPC is probably indicative of the origins of those cooperatives during periods of food scarcity in the early 1990s. For this reason, secure access to food was a much more important motivation for the workers who founded the UBPCs than for the small farmers who began the CPAs under much more favorable economic circumstances. Furthermore, self-provisioning is the production area most completely under cooperative, versus enterprise or ministry, management control.48 The larger population of the UBPC, with approximately 500 members compared to about 100 at the CPA, may also influence organizational complexity.

Figure 1: “Amistad Cuba Laos” CPA Organizational Diagram, 1996
Figure 2: "9 de Abril" UBPC Organizational Diagram, 2003
2. Members’ Income, Motivation, and Discipline

A key justification for the conversion of state-run farms into cooperatives was to take advantage of the “productive reserves” (reservas productivas) of labor power; that is, to increase labor productivity.49 Yet the CPAs that served as models for the new UBPCs are not without their own problems. Analysis of the system of payment at the CPA Amistad Cuba Laos during the early years of the special period found it dominated by non-monetary, non-performance related elements.50

The case study found five types of income available to members of the Amistad Cuba Laos cooperative:

- Advances on earnings (functionally similar to a wage)
- Shares of co-op earnings (called “surplus”)
- Shares of food grown on the co-op itself for membership consumption (autoconsumo)
- Production from individual family plots
- Raising of animals (usually pigs, rabbits, or chickens) supplied as newborns to each family by the co-op

The advances and shares of earnings comprised the monetary portion of member income. The advance was paid every two weeks, based on the number of days worked, in many cases with an adjustment determined by the work norm: the completion of or failure to reach a standard amount of production. At the end of the agricultural year, with the sugarcane crop sold, net earnings were calculated and each member was assigned a share, again according to days worked. Unlike the advance, which was based on a daily rate, the amount of the earnings share was directly related to cooperative production and efficiency. A comparison of the relative significance of these two monetary income sources across time shows that the portion related to efficiency was nearly always less than the per-day amount, and particularly so after 1992 (Table 3).

49 Acuerdo del Buró Político, supra note 39.
50 Royce Sugarcane, supra note 47, at 85-94.
Table 3: Per-member Annual Advance and Surplus (Pesos)\textsuperscript{51}

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<tbody>
<tr>
<td>Mean Advance</td>
<td>1835</td>
<td>2174</td>
<td>2372</td>
<td>2439</td>
<td>2365</td>
<td>2498</td>
<td>2747</td>
<td>2726</td>
<td>2765</td>
<td>2647</td>
<td>2669</td>
<td>2525</td>
</tr>
<tr>
<td>Mean Surplus</td>
<td>1516</td>
<td>1525</td>
<td>1726</td>
<td>1740</td>
<td>981</td>
<td>1824</td>
<td>2747</td>
<td>3372</td>
<td>2049</td>
<td>646</td>
<td>366</td>
<td>1350</td>
</tr>
<tr>
<td>Surplus as % of Advance</td>
<td>83%</td>
<td>70%</td>
<td>73%</td>
<td>71%</td>
<td>41%</td>
<td>73%</td>
<td>100%</td>
<td>124%</td>
<td>74%</td>
<td>24%</td>
<td>14%</td>
<td>53%</td>
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</tbody>
</table>

Like nearly all agricultural production cooperatives in Cuba, the Amistad Cuba Laos CPA dedicates a portion of its arable land to the production of food for the membership. During the period examined, production from this food crop area represented a very important part of the income received by each cooperative member. During an average week of the 1994-95 fiscal year, an allotment of twenty-five pounds of root crops, twelve pounds of rice, and twenty-two pounds of vegetables were supplied to each member. For the majority of members, who resided close to the cooperative, the food was delivered door-to-door. This is an important detail, since most members lived some distance from the local market where similar items could be purchased, and transportation to and from shopping would have been a problem. The cooperative milk herd provided an average of 1.5 liters of milk per day per member. The members paid a nominal fee for this food, which was only rarely as high as ten percent of the free market value, excluding home delivery. The only requirement for receiving a full allotment was membership in the cooperative; the amount of food received bore no relation to days worked, much less to work quality.

Individual plots of approximately a quarter-hectare were assigned to interested cooperative members. The land selected for this was designated for planting rice in rotation with sugarcane so the assignment was not permanent, nor could the member decide to plant a crop other than rice. On the other hand, the cooperative prepared the land, planted the rice, and hulled the harvested crop at no cost to the individual member. The member to whom a plot was assigned needed to tend to weeding and harvest during non-working hours. All rice produced belonged to the individual member. Since the members’ families would often have more time to work the plots, this arrangement represented a way of channeling family labor towards

\textsuperscript{51} Figures based on a sample of eight members randomly selected from among current members who had joined the co-op prior to 1983-84 fiscal year. Registro de Utilidades Amistad Cuba Laos (unpublished co-op document).
direct improvement of the family standard of living. At the same time, since rotation with rice is believed to promote increased sugarcane yields\textsuperscript{52} there is a collective benefit to the cooperative. Somewhat surprisingly, a visit to the individual plots found over half the area nearly overrun with weeds. Although a few were meticulously attended, overall, the individual family plots were considerably less well cared for than the collective food-producing areas of the cooperative.

Backyard animal husbandry developed as a response to the scarcity of meat and lard after the collapse of Cuba’s Eastern Bloc trading partners, which had supplied very inexpensive animal feed. When the feed concentrate disappeared, so did the meat and poultry production systems, even at the cooperative. In response, the cooperative scaled back swine production to produce only enough pigs to provide each member with a piglet approximately at nine-month intervals. The member would then raise the pig in a backyard pen, feeding it table scraps, residue from banana plants, or other sources of food. Although the neighborhood sanitation implications of this “take home” policy were problematic, as a solution to the animal feed shortage, it worked well. As with the individual rice plots, a suitable combination of collective and individual responsibilities, activities, inputs, and benefits appeared to be evolving in response to changing economic conditions.

One way of comparing the relative importance of each component of average member income is to express each using the common denominator of market value. Most of the items received in-kind were available at the nearby Bauta agricultural market, and the lowest estimated or observed market prices were used to generate conservative values for comparison in Table 4.\textsuperscript{53}

\textsuperscript{52} J. ALVAREZ & G. H. SNYDER, EFFECT OF PRIOR RICE CULTURE ON SUGARCANE YIELDS IN FLORIDA, 315-321 (1984).

\textsuperscript{53} It is widely recognized that prices at the Cuban agricultural markets during this period were not set by the government. Manuel Pastor, Jr. & Andrew Zimbalist, Waiting for Change: Adjustment and Reform in Cuba, 23 WORLD DEV. 705, 709 (1995); The New Agrarian Reforms, supra note 29, at 16-17. The state did attempt to exert some downward pressure on market prices by either directly selling products below the going rate, or by encouraging co-ops to do so. This appears to have been the case at Amistad Cuba Laos, which, according to those responsible for selling a small amount of co-op production at the market, regularly priced its offerings around twenty percent below the market price. Since no study of prices at the Bauta market was available, the author collected prices during a visit to the market. The cooperative members who handled sales at the market also provided their estimates, and finally, prices were compared to those results of an unpublished survey done in Havana markets by Carmen D. Deere, Niurka Pérez, and Cary Torres in January 1996.
Table 4: Per-Member Income Equivalent in Pesos, July 1994 - June 1995

<table>
<thead>
<tr>
<th>Income component</th>
<th>Amount</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance on Profits</td>
<td>2,236</td>
<td>16%</td>
</tr>
<tr>
<td>End of Year Profits</td>
<td>1,271</td>
<td>9%</td>
</tr>
<tr>
<td>Food Crops Allotment</td>
<td>6,075</td>
<td>43%</td>
</tr>
<tr>
<td>Individual Plot Production</td>
<td>2,000</td>
<td>14%</td>
</tr>
<tr>
<td>Patio Pigs</td>
<td>2,700</td>
<td>19%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14,282</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4 summarizes and compares the relative magnitude of each income component already described for an average cooperative member. Even using a conservative methodology for estimating the value of food provided, the cash income of 3,507 pesos received by the average member from advances and distribution of surplus at the end of the year, was only a quarter of the estimated 14,282 peso value of all cash plus non-cash income.

Although the available information was not adequate to perform the same analysis for previous years, it is not unreasonable to assume that this apparently unbalanced situation was a result of the relative scarcity of food during the Special Period. As the amount of food available through the rationing system decreased in the 1990s, the price of food available through market channels, including black market, increased. The value of monetary income was further diminished by the reduced availability of inexpensive consumer goods of Soviet or Eastern European origin, and their replacement by more costly items, often for sale only in U.S. Dollars.

Each of the following five income sources bore a specific relation to work motivation for cooperative members:

- "Advance" was usually strictly based on days worked, and to a lesser extent, on comparing work completed to work norms. It was the only income category at least occasionally tied to the quality and intensity of work within the cooperative.
- "End of Year Surplus" was the only category directly related to the farm's profitability. Since surplus was distributed according to days worked, no element of

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54 See Royce Sugarcane, supra note 47, at 162.
individual work quality or intensity entered into the calculation of each member's share.

- “Food Crop Allotment,” the largest single category of income received by members, was distributed solely on the basis of membership, regardless of the level of responsibility shouldered by the member, or the quality, intensity, or any other aspect of the work performed.

- "Individual Plot Production" depended on the quality and intensity of work done by the family not within the cooperative.

- Backyard Animal Husbandry (“Patio Pigs”) depended on the piglets supplied by the co-op, for which the criterion was simply cooperative membership.

Only in the case of the advance was there any direct relation between work quality and income, and only end of year surplus varied directly with farm profitability. All other income sources depended solely on membership. Strictly speaking, a member need not even show up for work to remain eligible for these benefits. Thus, this in-kind, membership-based incentive system severely limited income differentiation, or rewards, within the cooperative according to job performance.

In order for these non-monetary, yet substantial portions of income to serve any motivational purpose, the condition of membership itself needed to be strictly linked to some minimal indicator of productive activity. At the very least, this created a credible threat of expulsion for work absenteeism. Table 5 lists the reasons for members leaving the cooperative, as stated in the cooperative records.
Table 5: Reasons for Leaving Amistad Cuba Laos Cooperative, Selected Years

<table>
<thead>
<tr>
<th>Year</th>
<th>Resignations</th>
<th>Expulsions</th>
<th>Retirements</th>
<th>Other</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>1986</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>1987</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>1988</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>1993</td>
<td>0</td>
<td>22</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>1994</td>
<td>0</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>13</td>
</tr>
</tbody>
</table>

The pronounced shift from “Resignation” to “Expulsion” probably indicates that the cooperative was indeed utilizing expulsion as a form of discipline to a much greater extent in recent years. The preponderance of non-performance related income has almost certainly had a negative effect on work motivation. The cooperative appears to have responded by using the threat of expulsion as a motivational factor, but frequent expulsions may cause more problems than they solve. If cooperative functioning is enhanced both by the sense of ownership possessed by each member and by the existence of social solidarity among members, and if, as seems probable, both the ownership and solidarity are undermined by expulsions, then the frequent use of expulsion as a method of eliciting work discipline may be fundamentally incompatible with cooperative forms of production.

The types of problems related to income, work, and motivation described at the Amistad Cuba Laos CPA were not unique to that cooperative. To the contrary, they were widespread, and well recognized by the architects of the UBPC system, who stipulated as a primary characteristic of the new cooperative functioning both by the sense of ownership possessed by each member and by the existence of social solidarity among members, and if, as seems probable, both the ownership and solidarity are undermined by expulsions, then the frequent use of expulsion as a method of eliciting work discipline may be fundamentally incompatible with cooperative forms of production.

57 Another issue raised indirectly by Table 5 is the high rate of turnover of members. High turnover was especially marked among male members who entered without land. From the co-op’s inception and 1995, 179 landless men entered, and 119 left. Some data indicate that this level of turnover may not have been typical of CPAs in general. Deere Periodization, supra note 15, at 131.
organizations the vinculación del hombre al área, literally, “linking the man to the field.” The idea is to organize production in such a way as to link the income of each cooperative member to the results, in quantity and sometimes quality of output, of his or her work. In effect, vinculación decentralizes management within the UBPC. In some cases vinculación may also be a mechanism for introducing family labor into the productive process, at no overt cost to the cooperative. This process can be relatively straightforward in crops such as tobacco or coffee that use little mechanization, do not cover extensive areas, and benefit from close attention by the farmer. In contrast, applying the principles of vinculación at highly mechanized sugarcane cooperatives, which include a high proportion of specialized members, has proven to be more problematic. Other Cuban observers worry that the process of assigning individual responsibility may lead to a breakdown in group cohesion and solidarity.

The 9 de Abril UBPC appears to provide an example of a well-implemented system of payment based on the vinculación concept, which avoids some of the distortions described within the payment system of the sugarcane CPA. The system described here only applies to 86 of the cooperative’s 500 members; other groups, whether harvest crews, vegetable farmers, machine operators, or office staff, are covered by other rules. The cooperative’s 1300 hectares of citrus lands have been sectioned into eighty-six fincas (farms) averaging about 15 hectares each. Each finca is assigned to a different member of the cooperative, who is provided four tools: a machete, a manually actuated backpack sprayer, pruning shears, and a pruning saw. As the tool list implies, this finca caretaker, or finquero, is responsible for controlling weeds, pruning each tree, moving irrigation tubes for water applications, and maintaining a presence to avoid theft of fruit or equipment. The finquero also oversees operations that are performed on the finca by other cooperative members: fertilizer application by the mechanization group and harvest by specialized fruit-picking crews. As is the case with the sugarcane CPA, each finquero is paid a periodic advance on earnings. Unlike

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58 Acuerdo del Buró Político, supra note 39.
60 Id.
the CPA, however, end-of-year payment (after the harvest) is not based on
days worked throughout the year, but on the amount of fruit harvested, with
the price paid per unit weight increasing on a sliding scale as production per
hectare (yield) increases. In this way, income of each finquero is directly
related to the productive results of the individual’s work.

The citrus UBPC also has a food production area, the output from which
fruit is sold to the membership at low prices. Although we do not have
sufficient data to perform a quantitative comparison of the contribution of
each income source to the overall member income, one member reported
yields of seventeen metric tons per hectare (which he said are slightly below
average), and annual earnings of 7300 pesos, or 608 pesos per month, during
2002. The cooperative reports that a few finqueros earned double this
amount. These were, and still are, good incomes in Cuba, where a high-level
administrator or professional might have received less than 500 pesos per
month at that time. This accounts for the presence of some skilled workers
and even professionals among the finqueros. Most importantly, there is a
clear relation between effective effort and income.

This system takes no account of either input costs or fruit quality in
calculating payment to the finqueros. It was designed to rapidly increase
production from the abysmal levels of the years following the collapse of the
USSR and Eastern Bloc. In 1994, the Valencia orange yield was two tons per
hectare, from trees largely covered by vines. For the 2002-2003 season the
overall Valencia yield at the 9 de Abril co-op was about sixteen tons per
hectare; a substantial improvement. But the cooperative, aware that Florida
Valencia groves average twice that yield, believes it has room for
improvement. Grapefruit yields are more important for the 9 de Abril UBPC,
and at 35.3 tons per hectare are closer to the potential represented by
Florida’s 44 tons per hectare. Part of this yield gap is caused by a shortage of
chemical inputs, particularly fertilizer. Chronic input shortages have been a
way of life in Cuban agriculture since the collapse of the USSR and Eastern
Bloc. These shortages explain why little attention within the incentive
system has been given to the cost of inputs: the finqueros tend to use all the
inputs they are provided. With yield maximization as the goal, little would be
won by accounting for these inputs, which are rationed at sub-optimal
quantities. In some cases, the chronic shortages may have generated a high
level of chemical-use efficiency. The citrus groves visited at the cooperative
were practically weed-free, with a reported per-hectare herbicide expense of
under fifty dollars, which is only about twenty-five percent of Florida per-
hectare herbicide expenditures.

Finally, to what extent might the emphasis on individual effort and
reward tend to reduce the commitment to the collective as a whole? We
currently do not have any clear metric by which to evaluate this question.
Nevertheless, observations during several visits in recent years suggest that
the sense of group identity and member solidarity at the cooperative is
strong, and even increasing. This impression is based partly on the
maintenance and expansion of the cooperative’s common resources: the child daycare center, the self-provisioning (food production) effort, the dormitory-style housing for members who are not local residents, and a large, new covered area for meetings, meals, and other group activities. Furthermore, conversations with members give little or no indication of a desire to “go it alone.” To the contrary, there appears to be an awareness of the advantages of being part of a large operation, particularly one in which they have a “voice and vote” and one which both rewards individual effort, and defends against hardships that are beyond individual control. In the end, an increased focus on individual effort and reward that generates success may be less of a threat to the cooperative unity and member solidarity than a collective-oriented system that is economically stagnant.

Based on these descriptions, it is tempting to conclude that the vinculación system described at the citrus UBPC represents a solution to the apparent problems related to payment, incentive, and motivation described at the sugarcane cooperative. However, due to substantial operational and economic differences between citrus and sugarcane production systems in Cuba, direct comparison of these two cooperatives is difficult to justify. Nevertheless, the two systems illustrate a portion of the heterogeneity of specific practices present among contemporary Cuban agricultural production cooperatives. The ability of these cooperatives to creatively adapt their management systems to changing social, technical, and especially economic conditions will, to a large extent, determine the sustainability of these unusual, democratic farms.

3. Member Participation

The emphasis on vinculación and other changes in cooperative management originate in the difficulties many cooperatives have experienced in eliciting acceptable levels of productive effort from their members. The previous section detailed some of the income-related factors that lead to some members delivering less than their full measure. Although the relationship between income and work is important, additional motivational mechanisms exist. For example, a range of managerial experts and economists maintain that participation in decision-making can elicit greater efficiency and effort from workers.63 Since Cuba’s agricultural production cooperatives operate under rules that favor member involvement, there should be little difficulty and considerable potential benefit to promoting a high level of member participation in decision-making. An important question, therefore, is the extent to which particular cooperatives are taking advantage of this potential

source of strength. Clearly, member participation in decision-making at these cooperatives is high compared to worker participation at farms of this size usually found in other parts of the world. Unlike most farm workers, these worker-members elect their own authorities, regularly attend meetings where a variety of production, investment, and employment decisions are made, and are members of work-groups that daily confront, discuss, and resolve operational issues. Yet, observations at the Amistad Cuba Laos sugarcane cooperative provided a general indication that member participation is not as developed as it could, and probably should, be.64

Some apparent limitations to greater participation are readily identified and can be classified according to the ability the cooperative has to affect that limitation. First, member participation takes place within the framework of cooperative autonomy. A clear distinction should be made between the autonomy of the cooperative to manage its affairs and member participation in cooperative decision-making. Even the highest levels of enterprise autonomy do little to ensure worker participation, as exemplified by the tremendous autonomy within a capitalist economy of private firms, whose workers have almost no ability to participate in meaningful decision-making. Yet clearly a production entity must be permitted some degree of decisional autonomy if members are to be involved in decision-making. While Cuban agricultural production cooperatives are subject to considerable limits on their autonomy, it is clear that space for decision-making exists (see section III(C), infra).

Participation is also inhibited by the manner in which cooperatives manage information. At the Amistad Cuba Laos sugarcane cooperative, a crucial, post-harvest general assembly meeting of all of its members is held in July. Among other business, the draft annual report is presented to the membership. This report is a multi-page document that includes narrative information and numerous five- and six-digit figures referring to each of the cooperative’s areas of economic activity. After the economic officer reads the report aloud, the floor is opened for discussion and possible modification, and the document, as modified, is eventually approved by a show of hands. According to the economic officer, no written materials, neither handouts nor wall charts, are prepared to aid the membership in the analysis and evaluation of their annual report. There are indications that cooperative members would respond well to accessible written materials of this nature. Making quantitative indicators of cooperative performance more readily available for analysis and decision-making by the cooperative rank-and-file would certainly promote informed participation.

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64 At least one other study indicates that this situation may be common among Cuban CPAs: “Moreover, it seems that even within the degree of autonomy retained by cooperatives, many have failed to consolidate participatory management styles and collective decision making.” Deere Periodization, supra note 15, at 139.
C. Relating the Parts to the Whole

1. Introduction

Cuban agricultural production cooperatives are organized around government-managed purchasing, marketing, and coordinating entities. In the case of sugarcane, each cane production cooperative is associated with an agro-industrial complex (complejo agro-industrial, or CAI). The CAI is owned by the Ministry of Sugar, and is the most visible and active link between the state and each sugar farm. When organized in the early 1980s, each CAI was to integrate the agricultural, industrial, and transportation components of sugar production of a particular territory.65 With the formation of the UBPCs between 1993 and 1994, sugarcane production was removed from CAI activities, but the close links to production remain. Each cooperative (UBPC or CPA), is associated with a particular CAI, which purchases and processes the farm's cane, and supplies all major farm inputs, notably machinery, parts, fuel, lubricants, fertilizer, and herbicides. Furthermore, the CAI has retained a very active role planning the annual sugarcane production plan and overseeing its progress, even though the cooperative farms have a legal claim to some degree of management autonomy.66

In the specific case of the Amistad Cuba Laos CPA, in 1995 the lead author found that the CAI’s involvement in the productive process began with the annual plan (plan técnico económico), which the cooperative elaborated with input from the CAI. Progress toward the fulfillment of the plan was monitored by personnel from the CAI, who would schedule numerous visits to the cooperative to review all sugarcane related operations, as well as machine repair and even the preparation of idle machinery for storage. Such visits from the CAI were said to occur up to several times per week. Many cooperative members criticized this level of close supervision of their day-to-day operations, claiming that this supervision demanded large amounts of cooperative leaders’ time, and served no purpose. Interestingly, more fundamental limits on cooperative autonomy, such as the required focus on a particular crop or serious constraints on the cooperative’s participation in the lucrative farmers’ markets, appeared to be accepted as part of the cooperative’s role within society and elicited much less objection from members.

Extensive state involvement in the management of cooperative farms, especially sugarcane cooperatives, has been frequently criticized by Cuban academic and journalistic observers.67 A case study of a sugar cooperative in

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65 ALVAREZ & PEÑA CASTELLANOS, supra note 41, at 30.
the Villa Clara province reports that the lack of autonomy prevented cooperative managers from making deals with other institutions to solve problems. There, a sugarcane UBPC was unable to repair a tractor, since the replacement part was not available at the CAI, and the cooperative was not authorized to seek the part elsewhere. There are clearly some major limitations on sugarcane CPA autonomy:

- Land in sugarcane must remain so, unless authorized by MINAZ. The cooperative cannot simply decide to switch to other crops, even though they may offer much higher profits than cane.

- Cooperative land cannot be sold or rented. It can be acquired, if the cooperative can convince a landowner to join or to sell land to the cooperative.

- The state is the only buyer of cane. All cane from Amistad Cuba Laos is sold to the CAI. The cooperative cannot shop around for the best price on its cane. During some years, a small amount of cane has been sold outside normal state channels for consumption as guarapo (fresh cane juice), but even those sales were prohibited during the 1995-96 fiscal year.

- The state is the only supplier of agricultural inputs. The cooperative therefore has a very limited capacity to choose, vary, or even to acquire the inputs it needs. The products which the state offers can be purchased, and if a needed input is not available through the CAI, it is very difficult for the cooperative to obtain it at all. In practical terms, this is probably the single most severe limitation that the cooperative faces.

Except for the last point, to which we will return, neither the cooperative leadership nor the general membership seems to be particularly concerned about these restrictions on their autonomy.

In spite of these limitations, and in partial contrast to the situation reported by Torres Vila et al., data from the sugarcane CPA demonstrate an ability to solve problems by dealing with institutions beyond the officially sanctioned channels. In Table 6, a sample of purchases from 1990 reveals that purchases were made at ten different suppliers, all managed by the CAI. Samples from 1994 and 1995 found twenty-six and thirty-four suppliers respectively, with most of the increase consisting of suppliers not managed by

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*68 Análisis Comparativo, supra* note 61, at 116.
the CAI, and thus under no obligation to sell to the Amistad Cuba Laos cooperative.

**Table 6: Purchases from Official vs. Outside Supplier, in Current Pesos**

<table>
<thead>
<tr>
<th>Year of Sample:</th>
<th>Suppliers:</th>
<th>Purchase Amounts:</th>
<th>Percent:</th>
</tr>
</thead>
<tbody>
<tr>
<td>March - June</td>
<td>Official</td>
<td>Outside</td>
<td>Total</td>
</tr>
<tr>
<td>1990</td>
<td>10</td>
<td>0</td>
<td>68,101</td>
</tr>
<tr>
<td>1994</td>
<td>10</td>
<td>16</td>
<td>107,947</td>
</tr>
<tr>
<td>1995</td>
<td>17</td>
<td>17</td>
<td>160,805</td>
</tr>
</tbody>
</table>

Apparently, even within the sugarcane sector, the application of rules has varied, possibly between UBPCs and CPAs, between farms with higher versus lower productivity, and/or simply from one CAI to the other.

Agricultural production cooperatives that produce crops besides sugarcane are also integrated into crop-specific state-run enterprises that, like their counterparts in the sugar industry, purchase the bulk of cooperative production, supply nearly all inputs, and perform a range of services for the associated cooperative farms. The citrus UBPC 9 de Abril is one of five cooperatives associated with the Cítricos Ceiba enterprise. Unlike the sugar CAI that is organized around a sugar mill, most of Cuba’s citrus enterprises do not manage their own citrus processing plants; rather, each plant typically handles production from several citrus enterprises. The small management team at the Cítricos Ceiba enterprise appears to be motivated and technically competent. Cítricos Ceiba has a number of departments that provide services to the five cooperatives. These services include repairing equipment, supplying inputs, purchasing fruit, production of citrus seedlings, financing, processing of fruit for fresh market, and some mechanized operations. Cooperative members and enterprise personnel agree that efficiency has increased substantially since the change from state to cooperative administration of production. The sub-director explained that prior to the restructuring of the citrus industry in the early 1990s, 250 tractors were needed to service the 6000 hectares of citrus and other crops that were managed by the enterprise. Today, with the cooperatives managing production and the enterprise coordinating and providing services, he said that only eighty tractors are necessary for those same lands.

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69 Entradas del Almacén 1989-90 (unpublished co-op document); Entradas del Almacén de Piezas 1989-90 (unpublished co-op document); Vales de Entrada del Almacén de Insumos 1993-94 (unpublished co-op document); Vales de Entrada del Almacén de Piezas 1993-94 (unpublished co-op document); Vales de Entrada del Almacén de Insumos 1994-95 (unpublished co-op document); Vales de Entrada del Almacén de Piezas 1994-95 (unpublished co-op document); interviews with cooperative accountant, Aug. 1995. Note that the purchase amount during the sample period of 1990 was much smaller than in later years, reflecting increases in input prices.
2. Structure and Function of Cooperatives

At the root of the tension between top-down management and cooperative autonomy may be divergent interpretations of the function of the agricultural production cooperative in Cuba. Prior to 1993, the private CPAs were closely integrated into an overwhelmingly state-dominated structure of production, while the UBPCs had not yet been carved out of the large, centrally managed state-run enterprises. The role of state agencies as sole purchasers of farm production and sole suppliers of farm inputs constituted a fundamental limit to autonomous economic action, even for the CPAs. With the establishment of the UBPCs, the opening of agricultural markets with prices determined by supply and demand, and a declining ability of state entities to guarantee adequate supplies of production inputs, the structural differentiation between the cooperatively managed production and the state enterprises has increased. But the state agencies associated with each cooperative still constitute the principal purchasers of output and are near-monopoly suppliers of inputs. These factors clearly limit management autonomy, even if the farm is internally structured as a cooperative. The management limitations raise the question of the actual function of the cooperatives. The UBPCs in particular are still considered by some state administrators to be productive units that simply need to follow the Ministry’s technical recommendations, such as fertilizer application rates and machine maintenance schedules. In contrast, cooperative leaders and other members increasingly see their farms as collectively run businesses. The dualities of structure and function help explain the persistence of top-down methods imposed upon cooperatives by state entities, as well as the resistance to those methods. Table 7 shows the effects on managerial autonomy and worker (member) participation that these structural and functional dualities tend to engender. Assuming that the gradual trend within Cuba continues toward more decentralized, economic-based decision-making, there is reason to believe that the conditions favoring both high autonomy and high participation may eventually be achieved.


Table 7: Effects of Structural and Functional Characteristics of Farms on Managerial Autonomy and Worker Participation

| Structural Characteristics | Functional Characteristics | | | |
|----------------------------|-----------------------------|---|---|
|                            | Productive Unit             | Business | | |
| State Enterprise           | low autonomy, low participation | high autonomy, low participation | | |
| Cooperative                | low autonomy, high participation | high autonomy, high participation | | |

IV. LOOKING TO THE FUTURE: ARE THE AGRICULTURAL PRODUCTION COOPERATIVES SUSTAINABLE?

Sustainability is often associated with long-term environmental impact, which is certainly as relevant to Cuban agricultural production cooperatives as it is to farms in any part of the world. Although collective ownership and decision-making may have some particular bearing on environmental sustainability, doubts regarding the long-term viability of production cooperatives tend to focus on economic and social characteristics.72

A. Economic Sustainability

The UBPCs were born at the nadir of an extremely deep economic crisis. The production infrastructure they purchased from the government was largely worn out, and the management methods they inherited were only appropriate to an economic system that no longer existed. Short-term capital for agricultural inputs was very limited, and long-term capital for re-tooling was almost non-existent. Food was scarce, even in the countryside. Under these circumstances, it is not surprising that for most of these new cooperatives the first few years were economically difficult. Some did not survive, but as Armando Nova González has recently shown, most did, and by 2001 most were profitable.73


73 Nova González UBPC, supra note 2, at 10,26.
Table 8: Quantities of Profitable Agricultural Production Cooperatives, Year 2001

<table>
<thead>
<tr>
<th></th>
<th>Sugarcane</th>
<th>Agriculture &amp; Livestock</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UBPC (%)</td>
<td>CPA (%)</td>
<td>UBPC (%)</td>
</tr>
<tr>
<td>Profitable</td>
<td>410 (44)</td>
<td>312 (83)</td>
<td>1116 (69)</td>
</tr>
<tr>
<td>Unprofitable</td>
<td>522 (56)</td>
<td>63 (17)</td>
<td>493 (31)</td>
</tr>
<tr>
<td>Total</td>
<td>932</td>
<td>375</td>
<td>1609</td>
</tr>
</tbody>
</table>

As shown in Table 8, by 2001 most of the unprofitable cooperatives, whether UBPC or CPA, were sugarcane producers. This situation has been at least partially addressed by the downsizing of the sugar industry. The differences in profitability between CPAs and UBPCs operating in the same crops and under the same system is further indication that it may be possible to make considerable progress toward profitability with changes in cooperative management and any rules that place greater burdens on UBPCs as compared to CPA cooperatives.

In spite of current limitations on autonomous management that have been discussed, there are ways to increase efficiency, particularly with respect to production per scarce inputs. Cooperatives are especially interested in increasing their ability to relate costs and quantities of production inputs to crop yield and quality from different sections of their farms. As the cooperatives continue to diversify, linking of business information to operational and yield data becomes more critical and more complex. This author has observed cooperatives developing computer-based accounting, including advanced techniques such as geographical information systems.

Prominent Cuban economists argue for significantly greater reliance on agricultural input markets, including credit. Under the current system of rationing of inputs by the state enterprises, it can be very difficult to invest in production even when a cooperative accumulates profit, since there is no market for inputs, machinery, or building supplies. Even limited movement toward agricultural input markets would mark a very significant, and for most Cuban observers, very positive development for the cooperative agricultural production sector.

74 Id. tbls.6, 8, 9, and 10.

75 Bu Wong et al., supra note 70, at 36-37; Nova González UBPC, supra note 2, at 15.
B. Social and Political Sustainability

1. Barriers to Conversion from Cooperative to Individual Family Farming

Under current government policy, it would not be feasible for cooperatives to divide their lands into family parcels as a way of becoming individual family farmers. However, even if this option existed, there appears to be little incentive to partition the cooperative farms. The average amount of cultivated land available per member would be six to seven hectares, and for some types of cooperatives, such as the citrus UBPC discussed above, the average cultivated area per member would be much smaller, at around three hectares. Family farms of this size would require significant changes in lifestyle for many Cuban cooperative members. Moving away from the village or town to develop an isolated homestead on their property would be one of the earliest and most dramatic of these changes. These families would become aware of the “24 hours, 7 days” nature of taking care of animals and crops, hauling water to the homestead, finding fuel for cooking, and walking long distances to shop or find medical assistance and schooling. Reluctance to turn their backs on the “profound cultural revolution in the countryside” carried out by the cooperatives would be a rational response, based on considerations of family well-being.76

With respect to the work itself, the cooperatives we have examined are typical in that they rely heavily on modern technologies, especially agricultural and transport machinery. Various factors have been identified that inhibit individual small farmer participation in modern technologies.77 Among such technologies, machinery is a particularly important component of collective farming operations, and one that is not easily divided or shared if a decision is taken to parcel out the cooperative. Poor utilization of agricultural machinery in Cuba during the 1970s and 1980s, combined with very limited import capacity during the Special Period, has led to criticism of machinery’s ecological and economic costs, as compared to human or animal-powered alternatives.78 Of more immediate concern to laboring cooperative members however is the ability of machinery to alleviate drudgery, 79 an aspect of mechanization that is difficult for economists to evaluate.80

76 Cooperativización de Campesinado, supra note 14, at 2.
Alternatives to machine power may have other costs such as truncated education (on-farm child labor) or transfer of croplands to grazing or fodder land (animal power).81 Finally, some types of mechanization appeal to low-income farmers specifically because they reduce severe risks, for example, machine-powered irrigation pumps where drought is common or tractor-drawn tillage where weather patterns provide a short window of opportunity for field preparation.

2. Possible Shift in Government Policy?

Ironically, the greatest threat to agricultural production cooperatives may be the very governments that establish them. Government land reforms in China, Vietnam, Peru, and Mexico each established a significant agricultural production cooperative sector, only to subsequently adopt policies that promoted disbanding the very cooperatives they had established.82 At present, there is no indication that the government of Cuba is contemplating the dissolution of agricultural production cooperatives. In fact, throughout the 1990s, a combination of government priorities and cooperative organization enabled Cuban small farmers to access land, credit, and technical assistance to a much greater extent than was the case for most Latin American small farmers during that decade.83 Moreover, government policy makers could have used the recent downsizing of Cuba’s sugarcane industry to shift a significant proportion of cooperative lands into individual-family management. Available evidence indicates, however, that although cooperatives are changing land from sugarcane to other crop, livestock, or forestry uses, no massive transfer of land out of the cooperative sector has happened.84


83 Enríquez, supra note 25, at 203.

84 MINAZ, Informe Resumen, supra note 43, tbls.1, 2; Peters, supra note 42, at 10.
C. Cooperative Member Attitudes

Relevant to each of these aspects of sustainability are the attitudes that develop from, and shape, the interaction of cooperative members with their natural and social environments. The Cuban government transformed state farms into cooperatives in large measure to increase labor productivity by influencing the attitudes of workers toward their work. The complex interactions between government policy, work incentives, member participation, cooperative autonomy, and livelihood alternatives will continue to shape the attitudes of hundreds of thousands of cooperative members and their families. The extent to which a cooperatively oriented sense of ownership and membership develops may determine the long-term prospects for Cuba’s agricultural cooperatives.

D. Possibilities for Further Expansion of Cooperative Production in Cuba.

The state still directly manages about twenty percent of Cuba’s agricultural lands. Might a substantial part of this area be organized into production cooperatives? Probably not on a large scale, at least in the short-term. The single largest remaining state agricultural production enterprise, the citrus development at Jagüey Grande, Matanzas, consistently achieves some of the highest citrus yields in the country. To the extent that the Cuban government is currently shifting land out of state management there is a preference to supply very small (less than one hectare) areas to families. However, over the long run, the possibility of converting significant state-managed lands to cooperatives cannot be discounted.

Intensive urban agriculture areas, known as huertos intensivos or organopónicos, constitute a rapidly growing source of fresh vegetables and condiments in Cuba. There were 12,598 of these urban agriculture areas reported to exist in Cuba at the end of 2002. Although many are attached to workplaces, some are organized as production cooperatives. In the city of Havana alone the number of urban agriculture UBPCs increased from 0 to

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85 Acuerdo del Buró Político, supra note 39.
86 Arias Guevara & Hernández Benítez, supra note 60, at 132-134; Dagoberto Figuerras Matos et al., La Fuerza de Trabajo Colectiva: Experiencias en las Cooperativas de Producción Agropecuarias de la Provincia de Villa Clara, in PARTICIPACIÓN SOCIAL Y FORMAS ORGANIZATIVAS DE LA AGRICULTURA 160 (Niurka Pérez Rojas et al. eds., 1999); Valdés Paz, supra note 41, at 199-203. For an example of how group differences in attitude can be generated by policies within a single cooperative, see Royce Sugarcane, supra note 47, at 102-07.
178 between 1994 and 2000, with plans to organize over 100 more. A particularly successful example is the “UBPC Organopónico Vivero Alamar.” Founded with only five members in January of 1997, within five years the cooperative provided employment for over fifty members on less than four hectares of land nestled between residential areas in Habana del Este. These UBPCs represent an extension of cooperative structures into urban areas. As urban agricultural cooperatives become more common, might the cooperative idea spread to other productive or service activities, such as construction, tourism, or manufacturing?

Finally, the Cuban state may decide to delegate some of its current function as a supplier of inputs and services and seller of agricultural products to non-governmental entities. Such operations could be assumed by the agricultural cooperatives themselves, possibly as second-level cooperative organizations, managed by the associated production cooperatives.

V. CONCLUSION

The evidence presented here indicates that Cuba’s agricultural production cooperatives have good short and medium-term prospects, and may be able to develop into long-term sustainable farms. Pressure continues to mount for Cuban society to conform to currently dominant standards of economic competitiveness, private sector expansion, and political pluralism. Cooperative institutions offer Cubans unique opportunities to maintain social solidarity, security, and relative equity, within unusually democratic communities of work.

Cuban government policies toward cooperative farms have evolved since 1960, but have consistently built upon previous experience and voluntary membership in cooperatives. The particular policies adopted over the next few years can help prepare cooperatives for a future requiring greater economic efficiency and reduced dependence on state entities. To the extent that government policies advance member participation and on-farm decision-making, while re-enforcing existing solidarity both within the cooperatives and between cooperatives and society, they will help assure the viability of production cooperatives, in agriculture and beyond.

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89 Gonzáles Novo, supra note 2.