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How to Transition from Cooperations to Cooperatives: A Case Study of the Factors Impacting the Organization of Urban Gardeners in Benin

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Abstract: Urban gardening offers a viable option to improve diet diversity for the urban poor. Yet, its success rate is particularly dependent on the managerial capacities of urban gardeners to coordinate and organize collective actions for the successful exploitation of the gardens. The calls from governments to organize cooperative structures among farmers seem justified and merits a high priority on agricultural policy agendas. Although principles of cooperative structures exist, there is no blueprint available that indicates how to start a gardeners' cooperation. Moreover, these collaborations need to ally with and build on existing social structures of the urban gardeners involved. Our research can contribute to this alignment process by exploring and comparing international standards of prevailing organizations and their functioning among 261 gardeners in two cities in Benin. We found that a vast majority of urban gardeners are members of a cooperation. Nevertheless, their membership is largely titular because gardeners mostly behave semi-autonomously and few decisions are taken collectively. The obvious economic advantages of leveraging bargaining power, reducing transaction costs, and increasing possibilities for loans are seriously underutilized. We suggest that capacity building can help to develop cooperation among urban gardeners to reach their full potential which, congruently, should also improve the livelihoods of the urban poor.

Keywords: collective action; management; functioning; cooperative longevity; allotment gardens; cities; urban agriculture; Africa

1. Introduction

Urban agriculture can be defined as the utilization of small areas within and around cities for growing crops, raising small livestock, and processing food-related products, alone or in combination, for own-consumption or sale [1,2]. Urban agriculture can take different forms depending on the characteristics (types of actors, location, products, technology, types of economic activities, and degree of market orientation) used for the classification, as nicely developed by Dubelling et al. [3]. For instance, depending on the location, urban agriculture may take various forms such as home gardening, park gardening, and allotment gardening, which is the focus of our study.

Urban allotment gardens, herein referred to as urban gardening, may increase the dietary diversity of the urban poor by providing ready access to vegetables, fruits, and some small livestock. Yet, the degree and extent to which urban gardeners pool their resources, protect their interests, and organize their collaboration are vital to the successful and efficient functioning of urban gardening [4]. Indeed, in many developing countries, a considerable proportion of farmers rely on agricultural cooperatives to govern their market transactions [5]. Farmers set up cooperatives to promote, safeguard, and strengthen their oftentimes weak marketing position in society [6]. By joining forces and becoming members and users of the services provided by their collective organization, farmers intend to increase the efficiency of their crop and livestock production. These cooperatives manifest themselves in particular contexts, usually in response to certain stimuli, for example, market failures, and they aim to achieve specific objectives and goals as defined by the membership [7]. In that sense, cooperatives may increase the market's share, the sale, the bargaining power, and the market information for their members. In the same vein, cooperatives may also reduce external shocks such as the hold-up problem, which may be induced by competitive markets, and the transaction costs in general. The cooperative model in agriculture can, therefore, empower producers and improve their quality of life and enhance their economic viability through social organization [8]. The cooperative model provides a framework that offers scale to farmers, which brings associated advantages that would not be achieved if acting individually [9–12].

Evidence shows that the two main purposes of agricultural cooperatives in developing countries are to enhance the market participation of smallholder farmers and improve their bargaining positions through leveraging collective action [13–16]. Furthermore, Fanasch and Frick [17] listed three advantages of cooperatives as follows: economies of scale, reduction of transaction costs, and avoidance of hold-up situations. First, due to its size, a cooperative can realize economies of scale because the members of the cooperatives can pool resources, which allows the cooperative to offer access to otherwise unavailable technology, as well as information and consulting services [18]. The shared resources can be of any kind—such as technical equipment or buildings, reputation, or bargaining power [17]—and the services offered by the cooperative can be typically cheaper for small farmers who, individually, would be incapable of affording these services [19]. Second, cooperatives can significantly reduce their individual members' transaction costs [20,21], allowing more efficient bargaining when purchasing and selling commodities or services [22,23]. Because cooperatives often purchase large quantities of raw materials or intermediate products, they are in a better bargaining position than individuals and, in turn, can often negotiate considerable quantity discounts [17]. As a result of this advantage, the cooperative can increase profit margins for members by selling their products at higher prices and yielding higher margins because of lower transaction costs [24]. Cakir and Balagtas [25] showed that agricultural cooperatives in the United States were able to increase the price of milk above marginal costs. Third, membership in a cooperative helps to avoid hold-up situations that arise when a party exercises market power and distorts the market prices [26]. Indeed, members of a cooperative can be assured that they will be paid the ex-ante agreed price [17].

In African countries, attempts by governments to organize farmers into cooperatives have increased in recent years. For instance, in Ethiopia, agricultural cooperatives are accepted policy instruments for collective input purchase and output marketization for smallholder farmers and account for about 90% of modern input supply and more than 10% of the marketing of agricultural surplus in the country [27,28]. In South Africa, the government signed into law, on August 2005, a new act to promote the use of cooperatives as organizations that could help enhance the development of small-scale farmers and other communities in the country [8]. In Namibia, the government promotes the use of cooperatives as business organizations that can help in the development of farmers through the National Cooperative Policy (2012) and also assists in developing entrepreneurial, organizational, and managerial skills for farmers who are members of cooperatives [29]. This is also the case in the Republic of Benin, hereafter referred to as Benin, which recently (December 2010) signed into law, in collaboration with other member states, the Ninth Uniform Act of the Organization

for the Harmonization of Business Law in Africa (entitled the Uniform Act Relating to Cooperative Enterprises, applicable to all economic sectors) [30].

Despite this, compliance with the legislation among farmers in Benin is very weak due to three reasons [31]. First, the legislation does not apply solely to agriculture, and therefore some of its provisions are difficult to apply to the reality of the sector. For example, the legislation is quite strict in terms of its requirements for the management of cooperative enterprises especially about establishing a board of directors, which can only be fully applied to a tiny number of producer organizations. Second, little consultation with farmers was carried out during the drafting stage of the legislation to consider their specific challenges, such as organizing a volunteer group to promote collective actions. Third and finally, there was a lack of understanding of the text by extension officers in popularizing the legislation and supporting farmers during the registration and implementation process. Solutions to address these challenges are possible (e.g., adaptability of conditions to agriculture, technical and institutional support, capacity building programs) but require the involvement of farmers, civil society, extension officers, technical and financial partners, and most importantly, the government [31]. However, this is not an easy task. Following Gning and Larue [31], support for farmers' cooperations require information on how their members are currently organized and function within their organizations. Learning from Ostrom [32], used a broad conception of cooperation for whenever groups try to gain joint benefits through collective action, we define cooperations in our study as not-institutionalized groups that join forces in a project, i.e., to cooperate as an act in itself. The collected information is required as a first step in supporting farmers to promote an incremental transition from current practices toward a cooperative enterprise rather than imposing an abrupt change to their current organizational operation.

Our research addresses the knowledge gap on how urban gardeners in Benin are organized and cooperate. We, therefore, aim to explore various aspects that might explain successes or failures in the organization and functioning of cooperative structures that prevail in urban allotment gardens. Our study stems from local knowledge on groups' management to suggest optimal ways for collective actions in the transition from cooperations to cooperatives that can inform policymaking. We, therefore, conducted a survey among 261 experienced gardeners in two cities in Benin to elicit information on the organization of cooperations' structure. This research compares our findings with international standards on cooperative organizations and the results of a literature survey to suggest practical solutions that improve cooperation among gardeners.

The set of cooperatives principles of the International Cooperative Alliance (ICA) provides us with a useful instrument to judge the level of organization of gardeners' cooperatives. These principles are guidelines by which cooperatives put their values into practice in meeting their members' economic, social, cultural, and environmental needs. They are universal and interdependent, and their application may vary, not just across cultures and traditions but also with the size, stage of development, and focus of the cooperatives [33]. The seven principles are named as follows, respectively: voluntary and open membership; democratic member control; member economic participation; autonomy and independence; education, training, and information; cooperation among cooperatives; and concern for community [33]. In the first principle, cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political, or religious discrimination. In the second principle, cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary cooperatives, members have equal voting rights (one member, one vote), and cooperatives at other levels are also organized in a democratic manner. In the third principle, members contribute equitably to, and democratically control, the capital of their cooperative. At least some part of that capital is usually the common property of the cooperative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their cooperative, possibly by setting up reserves,

at least part of which would be indivisible; benefiting members in proportion to their transactions within the cooperative; and supporting other activities approved by the membership. The fourth principle states that cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy. In the fifth principle, cooperatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their cooperatives. Cooperatives inform the general public—particularly young people and opinion leaders—about the nature and benefits of cooperation. The sixth principle states that cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional, and international structures. In the last principle, cooperatives work for the sustainable development of their communities through policies approved by their members.

In addition, we answer the question of how cooperations of gardeners function by comparing survey results with the salient details found in the literature. Finally, our research builds on the work of Cook [34] about the life cycle theory of agricultural cooperatives to better inform policies on the current stage of evolution of cooperations and supportive measures. Cook [34] proposed a dynamic, path-dependent five-stage model to assess the evolution of cooperatives. These five stages are named as follows: economic justification; organizational design; growth, glory, and heterogeneity; recognition and introspection; and choice [16,35,36]. Stage one justifies the economic reasons for producer collective action: (a) attempts to improve low prices or to lower input prices caused by excess supply/shortage of the respective commodity, or (b) low/high prices caused by monopolistic/monopsonistic behavior emanating from market failure. In stage two, cooperatives that formed to ameliorate low prices because of excess supplies/demand historically were ineffective because of their inability to control or affect supply/demand without government support. Consequently, the agricultural cooperatives that survived have their roots in attempting to ameliorate market failures. In stage three, the surviving cooperatives, after succeeding to correct for market failures, modify their strategies. By trying to minimize their costs and invest in capital-intensive industries, in order to be competitive and thus better serve their members, cooperatives are faced with emerging and vaguely defined property rights challenges. In stage four, cooperative decision-makers become aware of the property rights constraints and conclude that they have three options: (a) exit; (b) continue, but modify their current organizational structure; or (c) radical restructuring. During stage five, the cooperative leadership chooses between the above options.

This paper is organized as follows. Section 2 reports on the methods used for this study, concerning the selection of study areas, sampling, survey implementation, and data processing. Section 3 discusses the results in the following categories: organization among urban gardeners, management, responsibility for common tasks, acquisition of urban garden areas, purchasing inputs, transport and sale of products, access to credit, and validation. Section 4 confronts the survey findings with the principles of ICA, discusses the functioning of cooperations by comparing survey findings and the literature and, finally, provides policy recommendations after analyzing the stages of development according to Cook's life cycle theory. Section 5 concludes and indicates the future implications of the research.

2. Materials and Methods

2.1. Study Areas

We conducted the study in two cities in southern Benin: Cotonou and Porto-Novo. The two cities were selected because they were the most densely populated urban areas in the country [37]. Cotonou is the seat of government, whereas Porto-Novo is the capital city. Cotonou is Benin's most populous city and the country's economic center. The city is located between the Atlantic Ocean and

Lake Nokoué in the south-eastern part of the country. The city hosts a free trade zone in the interior that allows landlocked Saharan states to exchange goods [38]. Porto-Novo is located in an inlet on the Gulf of Guinea and is also a thriving center of commerce, especially with Nigeria [38].

2.2. Sampling

We decided to work with urban allotment gardens where local agencies of the Ministry of Agriculture provide their extension services because this would make it easier to collect information on the population of our study. We found that the Ministry provides agricultural advice to 29 allotment gardens in the two cities, and we included all gardens (Figure 1) in our study.



Figure 1. An urban garden with an irrigation system (left) and a gardener watering the plots (right).

The allotment gardens had a total of 828 urban gardeners, and we used the formula of Yamane [39] ($n = N/1 + N(e)^2$) to calculate the sample size and obtained 270 respondents. However, because the sample size exceeded 5% of the population, Cochran's [40] correction formula ($n' = n/(1 + n/N)$) was used to calculate the final sample size which, gave 204 respondents. Afterward, we applied a two-stage stratified random sampling. First, we determined the share of urban gardeners over the two cities with respect to the total number of urban gardeners. Next, we determined the share of urban gardeners over the allotment gardens per city. Multiplication of both shares with the desired number of urban gardeners to be interviewed gave the number of randomly selected gardeners per allotment garden (Table 1). We also chose to randomly interview at least three members per garden and adjusted the sample size accordingly. We obtained 261 gardeners for the survey in total. The selection of respondents was conducted at random with replacements, if required (i.e., in case a participant was not available, another person was randomly chosen) and with the possibility of repeat.

Table 1. Survey sample.

City	Number of Gardens	Study Population	Study Sample	
			Count	Percent
Cotonou	9	619	189	72.41
Porto-Novo	20	209	72	27.59
Total	29	828	261	100.00

2.3. Survey Implementation

We designed the survey in spreadsheet format with validated lists in scroll-down menus as a standard response with dedicated fields for open answers. Inserted data were stored in a vector format that facilitated further processing. We provided the enumerators with survey instructions about using the hard copy of the questionnaire in the field, filling in the digital questionnaire to store data, applying sampling schemes to choose respondents randomly in the field, and approaching the gardeners by gaining their trust and dealing tactfully with controversial answers. We also wrote a

storyline to introduce the purpose of the survey, its processing and translation into policy measures, and the follow-up of the research through active participation of the gardeners.

2.4. Data Processing and Analysis

We processed the data using Minitab 14 in three steps. First, the collated output was read as a vector and labeled according to the questions' codes. Second, categorical answers were harmonized in standard formats and presented as frequencies, whereas numerical answers were processed and presented as a mean and quartiles. To disclose specific experiences among gardeners, we created the annex tables (Appendix A) and referred to them in the results section to account for additional responses that provided further explanations to the main responses; further details are in a working document [41]. After data processing, we organized a focus group discussion with 22 participants: 20 male and female gardeners and two experts from local agencies of the Ministry of Agriculture of the two cities. The aim was to discuss and verify the main findings of the study.

Concerning the analysis of our findings, we compared the organizational structures of the cooperations of urban gardeners to the prevailing principles of ICA [33], which are considered as a guide for successful cooperatives [42] if followed with fidelity. The functioning of the organizations was evaluated against various sources derived from literature on organization and management science. In this paper, we related the life cycle theory of Cook [34,36] to the current situation of cooperations to interpret the stage of their evolution and formulate interventions for their long-term functioning.

3. Results

3.1. Organization among Gardeners

A majority (89 percent) of respondents indicated that they were organized in a group (Table 2). Of those, 94 percent belonged to a formal cooperation (Table A1). Among respondents, 50 percent of the organized groups had 42 members or fewer, with, on average, 37 men or fewer and 5 women or fewer. Three-quarters (75 percent) of the organized groups had 60 members or fewer, with 54 men or fewer and 10 women or fewer (Table A2).

Table 2. Organization among gardeners.

D1. Are You Organized in a Group?		
D1	Count	Percent
No	29	11.11
Yes	232	88.89
N = 261		

Of the respondents, 76 percent of the group members paid a membership fee regularly (Table A3). The frequency of the fee varied per group, but the three most prevalent periods were monthly (31 percent), yearly (26 percent), and weekly (20 percent) (Table A4). On average, 75 percent of gardeners paid XOF 2 500 (3.8 euros) and XOF 500 (0.76 euro) per month and week, respectively, for the membership fee, whereas the reported yearly fee was unclear (Table A5). Among the purposes associated with the membership fee, two main reasons were the purchase of fertilizer (43 percent) and the purchase of seeds (36 percent) (Tables A6 and A7). These figures show a sense of organization among most gardeners who were members of cooperations and paid a regular membership fee to the organization.

3.2. Authority of the Management Board

Almost all members (99 percent) organized in a group indicated that the organization had a management committee (Table 3), of which 50 percent elected the committee, whereas the other

50 percent showed a diverse leadership choice—formed by first occupants (9 percent), elders (17 percent), and others (74 percent)—such as by management ability, honesty, or simple designation (Tables A8–A10).

Table 3. Existence of a management committee.

D1.4 Does the Organization Have a Management Committee?		
D14	Count	Percent
No	2	0.86
Yes	229	98.71
Na	1	0.43
N = 232		

In any case, 76 percent of those recognizing the existence of management indicated that the committee had a term of office (Table A11). Ninety-six percent of those organized in a group acknowledge the authority of the leader or board (Tables A12 and A13). We may conclude that gardeners widely recognize the authority of the management team.

3.3. Responsibility for Common Tasks

Of members who were organized in a group, 95 percent indicated that they shared the responsibility for common tasks (site surveillance, participation in meetings, and offering labor help to other members) (Table 4), but in practice, only 84 percent complied with the assigned tasks (Table A14).

Table 4. Share of the responsibility for common tasks.

D1.6 Do You Share the Responsibility for Common Tasks (Site Surveillance, Participation in Meetings, Offering Help to Other Members, etc.)?		
D16	Count	Percent
No	8	3.45
Yes	220	94.83
Na	4	1.72
N = 232		

To better understand the management aspect, gardeners were asked whether the groups had a constitution and an agreement on the rules of ownership. A majority—98 percent—indicated that their organization had a constitution, but only 44 percent had an agreement on the rules of ownership (individual plots or communal lands/fair share of profits) (Tables A15 and A16) The figures show that, possibly, cooperations avail of a legal framework and arrange to a certain extent their land tenure.

3.4. Means of Acquisition of the Gardening Area

Fifty percent of gardeners had a free access contract (they did not pay a contribution for their participation) on the land where they garden, whereas 39 percent had free access without a contract. In addition, 7 percent leased the area, 3 percent obtained the area through donation, and 2 percent indicated that the area belonged to a member's parent or a private person (Table 5). Gardeners with a free access contract obtained it from public institutions (70 percent), private persons (12 percent), private institutions (11 percent), or others (4 percent) (Tables A20 and A21).

Table 5. Means of acquisition of the gardening area.

D2. How Did You Get the Area Where You Garden?		
D2	Count	Percent
Lease contract	17	6.51
Free access contract	130	49.81
Donation	7	2.68
Belonged to a member's parent	3	1.15
Belonged to a private person	1	0.38
Free access without contract	101	38.70
Na	2	0.76
N = 261		

The contract was written or verbal for 39 percent, but many respondents did not know the duration of the contract (Tables A22 and A23). Those with a lease contract mostly had a written or verbal contract; 50 percent paid XOF 4 000 (6.10 euros) or less, and 75 percent paid XOF 7 000 (10.67 euros) or less per month (Tables A17 and A19). The duration of the contract was two years or less for 50 percent and five years or less for 75 percent (Table A18). In all cases, gardeners had been working on the area for 14 years on average, with 50 percent working for 10 years or less and 75 percent for 20 years or less (Table A24). Although the free access contract was not clearly defined in most cases, gardeners had been working continuously for more than 10 years. We may conclude that gardeners probably negotiate well to obtain plots for their activity.

3.5. Methods of Purchasing Inputs

More than three-quarters—77 percent—of gardeners purchased their own inputs individually, whereas 20 percent had a joint purchase arrangement, and 2 percent employed both methods (Table 6). Of those who jointly purchased their inputs, 89 percent were satisfied with the organization, whereas the remainder (11 percent) cited two reasons for their dissatisfaction—the quantity did not suit their needs and they did not trust the management team or other members (Tables A25 and A26).

Table 6. Methods of purchase of inputs.

D3. How Do You Purchase the Seeds and Fertilizer?		
	Count	Percent
Joint purchase	53	20.31
Individual purchase	200	76.63
Others (both methods)	5	1.92
Na	3	1.15
N = 261		

Of those who individually purchased their inputs, 73 percent were satisfied with this method, whereas the rest were willing to make a joint purchase (Tables A27 and A28). We may conclude that most gardeners currently purchase their inputs individually.

3.6. Methods of Transport of Produce

Depending on sale opportunities, gardeners employed different methods to organize the transport of their produce to clients (retailers, hotels, restaurants). For example, 67 percent of gardeners sold their production on farm, whereas 26 percent used their own transport, 2 percent leased a taxi (motorbike or car), and 5 percent combined different methods (delivery, own transport, and on farm) to transport their production (Table A29).

3.7. Methods of Sale of Produce

Ninety-two percent of gardeners sold their produce individually, whereas 5 percent made a joint sale, 1 percent sold under contract, and 1 percent combined individual and under-contract sales (Table 7). Of the gardeners who jointly sold their produce, most of them were satisfied, whereas the rest indicated three reasons for their dissatisfaction—they did not trust the management team or other members, the period of sale was later than their harvest period, and they did not agree with the low sale price (Tables A30 and A31).

Table 7. Methods of sale of produce.

D5. How Do You Sell the Produce?		
D5	Count	Percent
Joint sales	12	4.60
Individual sales	241	92.34
Under contract	2	0.77
Others (individual sale & under contract)	2	0.77
Na	4	1.53
N = 261		

Of gardeners who sold their produce individually, 86 percent were satisfied, whereas the rest were mostly willing to make a joint sale (Tables A32 and A33). The remainder of dissatisfied gardeners who sold individually and who were not willing to make a joint sale gave four reasons—they did not trust the management team or other members, they did not produce the same crops as other members, they had more liberty on the price, and they wanted to avoid quarrels (Table A34).

3.8. Credit Sources from Financial Institutions

Credit is of high importance for the gardening activity. Sixty percent of gardeners indicated that they had obtained credit from financial institutions, whereas 9 percent indicated that they obtained credit through a ‘tontine’ (In a simple tontine, a group of investors pool their money together to buy a portfolio of investments, and, as investors die, their shares are forfeited, with the entire fund going to the last surviving investor [43].)/informal group, 3 percent obtained credit from family members, and 19 percent had no access to credit (Table 8). Gardeners obtaining credit from a tontine/informal group and family members indicated that they chose this route because it was less risky, they had no guarantee, it had a low interest rate, and other reasons such as the desire to avoid long administrative procedures in financial institutions or because they had no access to formal credit (Tables A35 and A36).

Table 8. Credit from financial institutions.

D6. Where Do You Get the Credit for Production?		
D6	Count	Percent
From financial institutions	156	59.77
From a tontine/informal group	24	9.20
From family members	7	2.68
No access to credit	50	19.16
Na	24	9.20
N = 261		

Gardeners indicated that they obtained credit either in a group (74 percent) or alone (20 percent) or both in a group and alone (2 percent) (Tables A37 and A38). When respondents were asked why they did not obtain credit in a group, they indicated different reasons: they depend on other members before

obtaining formal credit, they would not actually obtain the amount they needed, they did not trust the management team or other members, and other reasons (e.g., we just started to obtain credit as a group) (Table A39). Of those who obtained credit for production, 40 percent indicated that the credit suited their needs (Table A40). Of those who were not satisfied with the credit, 79 percent indicated they were willing to obtain credit as a group (Table A41). Those who were not willing to obtain credit as a group cited different reasons—they depend on other members before obtaining additional credit, they did not trust the management team or other members anymore, and other reasons such as credit was insufficient and the high costs of credit (Tables A42 and A43). We may conclude that most gardeners self-organize themselves well to obtain credit as a group. However, the amount of credit is insufficient for most of them, and they are willing to obtain more credit as a group.

Gardeners used the credit for different purposes, but a high number of them (80 percent) used the credit for a combination of purposes (Table 9), such as purchase of fertilizer, seeds, pesticides, and garden equipment (61 percent) or fertilizer, seeds, and pesticides (36 percent) (Table A44). Regarding flexibility, 66 percent of gardeners indicated that they used the credit for its original purpose, whereas 23 percent sometimes changed the credit for unforeseen costs, crises at home, or their own needs (Tables A45 and A46). Among the latter gardeners (23 percent), in the previous year, unexpected changes hit 28 percent of them once, twice for 42 percent, three times for 19 percent, and four times or more for 5 percent (Table A47). We may conclude that most gardeners assign multiple functions to the credit and use it for its original purpose.

Table 9. Purpose of the credit.

6.3 For What Do You Use the Credit? (More Than One Answer Possible)		
D63	Count	Percent
Purchase of fertilizer	6	3.21
Purchase of seeds	7	3.74
Purchase of garden equipment	8	4.28
A combination	149	79.68
Na	17	9.09
N = 187		

3.9. Validation

A focus group discussion (FGD) with 22 participants (20 male and female gardeners and two experts from local agencies of the Ministry of Agriculture of Cotonou and Porto-Novo) was organized to verify and discuss the main findings of the study on the organization, management, joint ventures and lack of credit for gardening. The discussions were summarized in the following points, and recommendations were added in the discussion section.

Good sense of organization and management (77 percent). The participants confirmed this finding and indicated that they were organized in cooperations that were registered and had bank accounts to receive their membership fees. The frequency of these fees' payments varied widely. In general, they indicated that the fees allowed them to make loans to members or to provide guarantees for taking credit, but this was not effective due to a lack of trust between members. They also indicated that there was good cohesion between their communal, departmental, and national representations.

Few gardeners formed joint ventures/partnerships to purchase inputs (23 percent) or sell produce (8 percent). The participants confirmed this result and explained that gardeners within the cooperations had different sale perspectives. Therefore, each gardener decided what to produce because the sale perspectives varied per product and per period, which did not easily enable joint sales. They also indicated the lack of land and the fact that the cultivated areas were scattered as two additional factors that prevented joint partnerships. In addition, they indicated the dissimilarity in the production itineraries as a brake on joint ventures because the products were ready at different times and the quality of the products sometimes differed among gardeners.

Credit was insufficient and unsuitable for urban gardeners (60 percent). The gardeners confirmed the finding and added that besides the fact that the credit was insufficient, the conditions to obtain it were unsuitable for gardening (no deferred period, high interest rates, and short repayment period). They added that the reluctance of many financial structures to provide loans to gardeners was a constraint on them obtaining credit.

4. Discussion

The survey brought to light some notable insights on the gardening activity in two big cities of Benin on the following aspects: organization, functioning, and gaps in policy support.

4.1. How Are Urban Gardeners Organized?

There is a sense of need to collaborate among gardeners who, are mostly organized in cooperations and regularly subscribe (weekly, monthly, yearly) to a membership fee. This membership fee is intended to purchase fertilizer and seeds, but in practice gardeners individually purchase the needed inputs. The cooperations in most of the cases have a management team, elected in 50 percent of the cases. Gardeners also recognize the authority of the management team, share the responsibility for common tasks (site surveillance, participation in meetings, and offering help to other members) and have a constitution. The Focus Group Discussions (FGD) added that most of their cooperations are registered with the ministry of agriculture and have bank accounts that collect membership fees. Besides purchases, the fees are also aimed to provide guarantees for taking credit but, this is not effective due to a lack of trust between members. They also indicated that there is good cohesion between their communal and national representations. These elements provide a clear picture of the current situation, which can be compared with the seven principles put in place by ICA (Table 10). We may conclude that the management systems of cooperations are well structured in principle and most groups meet most of the principles. However, the cooperations have room for improvement on the following aspects: agreement on rules of ownership, member control, economic participation, autonomy, and concern for community.

Table 10. Comparison between ICA principles for cooperatives and urban gardeners' organizations.

ICA Cooperative Principles	29 Gardeners' Organizations
(1) Voluntary and open membership	Present
(2) Democratic member control	Present in some
(3) Member economic participation	Present in some
(4) Autonomy and independence	Present in some
(5) Education, training, and information	Present in some
(6) Cooperation among cooperatives	Present
(7) Concern for community	Not present

Source: Adapted from Kurimoto, Draperi, Bancel, Novkovic, Shaw, Wilson, and Cracogna [33].

4.2. How Do Urban Gardeners' Cooperations Function?

Our research found that very few gardeners form joint partnerships to purchase inputs and sell produce. We assume that this situation would increase their transaction costs and make room for financial incentives that encourage gardeners to form joint ventures to deal with outside partners (suppliers, clients). For instance, successful examples of effective collective actions on rural farmers' income can be found in Benin within cashew nuts farmers [44] and paddy rice producers [45], in Namibia [29], in South Africa [8], in Kenya within dairy farmers [46], in Ethiopia [5], and in the Andean region of South America within potato farmers [47]. Although, these examples are mostly for commercial and staple products (coffee, cashew nuts, potatoes, paddy rice), they provided evidence that participation in the market was one of the important factors that determined farmers' commitment in collective actions. Thus, these examples represent interesting case studies that can be used to

convince gardeners on the economic benefits of engaging in joint ventures with their cooperations. In addition, there is a high and diversified demand for fruits and vegetables on the market [41], which also represents a nice incentive for gardeners. Already, gardeners who are dissatisfied with individual marketing experiences are willing to enter joint ventures if, in general, the issues of mistrust regarding members and the management team and adaptation to their needs are tackled. Hence, this may constitute a first entry point to experiment with joint ventures that may also influence the transport of produce, which is currently diversely dealt with by gardeners (own transport, taxi rental, etc.). Furthermore, our findings provide nice examples of joint ventures and showed that most gardeners who obtained credit, though insufficient, from financial institutions bargained as a group. This additional incentive corroborates the argument that collective actions may actually assure a common interest and provide assurance to a wide group of involved people. In that perspective, support from the national economic policy may also be needed to facilitate credit for farming which, in return, may indirectly have positive effects on collective actions among gardeners.

4.3. How Can Policies Better Support Cooperations in Making Successful Ventures?

Although the development of successful agricultural cooperatives requires efforts from various stakeholders—farmers, civil society, extension officers, scientists, policymakers, and technical and financial partners—policy support is needed to help urban gardeners sustainably develop their cooperations [31]. From that perspective, suggesting relevant policy interventions may require more knowledge on the current development stage of urban cooperations. We, therefore, used the life cycle theory of Cook [34,36] to assess the evolution of gardeners' groups and formulate better interventions for their long-term functioning toward genuine cooperatives (Table 11). By comparing the five stages of the life cycle to the current situation of cooperations, we may conclude that urban cooperations are still in the early stages of development and are facing internal constraints substantiated by two factors: small, joint partnerships to improve bargaining power and the vaguely defined rules of ownership among members. We may, therefore, recommend that policies foster collective actions among gardeners to improve their incomes and livelihoods. Although the task is difficult to organize and manage, the literature proposes guidelines and conditions to enhance the success of collective marketing. For example, Markelova et al. [48] reviewed the literature on a special issue and found that besides groups characteristics, it is often required that the public sector provides both financial and capacity building to farmers and that policies ensure their access to stable and competitive markets. In a study in Meso-America, Hellin et al. [49] also highlighted the central role of governments in determining how markets should function to create an enabling policy environment, especially in the vegetables sector, characterized by high transaction costs. In the same perspective, the FGD corroborated the latter conditions and pointed out three recommendations for local and national agricultural policies that may encourage gardeners in succeeding in their endeavors. First, creation of gardening markets by municipalities where gardeners can route their products for sale to facilitate aggregation of gardeners' harvests within their cooperations. Second, reduction of vegetable imports by national policymakers may increase and protect the demand for vegetables and thereby gardeners' incomes. This recommendation may learn from the European Common Agricultural Policy Reform and the unexpected outputs of protectionist measures where subsidies and taxation did not systematically increase the demand for fruits and vegetables. Rather, these measures must be combined with consumer information provision about healthy diets to succeed [50]. The last recommendation refers to raising awareness among gardeners about the best ways to manage their cooperations and effectively make collective actions.

Table 11. Comparing Cook's stages of the cooperative life cycle to the current situation.

Stages of Life Cycle	Current Situation
(1) Phase one: Economic justification	Completed
(2) Phase two: Organizational design	Ongoing/Completed
(3) Phase three: Growth, glory, and heterogeneity	Ongoing
(4) Phase four: Recognition and introspection	Not yet
(5) Phase five: Choice	Not yet

Source: Adapted from Cook [36].

Moreover, sensitization and capacity-building of gardeners on marketing, conflict management, partnership and, especially, financial management are important to avoid situations where the few financial institutions consider financing to be too risky and decide to stop the venture. Indeed, our findings showed that about a quarter of gardeners modify their credit purposes when unforeseen costs or crises arise at home. As a result, this unfortunate situation may discourage financial institutions from investing in agriculture. We therefore recommend that, beyond gardeners' efforts to improve cooperation, agricultural and economic policies support the process as follows: assigning extension workers to gardeners to emphasize financial management to ensure long-term sustainability even in the absence of outside partners; and establishing a guarantee fund, which may encourage financial institutions to take more risks in agriculture financing. These recommendations are consistent with the literature on agricultural cooperatives, which emphasizes the importance of capacity building programs in enhancing collective actions. For instance, recent quantitative studies on the impact of collective marketing of paddy rice on the livelihoods of smallholders farmers in Benin [45] and the analysis of factors affecting proper functioning of smallholder cooperatives in the Limpopo Province of South Africa [51] concluded that better training through extension officers on technical skills such as financial management and conflict management is one of the important factors that may sustain cooperations. These recommendations may also learn from the European Common Agricultural Policy Reform and the unexpected outputs of financing measures, where eligibility criteria eliminated small and vulnerable farmers from technical and financial support [52]. Therefore, it is vital that policy measures explore and adapt the recommendations to the local settings.

Our study is replicable in other contexts thanks to its methodology that clearly described the transdisciplinary approach that combined academic knowledge and local knowledge to create a common knowledge base that can inform policies. In addition, the stratified random selection made the results generalizable to the entire population of urban gardeners of the two cities. Therefore, our research is worth spreading because the conclusions would guide current cooperations, practitioners, and policymakers in an incremental transition to genuine cooperatives. Furthermore, because our study cities were the most urbanized areas in the country, we suspect similar observations in other urban settings in the country, which makes our conclusions useful to other cooperations in similar situations. Moreover, our research found that urban gardeners, within their cooperations, mostly made their decisions individually (e.g., cultivated crops, type of fertilizer to use, marketing) and collectively (e.g., protection, land acquisition). Hence, future endeavors to improve cooperation among gardeners requires a deep study of the effects of individual and collective decision-making on cooperatives' performance. Additionally, future research could concentrate on the development of value chains that can be jointly organized by participating gardeners.

5. Conclusions and Way Forward

Our research attempted to contribute to the international debate on the management of urban agriculture through development of cooperatives in developing countries. We explored and compared international standards to prevailing organizations and their functioning among 261 gardeners in two cities in Benin. We found that most urban gardeners were well organized and established good management rules that may help their cooperations thrive in the future. Nevertheless, they still had to improve their functioning by enhancing collective actions that may truly leverage their bargaining

power, reduce transaction costs, and improve incomes and livelihoods. However, enhancing collective actions within their cooperations would not be an easy task and requires coordinated efforts from various stakeholders—gardeners, civil society, scientists, policymakers, and technical and financial partners—to help urban gardeners succeed sustainably in their cooperations. We recommended that (i) national agricultural policies focus on assigning extension workers to build continuously the capacities of gardeners on collective actions and on reducing vegetables imports to increase and protect the demand for vegetables; (ii) local agricultural policies focus on creating gardening markets where gardeners can route their products for sale to facilitate aggregation of gardeners' harvests within their cooperations; and (iii) national economic policies support agriculture by establishing a guarantee fund within financial institutions to invest in agriculture financing and encourage joint access by gardeners, which indirectly promote collective actions.

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Appendix A

Table A1. Type of organizations.

D1.1 What Is the Type of Organization?		
D11	Count	Percent
Informal group	11	4.74
Cooperative	219	94.40
Na	2	0.86
N = 232		

Table A2. Members of the organization.

D1.2 How Many Persons Are Members of the Organization?								
D1.2.1 How Many Men Are Members of the Organization?								
D1.2.2 How Many Women Are Members of the Organization?								
Variable	Count	N *	Mean	Minimum	Q1	Median	Q3	Maximum
D12	229	3	73.48	6.00	12.00	42.00	60.00	400.00
D121	226	6	58.95	0.00000000	9.00	37.00	54.00	310.00
D122	229	6	14.74	0.00000000	3.00	5.00	10.00	100.00

* Missing information.

Table A3. Membership fees.

D1.3 Do You Pay a Contribution to the Organization?		
D13	Count	Percent
No	52	22.41
Yes	179	77.16
NA	1	0.43
N = 232		

Table A4. Membership fees: periodicity.

D1.3.1 What Is the Periodicity of the Contributions?		
D131	Count	Percent
Bimonthly	16	8.94
Daily	4	2.23
Four-monthly	9	5.03
Half-yearly	1	0.56
Monthly	55	30.73
Quarterly	2	1.12
Weekly	36	20.11
When needed	10	5.59
Yearly	46	25.70
N = 179		

Table A5. Membership fees: paid contributions, respectively, by month, year, and week.

D1.3.2 What Contribution Do You Pay to the Group per Period?								
Variable	Count	N *	Mean	Minimum	Q1	Median	Q3	Maximum
D132	55	0	1844	200	1000	1500	2500	10000
D132_1	46	0	2846	100	2000	2000	2000	12000
D132_2	36	0	438.9	100.0	500.0	500.0	500.0	500.0

* Missing information.

Table A6. Membership fees: purpose of the contribution (first choice).

D1.3.3 What Is the Contribution Fee For? (More Than One Answer Possible)		
D133_8	Count	Percent
Common land lease	4	2.23
Common land purchase	19	10.61
Purchase of fertilizer	77	43.02
Purchase of seeds	5	2.79
Purchase of garden equipment	14	7.82
Credit to members	6	3.35
Social help to members	22	12.29
Others	29	16.20
NA	3	1.68
N = 179		

Table A7. Membership fees: purpose of the contribution (second choice).

D1.3.3 What Is the Contribution Fee For? (More Than One Answer Possible)		
D133_2	Count	Percent
Common land purchase	4	2.23
Purchase of fertilizer	8	4.47
Purchase of seeds	65	36.31
Purchase of garden equipment	7	3.91
Credit to members	9	5.03
Social help to members	8	4.47
NA	78	43.58
N = 179		

Table A8. Election of the committee.

D1.4.1 Is the Committee Elected?		
D141	Count	Percent
No	115	50.22
Yes	114	49.78
<i>N</i> = 229		

Table A9. Election of the committee: formation of the committee.

D1.4.2 How Was the Committee Formed?		
D142	Count	Percent
By the first occupants of the land	10	8.70
By the elders	20	17.39
Others	85	73.91
<i>N</i> = 115		

Table A10. Election of the committee: other formation of the committee.

D142 Others	Count	Percent
Ability to manage	16	18.82
Honesty	4	4.71
NA	7	8.24
Simple designation	58	68.24
<i>N</i> = 85		

Table A11. Term of the committee.

D1.4.3 Does the Committee Have a Term?		
D143	Count	Percent
No	55	24.02
Yes	174	75.98
<i>N</i> = 229		

Table A12. Acknowledgment of the authority of the cooperative leader/board.

D1.5 Do You Acknowledge the Authority of the Cooperative Leader/Board?		
D143	Count	Percent
No	9	3.88
Yes	222	95.69
NA	1	0.43
<i>N</i> = 232		

Table A13. Acknowledgment of board authority: reason for no acknowledgment.

D1.5.1 Why Don't You Acknowledge the Authority of the Cooperative Leader/Board?		
D151	Count	Percent
I don't trust the leader/board	3	33.33
No value addition	5	55.56
NA	1	11.11
<i>N</i> = 9		

Table A14. Share of the responsibility of common tasks: actual practice.

D1.7 Does This Work in Practice?		
D17	Count	Percent
No	30	12.93
Yes	195	84.05
NA	7	3.02
<i>N</i> = 232		

Table A15. Existence of a constitution.

D1.8 Does the Organization Have a Constitution?		
D18	Count	Percent
No	3	1.29
Yes	228	98.28
NA	1	0.43
<i>N</i> = 232		

Table A16. Agreement on rules of ownership aspects.

D1.9 Is There an Agreement on Rules of Ownership Aspects (Individual Plots or Communal Lands/Fair Share of Profits)?		
D19	Count	Percent
No	129	55.60
Yes	102	43.97
NA	1	0.43
<i>N</i> = 232		

Table A17. Lease contract: amount paid per month.

D2.1 How Much CFA per Month Do You Pay for Leasing the Area?								
Variable	Count	N *	Mean	Minimum	Q1	Median	Q3	Maximum
D21	17	0	12588	1000	1000	4000	7000	57000

* Missing information.

Table A18. Lease contract: duration of the contract in years.

D2.1 How Long Did You Lease the Area For?								
Variable	Count	N *	Mean	Minimum	Q1	Median	Q3	Maximum
D211	16	1	3.563	2.000	2.000	2.000	5.000	10.000

* Missing information.

Table A19. Lease contract: existence of contract.

D2.1.2 Is There a Contract (Written or Verbal)?		
D212	Count	Percent
No	1	5.88
Yes	16	94.12
<i>N</i> = 17		

Table A20. Free access contract: type of owner.

D2.2 Who Gives You Free Access?		
D22	Count	Percent
Private person	16	12.31
Private institution	14	10.77
Public institution	80	61.54
Others	12	9.23
NA	8	6.15
N = 130		

Table A21. Free access contract: other types of owners.

D22 Others	Count	Percent
A public institution (ASECNA)	11	8.46
A public space	3	2.31
NA	114	87.69
Unidentified area	2	1.54
N = 130		

Table A22. Free access contract: duration of the contract in years.

D2.2.1 For How Long Is Your Free Access Contract with the Owner (In Years)?								
Variable	Count	N *	Mean	Minimum	Q1	Median	Q3	Maximum
D221	17	113	14.84	0.250	1.50	5.00	31.00	50.00

* Missing information.

Table A23. Free access contract: existence of contract.

D2.2.2 Is There a Contract (Written or Verbal)?		
D222 Others	Count	Percent
No	40	30.77
Yes	50	38.46
NA	40	30.77
N = 130		

Table A24. Number of years of gardening in the area.

D2.3 For How Long Have You Worked in the Area (In Years)?								
Variable	Count	N *	Mean	Minimum	Q1	Median	Q3	Maximum
D23	190	71	13.674	1.000	6.000	10.000	20.000	45.000

* Missing information.

Table A25. Joint purchase: satisfaction of gardeners.

D3.1. Are Joint Purchases Well Organized?		
D31	Count	Percent
No	5	9.43
Yes	47	88.68
NA	1	1.89
N = 53		

Table A26. Joint purchase: reason for no satisfaction.

D3.1.1 What Is Not Functioning?		
D311	Count	Percent
The quantity does not suit my need	2	40.00
I don't trust the management team/other members	1	20.00
NA	2	40.00
<i>N</i> = 5		

Table A27. Individual purchase: satisfaction of gardeners.

D3.2. Do Individual Purchases Satisfy Your Needs?		
D32	Count	Percent
No	51	25.50
Yes	146	73.00
NA	3	1.50
<i>N</i> = 200		

Table A28. Individual purchase: willingness to make a joint purchase.

D3.2.1 Would You Like to Make a Joint Purchase?		
D321	Count	Percent
Yes	49	96.08
NA	2	3.92
<i>N</i> = 51		

Table A29. Organization of the transport of produce.

D4. How Do You Organize the Transport of the Produce to Clients?		
D31	Count	Percent
Own transport	67	25.67
Taxi rental	6	2.30
I sell the produce on farm	175	67.05
Others (delivery, own transport, and on farm)	13	4.98
<i>N</i> = 261		

Table A30. Joint sales: satisfaction of gardeners.

D5.1 Are Sales Well Organized?		
D51	Count	Percent
No	4	33.33
Yes	8	66.67
<i>N</i> = 12		

Table A31. Joint sales: reason for no satisfaction.

D5.1.1 What Is Not Functioning?		
D511	Count	Percent
I don't trust the management team/other members	1	25.00
The period of sale does not correspond to my harvest period	2	50.00
I don't agree with the sales price	1	25.00
N = 4		

Table A32. Individual sales: satisfaction of gardeners.

D5.2. Are You Satisfied?		
D51	Count	Percent
No	33	13.69
Yes	206	85.48
Na	2	0.83
N = 241		

Table A33. Individual sales: willingness to make a joint sale.

D5.2.1 Would You Like to Make a Joint Sale?		
D521	Count	Percent
No	5	15.15
Yes	28	84.85
N = 33		

Table A34. Individual sales: reason for the unwillingness.

D5.2.2 Would You Like to Make a Joint Sale?		
D522	Count	Percent
I don't trust the management team/other members	1	20.00
I don't produce the same products as the other members	1	20.00
I have more liberty on the price	2	40.00
Others (to avoid quarrels)	1	20.00
N = 5		

Table A35. Credit from tontine and family members: reason for this choice.

D6.1. Why Do You Get Your Credit from Tontine/Family Members?		
D61	Count	Percent
Lack of collateral to get credit from financial institutions	8	25.81
Low interest rate	8	25.81
Less risky	10	32.26
Others	4	12.90
NA	1	3.23
N = 31		

Table A36. Credit from tontine and family members: other reasons for this choice.

D61 Others	Count	Percent
Long procedure in financial institution	1	25.00
No access to formal credit	3	75.00
N = 4		

Table A37. Mechanism to obtain credit.

D6.2 To Whom Is the Credit Assigned?		
D62 Others	Count	Percent
To a group	138	73.80
To me alone	38	20.32
Others	4	2.14
NA	7	3.74
N = 187		

Table A38. Mechanism to obtain credit: others.

D62 Others	Count	Percent
As a group and alone	4	100.00
N = 4		

Table A39. Reasons for credit not in a group.

D6.2.1 Why Don't You Take Your Credit as a Group?		
D621 Others	Count	Percent
I don't trust the management team/other members	7	16.67
I will not actually get the amount I need	9	21.43
I depend on other members before getting formal credit	17	40.48
Others (we just started to obtain credit as a group)	5	11.90
NA	4	9.52
N = 42		

Table A40. Credit satisfaction.

D6.2.2 Does the Credit Suit Your Need?		
D622	Count	Percent
No	104	55.61
Yes	75	40.11
NA	8	4.28
N = 187		

Table A41. Credit satisfaction: willingness to obtain credit as a group.

D6.2.3 Would You Like to Get More Credit as a Group?		
D623	Count	Percent
No	18	17.31
Yes	82	78.85
NA	4	3.85
N = 104		

Table A42. Credit satisfaction: reasons for the unwillingness to obtain credit in a group.

D6.2.4 Why Don't You Want to Obtain More Credit as a Group?	Count	Percent
I don't trust the management team/other members	1	5.56
Because I depend on other members before getting formal credit	14	77.78
Others	3	16.67
N = 18		

Table A43. Credit satisfaction: other reasons for the unwillingness to obtain credit as a group.

D624 Others	Count	Percent
Credit not sufficient	2	66.67
High costs for credit	1	33.33
N = 3		

Table A44. Purpose of the credit: multi-functions.

D63	Count	Percent
Purchase of fertilizer and purchase of seeds	1	0.67
Purchase of fertilizer; purchase of seeds and purchase of pesticides	53	35.57
Purchase of fertilizer; purchase of seeds; purchase of pesticides and purchase of garden equipment	91	61.07
Purchase of fertilizer; purchase of seeds and purchase of garden equipment	1	0.67
Purchase of seeds; purchase of pesticides and purchase of garden equipment	2	1.34
NA	1	0.67
N = 149		

Table A45. Flexibility of the purpose of credit.

D6.3.1 Are You Always Focused on the Original Purpose of the Credit?		
D631	Count	Percent
No	43	22.99
Yes	124	66.31
NA	20	10.70
N = 187		

Table A46. Flexibility of the purpose of credit: reasons for a change in purpose.

D632	Count	Percent
When unforeseen costs/distressing situations appear at home	40	93.02
Others (own needs)	3	6.98
N = 43		

Table A47. Frequency of the situation for a change in purpose of credit.

D6.3.3 How Many Times Did This Situation Happen during the Last Year?		
D633	Count	Percent
1	12	27.91
2	18	41.86
3	8	18.60
4	1	2.33
Many times	1	2.33
NA	3	6.98
N = 43		

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