

Changing Public Agricultural Policies to Support Small-Scale Agriculture and Preserve Biodiversity: The Case of Guadeloupe

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Abstract

Several recent studies have shown the virtuous link between the preservation of biodiversity and the promotion of small-scale agriculture. In Guadeloupe, this model is dominant and employs more than 70% of farmers. However, it has often been neglected. In this article, we will seek to understand this situation by analysing the public policies that are supposed to support agriculture. We will use a cognitive analysis framework to examine why this agricultural model is neglected, particularly because of the negative image people have of small-scale agriculture. The article will therefore emphasize the importance of changing the representation of small-scale agriculture and the need to develop agricultural policies differently in order to better support farmers who care for biodiversity.

Keywords

Agriculture, Public Policies, Governance, Biodiversity, Small-Scale Farming, Representation

1. Introduction

For decades, the issue of reconciling agriculture and the preservation of biodiversity has represented a global challenge facing many countries. In small island territories such as Guadeloupe, this issue is all the more crucial since agriculture has been synonymous with the destruction of biodiversity or massive pollution, as evidenced by the chlordecone health scandal. This famous pesticide used in banana fields in the Antilles and present in the soil for hundreds of years has polluted water, soil and foodstuffs, causing disease among the population [1]. Today, faced with rising food prices, the uncertainty of the international context with its nu-

merous conflicts, and public protests against this “high cost of living”, developing a form of agriculture that can both feed the population and preserve the already deeply affected biodiversity of this island territory has become a matter of great urgency. In our opinion, this model already exists in Guadeloupe in the form of small-scale farming, which is generally practiced when the cultivated areas are less than two hectares [2]. This agricultural model is poorly represented in conventional channels (access to advisory and development structures and aid) and is not very visible in agricultural statistics, yet it is estimated that it is practiced by more than 70% of the island’s farmers [3]. Several scientific studies have highlighted its importance in the ecological field [4]. However, despite its important role in the preservation of biodiversity, such as the non-use of phytosanitary products, or the use of endemic seeds, and the maintenance of agro-ecological know-how and agricultural land, this type of farming seems to receive little support from the public authorities unlike bigger farms. In fact, as one of the reports of the Intergovernmental Panel on Climate Change (IPCC) emphasized, the role of politics is crucial in bringing about more environmentally friendly development models and supporting sustainable solutions [5].

In this article, we will therefore seek to understand why small-scale farming is marginalized by the main public policies relating to agriculture.

To address the issue, it is important to point out that we have drawn on two research projects: on the one hand, Diagalim (2019-2020), which focused on the Guadeloupean agricultural world, and on the other hand, the CMBIONET project (2021-2023), which focused on small-scale agriculture in the Caribbean and its transition to a more efficient and environmentally friendly model. These projects did not specifically focus on biodiversity because they had a more general scope, but they offer avenues for reflection and a theoretical framework for thinking about the link between biodiversity and agriculture.

We will briefly review the current situation of small-scale agriculture in Guadeloupe, before outlining the theoretical framework and methodology based on a mixed approach. It will then be possible to analyse the data and see why public policies essentially favour monoculture farms. The proliferation of these monocultures can have a negative impact on biodiversity. We therefore recommend a change in the development of public policies in order to better involve small farmers. In our opinion, these changes require a modification of our vision of small-scale agriculture and new ways of developing public policies.

2. Guadeloupean Agriculture: Heir to a Colonial Model

To begin with, it is important that we look at the agricultural model in use in Guadeloupe. The island, formerly inhabited by Amerindian populations who practiced subsistence farming, underwent fierce colonization from the 16th century. This brutal occupation of the territory resulted in the extermination of the island’s native populations and the enslavement of populations from Africa. According to researcher Malcom Ferdinand, this is where the ‘Plantationocene’ be-

gan, with a new way of inhabiting the land [6]. This era was characterized by the intensive exploitation of nature and slaves. Significant deforestation was carried out, modifying the landscape, and this had significant impacts in terms of biodiversity. Forests and natural ecosystems were replaced by sugar cane monocultures, particularly on one part of the island: Grande Terre. This led to a homogenization of crops and a considerable impoverishment of soils, with the destruction of habitats for animal and plant species.

It was during this period that the principle of exclusivity, which governed all trade between France and its colonies, was established. The principle established two key cornerstones of our food system: “Your island will not feed you” and “You will not feed on your island”. The objective of this colonized territory was therefore to produce goods exclusively for Europe and to feed itself almost exclusively on products from European metropolises. This allowed the French State to enrich itself considerably.

Nearly 500 years later, we find these two key cornerstones still in place on the island. Most of the agricultural production still consists of monocultures of sugar cane and bananas, mostly intended for export and employing agricultural workers. Together, these crops occupy according to the most recent figures, 60.65% of the island’s usable agricultural area. This means that other crops account for 39.35% of the usable agricultural area [7]. Similarly, farmers practicing this type of cultivation have acquired economic and social influence over the centuries, while developing a good understanding of administrative and political mechanisms. They also have powerful lobbies that are very active at the European and national levels, such as the Union of Banana Producers’ Groups of Guadeloupe and Martinique. This puts them in an excellent position to defend their interests and, thanks to their actions, they manage to capture more than 90% of public aid [7].

Consequently, local production aimed at the outside world is unable to meet the food needs of the population, who in turn have no choice but to turn to the outside world for food. To this end, metropolitan France remains Guadeloupe’s main supplier, providing more than 78% of its food imports [8].

The increase in imports is currently causing difficulties for the local economy and the population. Thus, the trade balance is largely in deficit, numbering more than 3.63 billion euros in 2023 [9]. This massive use of imports has an impact on the standard of living of the population because the price of the imported tonne has undergone drastic increases. For example, it went from €0.99 to €1.53 between 1995 and 2015 [9]. In 2023, consumer prices increased by 4.2% year-on-year, even though prices had already increased in the preceding years [10]. This results in an impoverishment of the population. In addition, the massive use of imports to feed the population also has harmful repercussions as regards health, as illustrated by the figures: more than 52% of the population is overweight, which favours the onset of high-risk conditions such as high blood pressure (25% of the population) and diabetes [11]. The lack of consumption of fresh fruit and vegetables plays an

undeniable role in this state of affairs.

Yet on the fringes of this colonial system, another form of agriculture survives, which also appeared during the colonial and slavery period. Slaves were allowed to cultivate a small plot of land to feed themselves [12] and this practice gave rise to a residual form of agriculture. During the same period, another form emerged, known as resistance agriculture and carried out by runaway slaves (those who had fled the plantation). These two agricultural models succeeded in adopting a different approach by escaping the plantation economy and the capitalist system.

This agricultural model still persists in Guadeloupe today. It is found in what is commonly called small-scale farming. It is worth remembering that, at this stage, there is no unanimous definition of this model, since it exists in many different forms, such as small family farming or low-scale agriculture or even Small-Scale Bioeconomic and Agroecological Agriculture (APEBA in the French acronym) [4].

Generally, this type of agriculture is based on family farms and is carried out on small areas ranging from less than 2 ha to 5 ha, a far cry from the 19 ha average surface area of small farms at the national level. These farms are two to three times more common in the Overseas Territories than in mainland France. There is great diversity in small-scale agriculture, but there are also common features such as seasonal and subsistence farming, family labour, non-organized multi-active farmers working more in the informal sector. This agricultural method is characterized by its diversity, generally involving more than five plant and/or animal products. In this model, self-consumption remains important [4] [13]. Similarly, this form of agriculture has several benefits for biodiversity, such as the use of agro-ecological practices, know-how and the preservation of local varieties and breeds, but also that of the identity of the territory [14]. The farmers supply local markets via short supply chains and therefore have the potential to form the basis of an alternative food system that is nourishing, healthy, fair and environmentally friendly [15]. In Guadeloupe, this agricultural model occupies only 40% of the usable agricultural area, whereas it represents more than 70% of farmers and appears to have significant numerical weight. However, the model, which is beneficial to biodiversity, is running out of steam and many warning lights are red: aging farmers, lack of succession, difficulty in accessing land and unpredictable income [16].

Thus, despite the significant potential of small-scale agriculture, the model remains insufficiently supported by public policies. How can we explain this state of affairs? Our hypothesis is that this category of agriculture suffers from a negative image and, above all, a lack of awareness of its specific characteristics on the part of the authorities in charge of agricultural policies.

3. Theoretical Framework and Methodology

In order to address this topic, we have opted for a theoretical framework based on the cognitive analysis of public policies (3.1) and on a methodology combining

documentary analysis and interviews (3.2).

3.1. The Choice of Cognitive Analysis of Public Policies

In our study, we have chosen to focus on public policies. It goes without saying that there is no unanimous definition of public policies, as it varies depending on the disciplinary field. In our case, we have opted for the sociological approach to the subject, which emphasizes the interactions between the different actors and their worldviews which influence policies. That is why we have selected the current of cognitive analysis of public policies. It is an approach which emphasizes the role of ideas and representations in the conduct of public policies [17]. It also steers clear of the political science approach which sees the State as a central actor [18]. There are three main strands: analysis by frame of reference, the coalition model and the approach by paradigms.

We have prioritized analysis by frame of reference. This analytical model, initiated by the French researchers Muller and Jobert, is of great interest when analysing public policy and understanding the motives and visions behind its implementation [19]. For example, according to Pierre Muller, the development of a public policy comes down to constructing “a representation, an image of the reality regarding which one wants to take action. It is with reference to this cognitive image that the actors will organize their perception of the system, compare their solutions, and define their proposal for action: we will call this set of images the frame of reference of a policy” [20]. Thus, for Muller, the frame of reference designates a “set of standards or reference images according to which the criteria for State intervention and the objectives of the public policy in question are defined” [21].

This sociological approach to public action requires paying particular attention to the representations (in the broad sense) of the actors and agrees that public policies reflect or even construct frameworks for interpreting the world [20]. For example, agricultural policy is based on the image that we have of agriculture, farmers and the actors gravitating around it. In this respect, public policies result from the establishment of a relationship between the great diversity of stakeholders who express themselves and the structures of meaning that these actors represent. It is therefore important that all stakeholders agree on a problem and on the solutions to be implemented to resolve it. This assumes that these stakeholders share the same frame of reference [22].

According to Pierre Muller, the reference framework is based on four levels: values, standards, algorithms and images.

Firstly, values define an overall framework, because they are related to our most fundamental representations of what is good or bad, desirable or to be rejected [23]. Then there are the standards that determine principles of action, they orient towards another reality, for example, agriculture must be more environmentally friendly. At the third level, we find algorithms, causal relationships that express a theory of action. They can be expressed in the form “if... then”, for example “if the

government subsidizes farmers more, then they will be able to develop”. Finally, at the fourth level, we find images that make sense immediately, (for example, farmers are poor). It is this analysis grid that we will use to process the data.

Consequently, in this study, we carry out an analysis of the frame of reference of the public policies dedicated to Guadeloupean agriculture and small-scale farming in this archipelago, and we will examine what the main stakeholders, namely the farmers, think about it.

3.2. A Combined Methodology (Documentary and Field Analysis)

Since cognitive analysis of public policies places a strong emphasis on discourses and representations, we have adapted our methodology to be able to respond to our hypothesis. We began with an analysis of the literature and the main public policy tools relating to the agricultural world. This led us to study the main framework documents that deal with agriculture. Guadeloupe is part of France and Europe, so we studied these documents according to the different levels of public intervention. Guadeloupe’s agricultural policy is decided and developed at the highest level of the European Union (EU). It was therefore necessary to study the documents at this level because this is where the general framework and therefore the overall reference system are developed. We thus studied the common agricultural policy from 2014 to 2020, the POSEI and the farm to fork strategy [24]. It was then necessary to study the French level and the main framework documents identified and analysed were the 2014 Future Act and the Agriculture and Food Act [25]. Finally, with the laws on decentralization which give more power to the local level, in this case the regional level, we were able to deal with the following documents: the Rural Development Programme, Guadeloupe Saint Martin Volume 1, 2014-20, and the Regional Strategic Plan for an agro-ecological transition in Guadeloupe, 2020 [26].

This initial analysis was supplemented by qualitative surveys in order to understand the perceptions and representations of the actors. These interviews were conducted in semi-directive mode and face-to-face. The idea was to update the representations and ideas of the farmers interviewed.

We would like to point out that the agricultural community in Guadeloupe is very closed, with farmers often being elderly and wary of outsiders. As a result, it was very difficult to arrange meetings, and it took us several months to complete the survey. Given the complexity of obtaining interviews, we were unable to choose specific criteria for selecting participants. The only condition was that they had to be farmers working in Guadeloupe and in the regions where we conducted our survey. The difficulties in recruiting participants led us to abandon the random method and opt for the snowball method [27]. We used non-discriminatory exponential snowball sampling. This is how, thanks to an initial subject in each municipality random selection, we were able to obtain references from actors who gave us other contacts. This procedure is repeated until the sample is saturated, which is then a sign of its robustness. This non-probabilistic sampling method

makes it possible to identify an ecosystem of actors, as the recruitment of respondents was made possible thanks to the network of contacts. We were thus able to interview 45 farmers.

We asked a large number of questions divided into six themes. These included a general presentation of the farmer and their farm, including age, income, farm size, type of crop, description of their activities and characteristics. A second section focused on the current situation, highlighting the difficulties encountered, identifying needs and assessing their ability to make a living from their work. A third section concerned their knowledge of agricultural schemes, support and tools, as well as their assessment of existing schemes. The fourth section focused more on production, with questions on the drivers and barriers to production. A fifth section of questions focused on their perceptions of governance, and the last section looked at their actions or awareness of biodiversity and agroecology. In order to verify that we had small farmers in our samples, we have identified the main characteristics of small farms in Guadeloupe with the help of key official documents. According to the latest agricultural census in 2020, farms in Guadeloupe are small in size, averaging 4.4 hectares. According to the Chamber of Agriculture, small farms are less than 5 hectares in size and account for more than 80% of farms [28], with an income generally of less than €25,000 per year (particularly for micro-farms) [7]. Similarly, this agricultural model is mainly geared towards local production via markets and often relies on family labour. This is why we asked questions about surface area, income and labour employed. These questions also allowed us to establish that more than 70% of the farmers interviewed had all the characteristics of small farmers. For example, 65.7% of them cultivated on an area of less than five hectares, 78.9% had an income of less than 20,000 euros per year, 70% had no employees, 75% practiced market gardening. This sample corresponds to the main characteristics noted among small farmers in Guadeloupe.

All data were then anonymized in accordance with the European General Data Protection Regulation (GDPR). Extensive notes were taken during the interviews, which we did not record in order to ensure a freer conversation. These notes were analysed by the authors with regard to the cognitive analysis grid of public policies. The data was then analysed and processed using the Sphinx software and passed through the cognitive analysis reading grid with the four levels of the reference framework.

It is worth recalling at this stage some methodological limitations encountered in this study. Firstly, the framework documents analysed are not exhaustive. The selection made is contingent on the knowledge and degree of information available in the field of study. Thus, we focused on the main agricultural public policy documents. As for the survey, the population size remains small and does not allow for an in-depth and detailed analysis. That is why, one should not make generalisations based on such a small sample. Furthermore, the chosen methodology could not be followed to the letter because most of the respondents were recom-

mended, resulting in a greater bias towards homogeneity in the sample.

Nevertheless, despite the limited size of its population, our research drew on existing studies, and our findings confirm larger-scale studies on the agricultural situation and the role of small-scale farming [4] [13] [22]. It is thus possible to observe major trends that can shed relevant light on a field of research that is too often overlooked.

4. Data Analysis: Export Monocultures Favoured?

The framework documents studied concern all three levels. The European level is very important because it influences the other levels. Despite a stated desire to support all types of agriculture, we will note a priority for more modern agriculture (4.1), as shown by the example of POSEI (4.2), which will clearly illustrate how the provisions are not adapted to Guadeloupean small-scale farming (4.3).

4.1. Framework Documents in Favour of a More Modern Agriculture?

The EU does not specifically mention Guadeloupean agriculture, and even less so Guadeloupean small-scale agriculture, which is to be expected since there are many member countries. On the other hand, relevant information can be found in a larger group to which Guadeloupe belongs: that of the outermost regions (ORs) of the European Union, which share similar characteristics with Guadeloupe. There are nine outermost regions, five of which are in France. These regions benefit from “specific measures” that adapt European law to take account of their particular characteristics and constraints, in particular their insularity and remoteness from Europe. They are recognized and enshrined in Article 349 of the Treaty on the Functioning of the European Union, which constitutes the legal basis of the ORs.

There are also general provisions on small-scale farming in Europe, which were the subject of a comprehensive study carried out as part of the Cambionet research project. In our study, we show that, in terms of value, small-scale farming remains fundamental to Europe’s ability to go green. These small farms benefit from a positive image, particularly for their agro-ecological practices that benefit biodiversity, but their fragility has to be taken into account. The principles of action adopted are often to better remunerate them, hence the need for appropriate instruments [22]. However, these documents speak of small-scale farming in general but not specifically that of Guadeloupe, which has specific characteristics that other small-scale European farming systems do not have.

For this reason, we sought to understand how Guadeloupean agriculture is perceived as a whole, which will give us valuable information since, in any case, more than 70% of farmers in the archipelago are smallholders. In order to study the provisions relating to Guadeloupe’s public agricultural policies, we were interested in the Common Agricultural Policy (CAP), which sets the broad guidelines for the whole of Europe. This CAP is based on two main pillars: the first is the

European Agricultural Guarantee Fund (EAGF), whose objective is to support agricultural markets and incomes, and the second is the European Agricultural Fund for Rural Development (EAFRD), which concerns a series of tools linked to rural development policies as well as several associated programmes.

The analysis of framework documents through our cognitive analysis grid shows that, in terms of value, agriculture in the ORs is also considered to be able to play a leading role in the development of territories, particularly through the defence of local production and the fight against the high cost of living [29]. According to France, it remains an important sector because it is transversal, and for the Guadeloupe Region, agriculture constitutes an innovative force driving economic development in the territory [30].

As for images, we find contrasting ones at all three levels.

There is unanimity on the fact that agriculture remains an important activity for the territory and benefits from a positive image.

At the European level, agriculture in these territories is associated with a major food-producing activity. At the national level, Guadeloupean agriculture is part of the ultra-marine sector, which includes all the French overseas regions and collectives. It is linked to family farming, which plays an important role in the region.

According to the Guadeloupe Region, it contributes to the preservation of the territory and its culture, and has strong potential for production and employment, particularly in the field of tourism, agro-processing and the conquest of niche markets. Furthermore, farmers can play a crucial role in the quest for food sovereignty and are a source of innovation with the emergence of the aromatic and medicinal plants sector. They also play a key role in the preservation of the island's landscape, culture and identity, and constitute "a significant source of innovation, thanks to their local knowledge and their mastery of complex technical systems" [31].

However, agriculture is still tainted by a negative image. For example, in Europe, agriculture in the ORs is often associated with difficulty, delay, handicaps, lack of competitiveness, remoteness and specific challenges [29]. In France, we find this same unfavourable image, with agriculture suffering from many problems, lack of competitiveness and lack of organization. This pejorative representation is confirmed at the local level. For example, in one of the framework documents for the Guadeloupe Region, farmers are associated with a group that is poorly educated due to a lack of training, poor and aging due to "ineffective generational renewal" and having difficulty adapting to changes [31]. They are seen as multi-active, poorly structured and unorganized, but above all they are marginalized by banks, which prevents them from pursuing more development projects.

This vision of a somewhat archaic agriculture perhaps explains why the principles of action aim to help, at the European level, agriculture in the outermost regions so that they can "catch up and overcome their difficulties". There is a desire to make the farming profession more attractive and for agriculture to be "more

competitive” [31]. This desire is found at the national and regional level. The idea is to help farmers modernize, structure themselves and catch up in order to be better organized, more competitive and more environmentally friendly. Agricultural production needs to develop, but at the same time, outlets need to be created. Marketing systems must better integrate local producers. The ambition of the Guadeloupe regional team in place since 2015 goes even further, as the idea is to make agriculture an “innovative force driving economic development in the territory” [31].

These principles of action lead to algorithms or instruments, which are concerned with increasing funding and adapting aid in order to better support these regions and their agriculture so that they can modernize. At the European level, Guadeloupe’s agriculture benefits from aid intended for all European farmers. Thus, under the European Agricultural Guarantee Fund, Guadeloupean farmers can receive a payment based on hectares of useful agricultural area, regardless of the type of production, and it can be increased for young farmers. In addition, this first pillar provides for greening aid under conditions of good environmental practices. Countries may also have the option of giving more to smaller farms. This system is of particular interest to Guadeloupe, as most of the farms are micro or small-scale. Aid can also be allocated under the EAFRD in order to preserve the rural world and make farming more competitive according to the rural development pillar of the CAP 2013. In addition to this generic aid, Guadeloupean farmers benefit from POSEI (programme of options specifically relating to remoteness and insularity). For example, it allows for aid to support local production or reduce certain supply costs for the farming community. Guadeloupean farmers also benefit from tailored support to enable them to accelerate the agro-ecological transition, while taking into account their specific characteristics [29]. As part of the European cohesion policy, the ORs are integrated into the “Convergence” objective. As such, they are eligible for structural funds (ERDF and ESF), with a co-financing rate for public expenditure of up to 85% [32]. These regions also have other funding available to help offset additional costs due in particular to their remoteness.

At the national level, the instruments follow the same European trend. France wants to stimulate agricultural production and find outlets for it, and with regard to ultra-marine agriculture the idea is to improve its competitiveness in a structurally fragile economic and environmental context [32]. This is the case with France’s EGalim law, which has set targets of 50% of “quality or local products (including 20% organic) in the supply of collective catering from January 1, 2022” [25].

At the regional level, there are several measures designed to help farmers access European funds and better support them [29]. This can involve support in preparing applications, providing more accessible information, simplifying procedures and travel. There is also a need to share the reference framework with the national level, particularly through the development of marketing. It is in this re-

gard that we also find the creation of the regional interest market as a major structuring project aimed at promoting the marketing of agricultural products and modernizing and structuring the agricultural profession [33]. Other funds have also been allocated to agriculture by the Guadeloupe region [34]. Thus, in total in 2019 for all sectors: “7.2 million euros were mobilized by the Guadeloupe Region to serve agriculture in Guadeloupe: support for the chamber of Agriculture, sugar cane and bananas, animal diversification, various aids” [34].

To conclude this first part of our study, the image found in the framework documents of Guadeloupean agriculture, at all levels, is of an agriculture in difficulty, marginalized, poor and lagging behind, with many handicaps but also with potential in terms of the fight against global warming and the achievement of food sovereignty. The principles of action aim overall to support agriculture and help it remain competitive and viable, while responding to major ecological challenges. Several instruments have been put in place to respond to the specific characteristics of Guadeloupean agriculture, and significant funds have been mobilized. Similarly, there are a number of mechanisms in place to help small-scale farmers on the island. The amounts are significant, so one might think that they would reach small-scale Guadeloupean farmers. The underlying idea is to transform Guadeloupean agriculture so that it more closely resembles the dominant European-type farming model. But what do the farmers interviewed think?

4.2. A Reference Framework Deemed Unsuitable for Small-Scale Guadeloupean Farmers

In this section, we look at how farmers perceive these public policies. After analysing the interviews conducted with them, we noted that the producers’ reference framework is quite negative with regard to major public policies. For example, in terms of value, for a good number of producers interviewed, agriculture remains marginalized and little supported by policies at all levels: European, national and regional. Most of the measures are considered unsuitable and restrictive, particularly European aid. “No law is suitable, for us, they are imposed on us and we have to endure them,” remarks one farmer. Moreover, the figures speak for themselves: more than 70% of the farmers interviewed consider the aid to be unsuited to the specific characteristics of Guadeloupe and their professions.

The images concerning these instruments are often associated with remoteness, incomprehension and lack of awareness and knowledge of the land.

In terms of the principle of action, farmers would like legislation that addresses their concerns and situations more specifically, as well as simpler and more accessible. Another important point emerged from the interviews: the desire to have policies that are as citizen-centred as possible, the idea being to be better aware of specific circumstances, the field and their needs. Indeed, farmers complained that access to certain aid is conditional on their joining a group or a professional organization, even though this type of structure does not suit them.

In order to achieve this, the proposed algorithms are focused on simplifying

administration, such as through a one-stop shop that would bring together all services. This would allow them to have a single point of contact for all procedures instead of the multitude of bodies that we currently see. Similarly, they are asking for more technicians in the field and fewer administrative procedures that are too time-consuming. Financial aid is requested, but which is adapted to their needs and realities.

4.3. Conditions for Obtaining Aid that Exclude Small Farmers: The Example of POSEI

One of the fundamental problems identified by farmers and observed in the texts concerns the criteria for obtaining this aid. To illustrate our point, we will take the example of POSEI.

The POSEI scheme was created in 1989 for the French overseas departments and regions (Guadeloupe, Martinique, French Guiana, Réunion and, since 2014, Mayotte). It was introduced in 1991 for the Canary Islands, the Azores and Madeira. It is financed by the European Agricultural Guarantee Fund (EAGF). Regulation (EU) No 228/2013 sets an annual ceiling for each Member State.

In the ORs, the POSEI programme replaces measures under the first pillar of the CAP, with the exception of those included in the common market organization (CMO) for fruit and vegetables, wine and beekeeping.

The POSEI has an annual budget intended to take into account the small exploitable areas, the terrain, the climate and all the other factors that hamper the development of agricultural sectors in the ORs. This aid is intended to compensate for the structural handicaps linked to the remoteness of the territories and strengthen the resilience of agricultural holdings and food sovereignty [35]. In 2021, the amount for France was 323,210,000 euros [32].

The objective of this programme is also and above all to enable the sectors to be more competitive, to stimulate and professionalize production, to structure the sectors and to maintain the standard of living of producers in the face of external competition. There are two main components: measures to promote local agricultural production (MFPAL) and a specific supply scheme (RSA) whose objective is to help farmers who import inputs necessary for the proper functioning and development of agricultural sectors (fertilizer, for example) [36]. This aid also allows for a certain number of actions: technical assistance, aid for dependent farms, sugar companies or the structuring of sectors, bonuses for breeders.

However, there are a number of criteria to be eligible for this crucial aid for Guadeloupean agriculture. For example, you must be recognized as a farmer and therefore have a SIRET number, be registered with the farmers' Health Insurance (AMEXA in the French acronym), and be up to date with your social security contributions. Then, for those who wish to receive marketing aid, it is important to have a marketing contract with the customer, to have invoices for each delivery of products/goods and also to have up-to-date accounting, to have a PACAGE number to identify the plots in crop production and to make your surface area

declaration every year [37]. There are other additional provisions for breeders who must have a registered livestock farm, animals identified as part of the obligations, keep a livestock register, comply with regulatory requirements regarding environmental management and animal welfare, and keep documents related to their farm in order to be able to present them during inspections [35]. Furthermore, in most cases, it is necessary to advance the funds and reimbursement will only be made upon presentation of invoices.

The fact is that only farmers who are already structured, up to date with their contributions, declared owners of their land and have the capacity to advance funds, wait for payment deadlines and also to lobby are more likely to receive such aid. In reality, it is generally farmers from the banana and sugarcane export industries who are the best organized in the sector and who meet *all* these conditions.

Conversely, the eligibility criteria exclude small farmers from the outset. Many of them are not up to date with their accounting or social security contributions because they are often in precarious situations, and many of them are not affiliated with AMEXA. This situation of financial difficulties prevents them from pre-financing the funds, even up to 25%. In addition, several of them have several jobs and do not have time to fill out all the forms.

This is what one farmer told us: “they tell us that there is aid but you don’t see it. There is so much paperwork to fill out and you don’t have time to get it all together”. Others who have tried to explain to us that “they are asked for a lot of documents and then it doesn’t go through”. They receive nothing without ever understanding why. Thus, for the majority of those interviewed, “it’s always the same people who get the aid, those who really need it don’t get it”. One farmer concluded that “the State always gives aid to the big guys, always to the big guys; we need to help the small ones a little more”.

Another problem encountered is that of joint ownership, which means that farmers cultivate on the plots of their parents, grandparents or ancestors but they do not have a title deed because the inheritance tax has never been paid. However, to be able to claim aid you have to be the owner or at least make your surface area declaration, which many small farmers cannot do. Moreover, there are many conflicts over agricultural land in Guadeloupe.

It can be noted that, after analysis of this system, most of the amounts allocated to POSEI are mainly absorbed by the banana sector, which in 2023 accounted for nearly 40% of the total POSEI budget. In second place is the cane/sugar/rum sector, which received 23% of the aid in 2023 [38]. The measures for plant diversification mainly used by small farmers only account for 9.3%. It is therefore export-oriented agriculture that is mainly supported by this programme. Indeed, 81.2% of the annual budget for supporting local production under the FEAGA POSEI was allocated to traditional production (banana and sugar cane).

After analysis, it thus appears that the subsistence agricultural model is “treated” like people with disabilities. As Charles Gadou explains, “most people

with disabilities are in society without really being there and without really being part of it. They always have a feeling of being outsiders. [...] In the hands of others who decide for them; who take charge of them without taking them into account as subjects and actors of their own history and of a common narrative. Deprived of the right to insubordination and reduced to the role of patients, they eke out a living or merely survive” [39]. And this is more or less what is happening to small-scale agriculture in Guadeloupe. It is being treated as if it were “lagging behind in its development” and has “handicaps to overcome”. The measures in question therefore seek to implement a foreign development model that has proven itself in mainland France and in Europe (concentration, productivism) but which is not adapted to local specificities. As a result, through a series of conditions, small-scale farms are de facto excluded from financing schemes. They then have to eke out an existence or disappear, as explained above, particularly due to a lack of succession.

4.4. Small-Scale Agriculture in Decline and Negative Consequences for Biodiversity

The aid structure supports monocultures, which are chemical-input-intensive and polluting. For example, banana cultivation requires an average of 10.3 phytosanitary treatments, to which must be added fungicide, bactericide and herbicide treatments, making a total of 20.7 treatments [40]. This is likely to have a negative impact on the environment. Indeed, several studies have shown that monocultures make heavy use of mineral fertilisers, which have a negative impact on soil fertility [41]. In Guadeloupe, a recent study has shown how fertilisers contribute to water and soil pollution through acidification. Similarly, these monocultures often use herbicides that destroy the habitats and food resources of soil fauna, leading to the disappearance of this fauna, which plays a significant role in soil health. It is not surprising to see these soils with low biodiversity [42]. Biodiversity as a whole is also affected, with a decline in terrestrial and marine fauna and flora, as well as a loss of endemic seeds. Similarly, the lack of support for small farmers risks indirectly promoting a reduction in biodiversity. Small-scale farms use local seeds, which are rarer species and endemic to the island. These species are also more resistant to pests and insects. It should be noted that worldwide, small-scale farms are the custodians of approximately 75% of the world’s agricultural resources [43]. They are the basis of agricultural biodiversity.

A study conducted in Guadeloupe on these small-scale farms highlighted the benefits for biodiversity of agricultural practices which “generally aimed to promote water infiltration (plant cover and mulching) and to limit intermediate loads, in particular the use of mineral fertilizers (fallow land, legumes, ash, recycling of faeces, rotation, slurry/decoction), phytosanitary products (weed suppression, crop association, seawater, algae) or even food supplements (feeding animals with by-products of intra- and/or extra-farm crops)” [44]. Several studies have shown that agroecological practices such as applying organic matter to the soil,

mulching and slash-and-burn farming result in more vibrant soils [45], soils that store carbon more effectively and contribute to increasing soil fauna diversity [46]. This agricultural model is therefore much less polluting and results in healthier soil and less toxic water, thereby counterbalancing the negative effects of monocultures to a certain extent. Other studies have shown that, more generally, small farmers mostly use agroecological practices. They use biomass recycling, conserve and regenerate water and soil, which limits resource losses (energy, water, nutrients), they maintain the diversification of species and genetic resources and promote interactions and synergies between the components of agrobiodiversity [47].

All these practices are the basis of ecosystem services of supply, support or regulation [48]. It is therefore important to also encourage this agricultural model, which forms an important rural fabric making it possible to slow the exodus to the cities while helping to maintain the territory [4]. However, the disappearance of farmers also risks leading to speculation on agricultural land and its disappearance.

Furthermore, these agricultural structures, which have a high level of biodiversity, are the most able to cope with the effects of climate change. For example, several practices sequester carbon, such as agroforestry, and the plants used are often more resistant to risks and hazards thanks to their crop diversity [4]. It is therefore essential to keep these elements in mind in order to develop better instruments for this category of farmers.

5. Discussion: For a Change of Vision and Policy to Support Small-Scale Agriculture

The work carried out on this issue has taught us two fundamental lessons for better supporting small-scale agriculture: on the one hand, changing how we view agriculture and specifically of small-scale agriculture (5.1) and on the other hand, developing policies in a different way (5.2).

5.1. For a Change in How We View Small-Scale Agriculture

“Words are windows, or they are walls. They condemn us or they liberate us,” said Marshall Rosenberg, the creator of nonviolent communication [49]. The work of linguist Benjamin Whorf confirms this: according to his research, words influence our neural connections [50]. Dr Andrew Newberg and Mark Waldman have also shown through their research that words can influence the expression of genes that regulate physical and emotional stress [51]. Words have an effect on our emotions. According to the Toltecs, they are also a real force capable of bringing about a world [52]. This is also taught by the Bible, where we find the power of words that can create, like that famous phrase, “God said: Let there be light! And there was light” [53].

We feel it is important to speak differently about Guadeloupean agriculture, because words convey a vision of the world that influences our actions. Thus, it would be desirable to stop viewing agriculture in terms of competitiveness, per-

formance and competition. This commercial vision of the agricultural world is, moreover, a recent one when we look at the history of this activity, which goes back more than 10,000 years. Indeed, for a long time, agriculture also meant a state of mind, a culture and a vision of the world in harmony with the cycles of nature.

Today, we no longer speak of farmers but of farm managers, of markets, of competitiveness, of yield, of money, and no longer simply of food. In Guadeloupe, the persistence of this small-scale agriculture, heir to a multi-millennial tradition, can show us the way to a different approach to agriculture as a whole.

In this respect, ecofeminism, a current of ecological and feminist thought, offers interesting avenues for thinking outside the box. For example, this school of thought places life at the centre [54]. It includes values such as “care”. The advantage of this approach is that it highlights those who take care of the Earth and of others.

The political scientist and feminist Tronto has proposed a definition of this notion which encompasses all the activities we engage in to maintain, continue and repair our “world” so that we can live in it as well as possible [55]. Unfortunately, as some people note, those who take care of others and the planet often see their work devalued even though they are meeting basic needs [56]. Thus, by changing perspective, we could talk about Guadeloupean agriculture in a different way and show that small farmers play a decisive role not only for biodiversity but also for the population. It is essential to revalue all these “care” activities and therefore revalue the people responsible for them.

In this regard, the work of the National Research Institute for Agriculture and the Environment (INRAE in the French acronym) Antilles around the concept of Small-Scale Bioeconomic and Agroecological Agriculture (APEBA), seems promising. The idea is to give a different name to small-scale agriculture, a term often seen in a negative light, with the aim of highlighting the positive role of agriculture in terms of biodiversity, the climate, the population and landscapes. Research work with the CAMBIONET project was undertaken to show that it is possible to live decently on small areas by increasing technicality to improve sales margins, or by offering remuneration for ecosystem services [4]. Similarly, other studies have shown that small-scale agriculture can be the basis of an alternative food system [15]. Consequently, it is very important in society and must be treated as such by policymakers.

5.2. For Another Way of Doing Politics

This then implies a change in the way public policies relating to the agricultural world are developed. According to our research, and in particular our field surveys and the proposals made by stakeholders, agricultural policies in Guadeloupe should be territorialized (5.2.1°), co-constructed with all the actors in the food system (5.2.2). In order to achieve these two objectives, the living lab tool could prove relevant (5.2.3°).

5.2.1. For a Territorialization of Agricultural Policies

Firstly, it seems important that agricultural public policies be formulated with as close a consideration as possible of the actors in the territory so that they are better adapted to the context and also more responsive. This is all the more relevant for a place like Guadeloupe with its very specific characteristics compared to mainland France or the European Union.

This management model does not strike us as revolutionary. Quite the contrary: it is in keeping with the times. Indeed, over the past few decades, the French state, which used to decide everything, develop everything and plan everything, has lost some of its arrogance. Under the impetus of several international and local factors, there is a desire to strengthen local authorities. The European Union, for example, has worked hard to strengthen local authorities [57]. For this reason, several instruments or bodies have been created, such as the Committee of the Regions, established by the Maastricht Treaty in 1992 [58].

France, despite its strong tendency towards centralization, has followed suit. This has resulted in several acts of decentralization, in 1982, 2003 and 2013. Since these changes, several principles in favour of local authorities have been adopted, such as the principle of subsidiarity, specificity (the adoption of rules adapted to the particular characteristics of a territory), financial autonomy (the possibility of collecting their own resources, in particular through local taxes), and the right to organize consultative local referendums.

These developments make it possible to place the actor at the heart of the territory and can thus promote bottom-up innovation. Several authors emphasize the fact that the strength and consistency of public policies are defined from the bottom up [59].

Some authors have also noted that the territorialization of public policies through greater proximity [60] and better transversality [61] has allowed for real innovations in governance and policies, notably through learning [62]. Similarly, this process allows for more flexible, responsive, imaginative and agile policies, which is exactly what the agricultural world, which works with living things, needs. Truly effective territorial engineering can thus emerge [63].

Similarly, territorializing public policies allows for better dissemination of relevant information and the development of public policies that responds to the priorities and needs of the territory [64]. All these examples show us the extent to which the territorialization of public policies offers a range of possibilities for dealing with the problems of the Guadeloupean agricultural sector, which often requires a “tailor-made” approach. However, territorialization does not necessarily create links with all stakeholders. To this end, it is important to create a community with a shared destiny that has the general interest at heart. This does not appear out of nowhere; it requires “instituting processes” where stakeholders can meet to engage in dialogue. This allows the entire community to reflect together on common objectives and values. To this end, it must adopt common rules for governance [65].

5.2.2. For a Co-Construction of Public Agricultural Policies

According to our study, among the rules to be put in place, it is important that the territorialization of agricultural public policies integrate all the actors of the food system and leaves no one by the wayside, especially small farmers. The latter must therefore at this stage participate in all policy decisions through different mechanisms.

In this regard, we suggest using the co-construction mechanism. There are several definitions of co-construction, but we have chosen that of Professor Fraisse, for whom co-construction is “an established process of open and organized participation of a plurality of actors in the development, implementation, monitoring and evaluation of public policies” [66].

In our opinion, the advantage of co-construction is that citizens and public authorities are involved in all phases of the development of a public policy, from conception and production to evaluation. This mechanism allows them to question the decision-making process, but above all to get everyone working on the collective construction of the issues and solutions [67]. As agriculture is a sector involving many actors, this co-construction mechanism seems essential to improve the situation.

However, it is important to choose carefully the type of co-construction that we want to develop for the Guadeloupean agricultural sector. The idea is to not reproduce the marginalization of the most vulnerable.

That is why we advocate a democratic type of co-construction defined in the work of Yves Vaillancourt [68]. According to this author, in this type of co-construction, the objective is the general interest. Furthermore, this co-construction implies that all the actors concerned by agriculture, in other words, the actors of civil society (citizens, associations, etc.), the actors of the public service (elected officials, civil servants), the actors of the private sector (farmers, agri-food industries, companies) and other institutional actors (universities, research centres) all have their place in this process.

In order to ensure genuine dialogue between the parties, they must be able to meet in open and inclusive spaces [68]. The different actors must also be able to operate with a framework of participation that is legitimate so that they have confidence in the process [69]. Above all, this type of co-construction must clearly have “decision-making power, even if the elected representatives have the last word” [67]. This truly encourages participation because results are seen. Democratic co-construction thus offers the possibility of greater participation of all stakeholders, with an emphasis on the most disadvantaged.

5.2.3. For the Use of “Living Labs” to Develop Public Policies

However, we believe it is important to have effective tools that allow all local stakeholders to exchange and develop a territorial policy relating to the agricultural world. In our opinion, the Living Lab or (LL) tool is a suitable means of achieving this objective.

The Living Lab was created by Professor Mitchell of MIT in Boston for private

companies, but this innovation process has gradually opened up to citizens [70].

Today there is no unanimous definition of these laboratories, but the one adopted by ENoLL (European Network of Living lab) seems appropriate. According to this organization, Living Labs are:

“open innovation ecosystems in real-world settings based on a systematic user co-creation approach that integrates research and innovation activities in communities and/or multi-stakeholder environments, placing citizens and/or end users at the centre of the innovation process. Thus, LLs, as real-world testing and experimentation environments, foster co-creation and open innovation among the model’s key actors. [We thus find there] the quadruple Helix, namely: citizens, government, industry, academia” [71].

Living Labs are very useful tools for tackling agricultural issues, which are a perfect example of a “wicked problem”. These types of problems are characterized by their great complexity and interconnection with other issues, leading to other sub-problems, making them difficult to understand and to control their causes and effects due to the plurality of factors involved. Similarly, as they are very complex, it is difficult to resolve them definitively [72].

One of the advantages of this method is that it provides a real space where a large number of actors can work together to identify problems and test solutions instead of doing so separately. This approach breaks down traditional organizational boundaries. The Living Lab offers the possibility of converging different needs, for example producers who are seeking to make themselves heard and influence territorial policy, and local authorities who need expertise closer to the field that they do not have internally in order to better understand the needs of the territory [64].

Similarly, the methodology used is very worthwhile because it is based on an innovation centred on users, who are placed at the heart of the entire process: co-design, solution construction and co-production. The latter also helps with prototyping the solution, testing it and improving it [73]. This allows for proposals and tools that are better suited to farmers. Likewise, by combining scientific, professional, citizen and activist knowledge, Living Labs allow for the development of social and territorial innovations [74]. They also allow for the democratization of public action by giving power back to citizens, in this case small farmers, who would have the opportunity to participate directly in the work. The advantage is also that they will be able to quickly re-appropriate the innovations developed in the LL.

However, it should be noted that LLs are not magic. Research has highlighted a number of drawbacks, including relating to long-term funding and the ambiguous role of public authorities, which can affect the true independence of these spaces [64] [74].

In any case, there are now a number of very effective ways to develop public policies differently and in a way which best meets the expectations of the territory.

6. Conclusions

This study has allowed us to see that there is a desire within political authorities to support the Guadeloupean agricultural sector. Significant funds are being deployed at European, national and regional levels. However, all these funds and aids aim to change the agricultural model, which is essentially composed of small-scale farms mostly operating in the informal sector, towards a more professional and competitive model.

This is why the criteria for obtaining this aid do not take into account the specific characteristics of small-scale Guadeloupean agriculture, which does not fit into traditional models. As a result, most of the aid does not go to small farmers but to those who are already advantaged and organized to receive this aid: export monocultures. Small-scale agriculture is left behind and risks disappearing due to a lack of adequate public policy. The island's biodiversity will be impacted.

According to our analysis, to change the situation, it is first important to change the way we look at agriculture in general and at small-scale agriculture specifically. We need to engage in a deconstruction or even decolonization in order to understand this agricultural model, its specificities and its positive impact on biodiversity and society. Small-scale agriculture in Guadeloupe is neither handicapped nor lagging behind; it is just different and there is no need to try to make it resemble the dominant model. Fortunately, there are several positive signs on the horizon, particularly with the new CAP 2023-2027, which is more sensitive to small farms with specific aid. For example, the aid granted is in the form of subsidies. Similarly, the image of small-scale agriculture has improved, as there is recognition of its contributions to biodiversity and its ability to preserve habitats and landscapes, as well as to strengthen ecosystem services. These are encouraging prospects for the future, provided, however, that the criteria for obtaining them are more flexible for small-scale farmers in Guadeloupe.

Finally, one of the major areas identified for improvement is a real change in the development of public policies. Indeed, as agriculture is a changing, living activity, subject to different hazards, it seems essential to us to ensure that agricultural policies are developed at the level of the Guadeloupe archipelago with a bottom-up approach. However, we propose that it be developed in co-construction with all the actors involved in the food system. To this end, the territorial Living Labs, which bring together all the actors around one table, are tools to be explored. We also warn against socio-technical lock-in, that is to say, actors who benefit from the current system and will do everything they can to preserve it.

We also believe that swift action is needed, but that it is possible to take some concrete steps right now to bring about change in agricultural policy. In this regard, one of the first measures to be implemented would be to reactivate the Committee for Strategic Orientation and Agricultural Development (COSDA). The purpose of this committee is to establish the broad guidelines for the agricultural sector by bringing together the major local authorities and the State. Unfortu-

nately, it has not met since 2016. Its reactivation would provide an opportunity to bring together the main institutional players in the agricultural sector, to quickly draw up a common roadmap and thus remove certain administrative barriers. Another key measure requested by small farmers is the creation of an organisation dedicated to defending and promoting small-scale agriculture in order to bring together networks working to maintain and develop this type of agriculture [14]. Similarly, we believe it is essential that small farmers receive support and assistance from research and development organisations. These organisations must be able to provide them with tailor-made technical solutions to enable them to continue and move even further towards more sustainable practices. This seems all the more important given the diversity and complexity of the island's cultivated ecosystems. Moreover, in the Cambionet project, we have seen how important these organisations are in helping farmers to continue working in agroecology. For example, in Cuba, research organisations such as INCA (Instituto Nacional de Ciencias Agrícolas) play a key role in helping farmers with various issues, such as maintaining or even increasing their yields in a context of global warming and embargoes, developing more resistant species, biological control and soil enrichment [75].

There is therefore still a lot of work to be done before small-scale Guadeloupean agriculture can play its full role. However, the current context, with numerous wars, the climatic imbalance and rising food prices makes the status quo impossible. May this phrase, generally attributed to Mark Twain, inspire a generation of new agricultural public policies: "they did not know it was impossible, so they did it".

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Piro, P. (2014) Chlordecone in the Antilles, the Forgotten Scandal. <https://reporterre.net/Chlordecone-aux-Antilles-le-scandale-oublie>
- [2] Lowder, S.K., Scoet, J. and Raney, T. (2016) The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide. *World Development*, **87**, 16-29. <https://doi.org/10.1016/j.worlddev.2015.10.041>
- [3] Bezombes, H., Cardon, A., Hostache, C., Kempen, C., Manceaux, J., Mars, C., *et al.* (2015) Étude des Mécanismes d'attribution des Aides Publiques Agricoles dt Anal-

- yses des Stratégies et des Enjeux de la Petite Agriculture Familiale Guadeloupéenne, Vis-A-Vis du Système de Subventions Agricoles dans le Cadre de la Réforme De La Politique Agricole Commune 2015-2020 et de la Réforme Législative du Code Rural de l'agriculture et de la Pêche, par L'approbation de la Loi d'Avenir Le 13 octobre 2014. Rapport de Mission Jeune Expert. Istom.
- [4] Ozier-Lafontaine, H., Joachim, R., Bastié, J.P. and Grammont, A. (2018) De l'Agroécologie à la Bioéconomie: Des Alternatives pour la Modernisation du Système Agricole et Alimentaire Des Outre-Mer, Note d'orientation sur les agricultures des Outre-Mer. Rapport de synthèse du Groupe de Travail Interdom de l'Académie d'Agriculture de France.
- [5] IPCC (2022) Climate Change 2022, Mitigation of Climate Change, Working Group III Contribution to the IPCC Sixth Assessment Report (AR6), IPCC AR6 WG III. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_FullReport.pdf
- [6] Ferdinand, M. (2019) A Decolonial Ecology: Thinking About Ecology from the Caribbean World. Seuil.
- [7] AGRESTE (2022) Recensement agricole résultats définitifs. <https://daaf.guadeloupe.agriculture.gouv.fr/recensement-agricole-2020-publication-regionale-a1518.html>
- [8] Ministry of Agriculture and Food (2017) Foreign Trade in Agri-Food 1995-2015 Twenty Years of Exchange, No. 3, Agreste Guadeloupe. <http://sg-proxy02.maaf.ate.info/IMG/pdf/D97118A03.pdf>
- [9] INSEE (2023) Economic Report 2023 Guadeloupe. <https://www.insee.fr/fr/statistiques/8186034?sommaire=7936489#titre-bloc-1>
- [10] Lorté-Villarçon, L. (2023) Insee Flash Guadeloupe, n°195. <https://www.insee.fr/fr/statistiques/7740664>
- [11] Glenisson, J. (2021) Surcharge Pondérale, Insee Analyses Guadeloupe No. 50. <https://www.insee.fr/fr/statistiques/5390716>
- [12] (1786) Royal Ordinance Relating to the Management of Housing. Article 2 of Title II.
- [13] Sourisseau, J.M., Gaillard, C., Bouard, S., Goldin, M., Angeon, V., Hazoumé, D. and Apithy, L. (2021) Mesurer les revenus agricoles en Nouvelle-Calédonie et en Guadeloupe. Méthodes et enseignements. *Notes et Études Socio-Économiques*, **49**, 63-102.
- [14] Ozier-Lafontaine, H. (2015) Trans' Act Workshop for Small Family Farming. Towards Socio-Economic Performance in an Agro-Ecological Logic. <https://hal.inrae.fr/hal-02801772>
- [15] Angeon, V. and Fréguin-Gresh, S. (2023) La mise sur agenda d'un modèle agri-alimentaire alternatif en Guadeloupe: Une fenêtre d'opportunité pour le renouvellement de l'action publique? *Géographie, économie, société*, **25**, 163-184. <https://doi.org/10.3166/ges.2023.0008>
- [16] Fréguin Gresh, S., Angeon, V. and Cortès, G. (2020) Small Family Farms in Guadeloupe: A Contribution to the Anchoring of Food, Executive Summary of the Final Report of the Professional Workshop of the EDEV Master 2019-2020. <https://www.master-adev-montpellier.fr/content/download/4215/31610/version/1/file/2020-+Rapport+re%CC%81sume%CC%81+atelier+EDEV+-+Guadeloupe+.pdf>
- [17] Gardon, S., Gautier, A. and Le Naour, G. (2020) Global Health through the Prism of Public Policy Analysis, Quae, Coll. Update Sciences & Technologies. <https://doi.org/10.35690/978-2-7592-3259-8>

- [18] Jones, C.O. (1970) *An Introduction to the Study of Public Policy*. Cole Pub Co.
- [19] Jobert, B. and Muller, P. (1987) *The State in Action: Public Policies and Corporatism*. Presse Universitaire de France.
- [20] Muller, P. (2003) *Public Policies*. PUF.
- [21] Muller, P. (2000) L'analyse cognitive des politiques publiques: Vers une sociologie politique de l'action publique. *Revue française de science politique*, **50**, 189-208. <https://doi.org/10.3406/rfsp.2000.395464>
- [22] Angeon, V., Obertan, P. and Vairac, M. (2025) Statut constitutionnel et politiques publiques. In: *Statut constitutionnel et politiques publiques*, Presses universitaires des Antilles, 279-302. <https://doi.org/10.3917/pua.desto.2025.01.0279>
- [23] Muller, P. (1984) *The Technocrat and the Peasant*. Les Éditions ouvrières.
- [24] The Common Agricultural Policy 2014-2020 and European Commission Communication COM/2020/381 (2020) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Farm to Fork Strategy for a Fair, Healthy and Environmentally Friendly Food System. <https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vl8w31c0ffzi>
- [25] Law for the Balance of Commercial Relations in the Agricultural Sector and Healthy and Sustainable Food, Known as "EGalim 1". Law No. 2018-938 of October 30, 2018.
- [26] Regional Strategic Plan for an Agroecological Transition in Guadeloupe (2020) Rural Development Program 2014-2020, Guadeloupe Saint Martin Volume I Status Report, Needs and Strategy. https://www.regionguadeloupe.fr/fileadmin/Site_Region_Guadeloupe/actus/1_4_FEAMP_-_Analyse_AFOM.pdf
- [27] Goodman, L.A. (1961) Snowball Sampling. *The Annals of Mathematical Statistics*, **32**, 148-170. <https://doi.org/10.1214/aoms/1177705148>
- [28] Chambre d'agriculture (2024) Chiffre clé de l'agriculture de Guadeloupe. <https://guadeloupe.chambres-agriculture.fr/sinformer/chiffres-cles>
- [29] European Parliament Resolution of 14 September 2021 towards a Strengthening of the Partnership with the Outermost Regions of The Union (2020/2120(INI)) OJ C 117, 11.3.2022, 18-29.
- [30] REGION Guadeloupe (2020) The Region Increases Its Support for Agriculture. <https://www.regionguadeloupe.fr/actualites-et-agendas/toute-lactualite-du-conseil/detail/actualites/la-region-strengthens-its-support-for-agriculture/#>
- [31] Union européenne, POSEI France (2021) Programme de développement rural 2014-2020, Guadeloupe Saint Martin Tome I Etat des lieux, besoins et stratégie. https://www.regionguadeloupe.fr/fileadmin/Site_Region_Guadeloupe/actus/1_4_FEAMP_-_Analyse_AFOM.pdf
- [32] Union européenne, POSEI France (2021) Programme portant mesures spécifiques dans le domaine de l'agriculture en faveur des régions Ultrapériphériques, TOME 1 Cadre stratégique et Actions transversales. https://www.odeadom.fr/wp-content/uploads/2021/03/POSEI_2021_fusionne_vf.pdf
- [33] REGION Guadeloupe (2017) Création Du Marché D'intérêt Régional: Un projet qui se concrétise pour développer et promouvoir l'agriculture guadeloupéenne. <https://www.regionguadeloupe.fr/actualites-et-agendas/toute-lactualite-du-conseil/detail/actualites/creation-du-marche-dinteret-regional-un-projet-qui-se-concretise-pour-developper-et-promouvoir-la/#>

- [34] REGION Guadeloupe (2020) Territorial Agriculture, Adapted to Our Specificities. https://www.regionguadeloupe.fr/fileadmin/Site_Region_Guadeloupe/Mediateque/dossier_de_presse/2020_DP_SIA.pdf
- [35] DAAF Guyane (2018) Aides aux filières agricoles. <https://daaf.guyane.agriculture.gouv.fr/aides-aux-filieres-agricoles-a58.html>
- [36] All of Europe (2019) POSEI, European Aid for Overseas Agriculture. <https://www.touteleurope.eu/l-europe-en-region/le-posei-une-aide-europeenne-pour-l-agriculture-d-outre-mer/>
- [37] Chambre d'agriculture, AIDES POSEI Guide technique simplifié. https://opera-connaissances.chambres-agriculture.fr/doc_num.php?explnum_id=220074
- [38] European Union, POSEI France (2024) Programme for Specific Measures in the Field of Agriculture in Favor of the Outermost Regions, VOLUME 1 Strategic Framework and Cross-Cutting Actions. https://www.odeadom.fr/wp-content/uploads/2024/01/POSEI-2024_Tome_1-5-1.pdf
- [39] Gardou, C. (2012) The Inclusive Society, Let's Talk About It! There Is No Such Thing as a Tiny Life. Knowledge of Diversity.
- [40] Ministry of Agriculture and Food (2017) Guadeloupe: Survey on Phyto-Sanitary Practices on Vegetables in 2013 n° 1, Agreste Guadeloupe. http://sg-proxy02.maaf.ate.info/IMG/pdf/dossier27_integral.pdf
- [41] Gliessman, S. and Agroecology, R. (2007) The Ecology of Sustainable Food Systems. 2nd Edition, CRC Press.
- [42] Moulin, C., Vaillant, V., Diman, J., Angeon, V., Burner, F. and Loranger-Merciris, G. (2019) The Impact of Agricultural Practices on Soil Organisms: Lessons Learnt from Market-Gardens. *Asian Journal of Agricultural Extension, Economics & Sociology*, **34**, 1-12. <https://doi.org/10.9734/ajaees/2019/v34i130188>
- [43] FAO (2014) Family Farming on the Front Line to Eradicate Hunger, Says FAO. <https://news.un.org/fr/story/2014/10/298532>
- [44] Rasse, C., Andrieu, N., Diman, J., Fanchone, A. and Chia, E. (2018) Utilisation de pratiques agroécologiques et performances de la petite agriculture familiale: Le cas de la Guadeloupe. *Cahiers Agricultures*, **27**, Article ID: 55002. <https://doi.org/10.1051/cagri/2018032>
- [45] Roger-Estrade, J., Anger, C., Bertrand, M. and Richard, G. (2010) Tillage and Soil Ecology: Partners for Sustainable Agriculture. *Soil and Tillage Research*, **111**, 33-40. <https://doi.org/10.1016/j.still.2010.08.010>
- [46] Bruun, T.B., Neergaard, A., Lawrence, D. and Ziegler, A.D. (2009) Environmental Consequences of the Demise in Swidden Cultivation in Southeast Asia: Carbon Storage and Soil Quality. *Human Ecology*, **37**, 375-388. <https://doi.org/10.1007/s10745-009-9257-y>
- [47] Altieri, M.A. (2002) Agroecology: The Science of Natural Resource Management for Poor Farmers in Marginal Environments. *Agriculture, Ecosystems & Environment*, **93**, 1-24. [https://doi.org/10.1016/s0167-8809\(02\)00085-3](https://doi.org/10.1016/s0167-8809(02)00085-3)
- [48] Altieri, M.A. (1999) The Ecological Role of Biodiversity in Agroecosystems. *Agriculture, Ecosystems & Environment*, **74**, 19-31. [https://doi.org/10.1016/s0167-8809\(99\)00028-6](https://doi.org/10.1016/s0167-8809(99)00028-6)
- [49] Rosenberg, M. (2016) Words Are Windows or They Are Walls. *Discovery*.
- [50] Lee Whorf, B. (1940) Science and Linguistics. *MIT Review*, **42**, 229-231.

- [51] Newberg, A. and Waldman, M. (2012) *Words Can Change Your Brain: 12 Conversation Strategies to Build Trust, Resolve Conflicts, and Increase Intimacy*. Hudson Street Press.
- [52] Ruiz, M. (2016) *The 4 Toltec Agreements, The Path to Freedom*. Jouvence.
- [53] Bible (Genesis 1:3).
- [54] Mies, M. and Shiva, V. (1998) *Ecofeminism*. L'Harmattan.
- [55] Tronto, J.C. (1993) *Moral Boundaries: A Political Argument for an Ethic of Care*. Routledge.
- [56] Tronto, J.C. (2013) *Caring Democracy: Markets, Equality, and Justice*. New York University Press.
- [57] Faure, A. (2004) *Territories/Territorialization, Dictionary of Public Policies*. Les Presses de Sciences Po.
- [58] (1992) *Traité sur l'Union européenne*. 1-112.
<https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:11992M>
- [59] Lascoumes, P. and Le Bourhis, J. (1998) Le bien commun comme construit territorial. Identités d'action et procédures. *Politix*, **11**, 37-66.
<https://doi.org/10.3406/polix.1998.1724>
- [60] Angeon, V. and Caron, A. (2009) Dossier «Économie de la proximité»—Quel rôle joue la proximité dans l'émergence et la pérennité de modes de gestion durable des ressources naturelles? *Natures Sciences Sociétés*, **17**, 361-372.
<https://doi.org/10.1051/nss/2009065>
- [61] Pages, D. and Pelissier, N. (2002) Territories Under Influence. *Geographic Information*, **66**, 187-188.
- [62] Grenier, C. and Guitton-Philippe, S. (2010) Politiques publiques et innovation: Proposition d'un modèle d'agir de l'innovation dans le champ sanitaire et social. *Management & Avenir*, **35**, 194-209. <https://doi.org/10.3917/mav.035.0194>
- [63] Beyrand, S. and Sergent, P. (2007) Territorial Development Engineering, Dynamism and Economic Challenges of a Sector of Activities, Study by the Interministerial Delegation for the Development and Competitiveness of Territories and the Caisse des Dépôts et Consignations.
- [64] Fasshauer, I. and Veil-Zadra, C. (2017) Crowdsourcing Public Et Innovation Territoriale: Le Cas D'un Living Lab Rural. *Politiques et management public*, **34**, 61-81.
<https://doi.org/10.3166/pmp.34.2017.0004>
- [65] Calame, P. (2015) Territorial Governance, Key to the Transition towards Sustainable Societies. *L'Économie politique*, No. 68, 59-70.
<https://www.cairn.info/revue-l-economie-politique-2015-4-page-59.htm>
- [66] Fraisse, L. (2018) The Co-Construction of Public Action: Definitions, Issues, Discourses and Practices. *Fondation Maison des Sciences de l'Homme*.
- [67] Vaillancourt, Y. (2019) De la co-construction des connaissances et des politiques publiques. *SociologieS*. <https://doi.org/10.4000/sociologies.11589>
- [68] Vaillancourt, Y. (2016) La co-construction des politiques publiques: Balises théoriques. In: Gardin, L. and Jany-Catrice, F., Eds., *L'économie sociale et solidaire en coopérations*, Presses universitaires de Rennes, 109-116.
<https://doi.org/10.4000/books.pur.46453>
- [69] Colomes, J. (2019) From Consultation to Co-Construction, Analysis of Participatory Devices for the Design of Regional Social and Solidarity Economy Policies. Master's Thesis, University of Poitiers.

-
- [70] Serra, A. (2014) Three Problems Concerning Living Labs: A European Point of View. *Revista Iberoamericana de Ciencia, Tecnología y Sociedad*, **8**, 283-298.
- [71] European Network of Living Lab (2023) What a Living LAB. <https://enoll.org/living-labs/>
- [72] Rittel, H.W.J. and Webber, M.M. (1973) Dilemmas in a General Theory of Planning. *Policy Sciences*, **4**, 155-169. <https://doi.org/10.1007/bf01405730>
- [73] Lafontaine, D. (2020) Living Laboratory, Living Lab: Origins, Genealogy, Multiplication: An Exploratory Analysis (1991-2017). In: Klein, J.L. and Pecqueur, B., Eds., *Living Labs. A Territorial Perspective*, L'Harmattan, 39-73.
- [74] Liefoghe, C. (2022) Living Labs et territorialisation de politiques publiques innovantes. L'exemple du Living Lab Jeunesse de la Métropole de Lille (France). *Interventions économiques*, **68**. <https://doi.org/10.4000/interventionseconomiques.20063>
- [75] INCA (2024) Quié nos Somos. <https://www.inca.edu.cu/institucion/mision-vision/>