


Agroecology in Field Education in Ceará, Brazil

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Keywords

Formative Matrix
Peasant Youth
Contentious
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Abstract

In this article, we analyze Agroecology as a formative matrix for Field Education in the State of Ceará, Brazil. We also observed that agroecology developed in rural schools in Ceará, has a subversive character and, therefore, can be read as a 'contentious territorial policy'. In addition to the bibliographical survey and the field experience at Escola do Campo Florestan Fernandes, located in Assentamento Santana, in Monsenhor Tabosa (CE), informal conversations and semi-structured interviews were data collection instruments used in this research. The experimental field and agroecological backyards revealed the diversity of crops and livestock. Furthermore, social technologies showed the efficiency of the peasant unit, in the context of scarcity in the semi-arid region. In the school curriculum, together with the common core, the diversified base dynamizes agroecological knowledge and practices materialized in the peasant territory. The 'socio-territorial development project' involves the students and all the subjects involved in the MST educational process. In this sense, we consider that rural schools in Ceará, based on Movement Pedagogy and Agroecology, have boosted the protagonism of peasant youth who have chosen to study and remain, developing new perspectives and alternatives to the challenges of the struggle for food sovereignty, quality education, with dignity and social justice in the countryside and in the city.

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INTRODUCTION

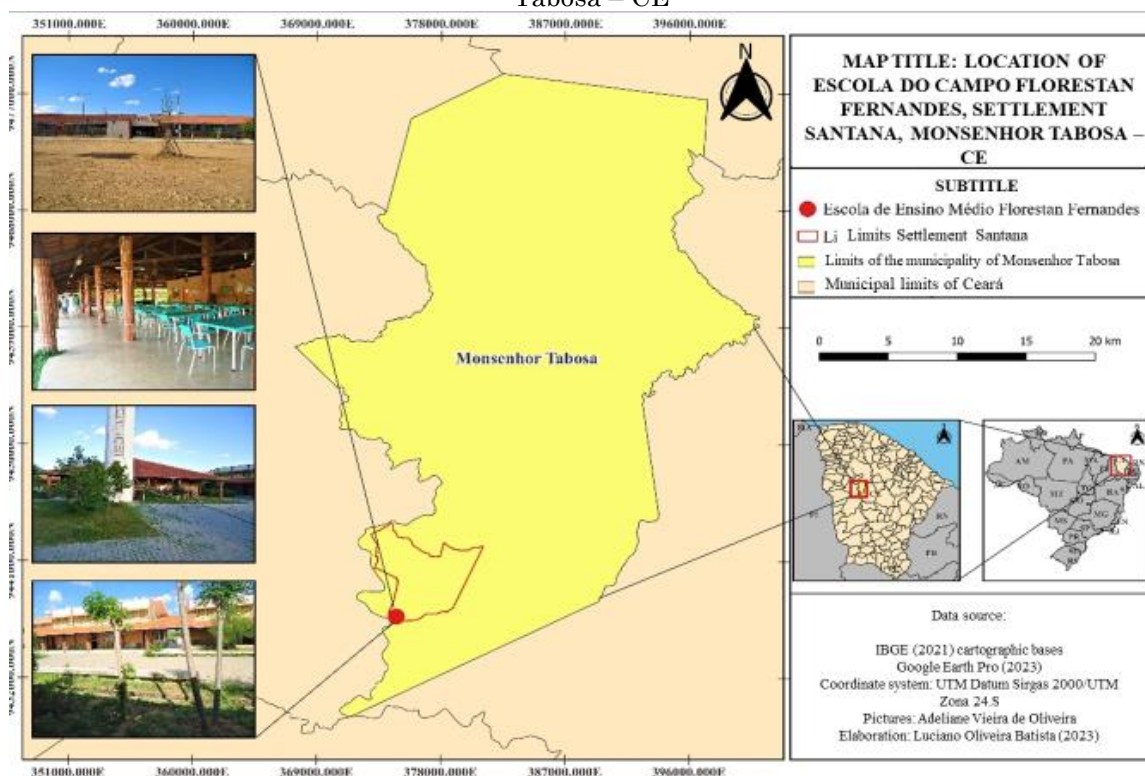
Field Education is a conquest of the struggle of socio-territorial movements; however, it is dormant in current research scenarios. This article analyses agroecology as a formative matrix of Field Education in the State of Ceará, Brazil. The approach to Field Education, as recommended by the Movimento dos Trabalhadores Rurais Sem Terra - MST (a movement that fights for agrarian reform in Brazil), has given young people knowledge and redesigned the social organization of the peasantry in high schools, promoting agroecology. Therefore, the subjects (the peasantry) have re-signified the countryside with a determined scrutiny of their communities' problems.

Based on agroecology, Field Education is a science with ecological principles applied to

defend “forms of agriculture that are more ecological, biodiverse, local, sustainable and socially just” (Altieri, 2010, p. 24). As a social practice and movement (Toledo, 2016), it has developed pedagogical, academic, ethical, and political knowledge in agroecosystems. It offers creative alternatives for producing and consuming healthy foods and technologies coexisting with the semi-arid region. Consequently, it is a “socio-territorial development” project (Silva; Sobreiro Filho, 2021) promoting dignity, biodiversity, and social and environmental justice in the countryside.

The study's starting point was to analyze the agroecology developed in agrarian reform areas and how these practices have repercussions in the territory through rural schools. The fieldwork was carried out in the Escola do Campo Florestan Fernandes, located in the Santana Settlement, in the municipality of Monsenhor Tabosa, Ceará (Figure 1).

Figure 1 - Location of Escola do Campo Florestan Fernandes, Settlement Santana, Monsenhor Tabosa – CE



Source: Oliveira (2023, p. 30).

The research was linked to critical social theory as articulated in works on socio-territorial movements, contentious territorial policy, curriculum, Field Education, and agroecology, based on: Fernandes (2005), Pedon (2009), Silva e Sobreiro Filho (2021), Arroyo (2012), Caldart (2009, 2012, 2022), Ribeiro (2010), Altieri (2010) and Toledo (2016), among others.

As part of the methodology, the researchers lived in the settlement, holding informal conversations and semi-structured interviews with the school manager, students and teachers, and participating in annual planning with educators.

The article is divided into two parts. The first addresses the context of socio-territorial movements and the struggle for Field Education

in Ceará. Next, agroecology is presented as a formative matrix of Field Education and a contentious territorial policy (Silva; Sobreiro Filho, 2021). There is a discussion of agroecological practices at the Florestan Fernandes School and young people's role in dynamizing knowledge and developing productive systems for the peasantry in the semi-arid region.

THE SOCIO-TERRITORIAL MOVEMENTS AND THE STRUGGLE FOR FIELD EDUCATION IN CEARÁ

In recent decades, in Brazil, especially in the State of Ceará, the Field Education demanded by socio-territorial movements has been forged by peasants. A socio-territorial movement is a social movement that "has the territory not only as an asset" (Fernandes, 2005, p. 31) but as an essence for its existence. Furthermore, these movements have elements such as "organization, values related to the flag of struggle and articulation (expressed by the agenda), and action based on criticism (occupation and claims)" (Pedon, 2009, p. 204). In its most diverse forms of mobilization and action, the struggle for agrarian reform demanded a battle for education off/in the countryside. From the socio-territorial perspective, peasants fighting for Field Education interact with the affirmative dynamics of rural settlements as essential territories for peasant life.

Throughout the historical formation process of the Brazilian territory, peasants were excluded not only from access to land but also from access to education (Caldart, 2009; Ribeiro, 2010). With the industrial revolution in Brazil, the image of the countryside was of a backward, underdeveloped place in opposition to the city, considered the locus of modernity and life. The rural exodus to urban centers was the only option for thousands of peasants searching for work. This migration process, still present today, was related to the lack of implementation of an Agrarian Reform with effective policies to promote the permanence and social reproduction of life in the countryside.

In the migratory context of the 1950s and within the scope of public education policies for rural peoples, education took on a 'rectifying' function. It was clearly designed to subordinate the peasant population to the capitalist mode of production and training labor for industry (Ribeiro, 2010). Thus, this purported Rural Education was: "[...] based on an assumption

about how rural populations who were marginalized from the capitalist system lived, "measures" were taken to integrate them into progress [...]" (Ribeiro, 2010, p. 171, emphasis added).

Rural education was part of a larger political-ideological project related to the pernicious effects of agricultural modernization. The information propagated was that progress would reach the countryside, and the scourge of hunger would be exterminated once and for all. However, this did not occur. Rural education uprooted the peasants from their place of origin so that the practices and curricular contents did not dialogue with, much less reflect, the peasant reality.

With the rise of socio-territorial movements for land rights in Brazil, such as the MST, the struggle for education in camps and rural settlements was problematized within the struggle for agrarian reform.

At the end of the twentieth century, rural socio-territorial movements engaged in an educational proposal that met the ideals of the countryside and its subjects. Socio-territorial movements demand Rural Education as it "combines the struggle for education with the struggle for land, for Agrarian Reform, for the right to work, to culture, to food sovereignty, and to territory" (Caldart, 2012, p. 261).

In the theory and practice experienced by peasants in the struggle for Rural Education, there was a mediation between the countryside and city dichotomy, which were affirmed as complementary spaces despite their differences. In the modern world, the peasants' educational proposal strengthened and affirmed itself in the countryside, valuing the subjects who work and live there. With this, "the countryside left the past behind and became contemporary, and its difference ceased to be backwardness. It became singular and different in a world of divergencies and the right to difference" (Martins, 2004, p. 33).

Field Education poses itself as a counter-hegemonic proposal to the detriment of rural education as proposed by the hegemonic State, which is not concerned with training subjects critical of their reality. Thus, "it manifests itself materially in schools, but also in all dimensions of the struggles of rural socio-territorial movements, in the camps and settlements of Agrarian Reform, and in the mysticism and marches" (Reis; *et al.*, 2019, p. 263). Hence, it is forged against the current hegemonic capitalist education model.

From 2014 on, with the 6th National Congress of the Movimento dos Trabalhadores Rurais Sem Terra - MST (a movement that

fight for agrarian reform in Brazil), the discussions on rural projects intensified, and the movement was asked to take practical actions to implement its Agrarian Program. The 6th Congress of the MST was held in Brasília/DF, from February 10 to 14, and had as its motto: "Fight, Build Popular Agrarian Reform!". At that point, the struggle for land and agrarian reform incorporated the option of creating a food regime based on agroecology – a set of principles, practices, and production systems peculiar to the peasant universe. This strengthened the insertion of agroecology as a path “with enormous political force, both to deny agribusiness and to affirm the possibility of organizing an agriculture focused on the interests of the Brazilian population, fully developing the social function of the land” (Martins, 2017, p. 84).

Thus, in those states where the MST leaders immediately understood the concept, the proposal progressed in organizing the squatters and settled families and in the movement’s actions and mobilizations in the countryside and the city. The achievements linked to the struggle for Field Education were fundamental in developing studies, methodological procedures, and practices with agroecological principles. These included soil conservation and recovery, stopping burning and pesticides, multiplying and socializing seeds native to the region, diversifying agroecosystems, and conserving, reusing, and storing water.

Agroecology, which already had a strategic importance, started to play a fundamental role in the movement’s actions and, consequently, began reverberating more intensely in the Field Education school curriculum. Its objective was to assert itself as a ‘contentious territorial policy (CTP)’ (Silva; Sobreiro Filho, 2021), articulating processes aimed beyond the studies of pesticide-free production practices or solidarity. Instead, it is an exercise of thinking about the constitution of autonomy at different levels of action – from productive backyards and the actions of collectives in schools to national and international mobilizations in favor of food sovereignty in a more just and egalitarian society.

In Ceará, the struggle for Field Education and the consequent trajectory of the struggle for rural schools was affirmed in 2007 (Gomes,

2013). Supported by the experiences of the Agricultural Family Schools and the Itinerant Schools, the MST developed a relationship with public universities. Since 2001, together with young people, they have held events, actions, and mobilizations in Fortaleza demanding that the State Government provide quality public education in agrarian reform areas. Currently (2024), Ceará has ten rural schools in Agrarian Reform settlements and two more under construction.

Through the MST’s struggle to construct and operate schools, we highlight the territorialization of rural high school education in Ceará. Based on the movement’s performance, it is strengthened through aid and solidarity networks and their agendas, territorializing the fruits of its organization, articulation, and collective mobilization for education with dignity. Thus, “the territorialization of socio-territorial movements corresponds to the movement of individuals’ *intentionalities*, produced in the dialectic between individual and collective demands” (Pedon, 2009, p. 188, emphasis added).

The Movement’s protagonism regarding Field Education policies in Ceará enabled the implementation of Pedagogical Political Projects (PPPs) for schools to affirm a different field project (Silva, 2016). The considerations and discussions about the educational proposal for rural schools took place between the State Department of Education, universities, and the Movement’s Education Sector.

The curricular matrix of rural high schools reveals a school contextualized with peasant communities and their interests and affirms the construction of educational territories. Thus, rural schools are understood “[...] as territories because they are intentional spaces that allow their members, students, teachers, and leaders to constitute themselves both individually and collectively” (Pedon; Corrêa, 2019, p. 88).

In addition to the common core subjects, the curricular matrix has a diversified base, which includes an educational proposal that values and affirms the peasantry based on integrative curricular components: Studies and Research Projects (SRP), Work Organization and Productive Techniques (WOPT) and Community Social Practices (CSP) (Table 1).

Table 1 - Curricular Matrix of Rural High Schools

AREA OF KNOWLEDGE	COMMON CORE	DIVERSIFIED BASE	EDUCATIONAL PERIODS
Languages and codes and their technology	Portuguese Language		Individual Study
	Foreign Language (English)		Workshop and cultural activities
	Physical Education	Projects, Studies, and Research (SRP)	Seminar Class
	Arts		Sports and Leisure
Mathematics and its Technologies	Mathematics		Work
Natural Sciences and their Technologies	Physics	Work Organization and Productive Techniques (WOPT)	Workshop and cultural activities
	Chemistry		Seminar
	Biology		Class Individual Study
Social Sciences and their Technologies	History		Training/ Mystique
	Geography		Organicity
	Philosophy	Social Community Practices (SCP)	Workshop and cultural activities Seminar
	Sociology		Class Individual Study

Source: Cear (2019, p. 43). Elaborated by the authors (2022).

The diversified base disciplines, combined with the educational period strategy - individual study, workshop and cultural activities, seminar, class, sport and leisure, work, training/mysticism, and organicity - strengthen the movement's pedagogy by making the countryside the beginning and end point of pedagogical practice. As it shapes social identities, the process reveals the curriculum as a "disputed territory" (Arroyo, 2012, p. 16) in which, according to Oliveira and Sampaio (2017), the State Department of Education and the socio-territorial movement clash over issues ranging from the appointment of managers to the confirmation of student enrollment.

AGROECOLOGY AS A FORMATIVE MATRIX IN FIELD EDUCATION IS A TERRITORIAL CONTAINMENT POLICY (TCP)

Given its scientific and methodological perspectives, Agroecology is a proposed social project forged on the world stage. In addition to caring for land, soil, water, and biodiversity, it involves "the struggle for a socially just,

economically viable and environmentally healthy agriculture" (Altieri, 2010, p. 30). This view involves significant changes in relationships with the subjects and how these relationships affect ways of seeing and living the world. Likewise, agroecology unfolds as a practice and, above all, a movement with principles, forms of organization, and agendas that dialogue with the countryside and the city's socio-territorial movements. According to Aguiar *et al.* (2016), agroecological education is based on fundamental principles: life, diversity, complexity, and transformation.

Focusing on agroecology, Field Education highlighted two rural projects: agribusiness based on large multinational corporations and agroecology based on peasant agriculture. According to Caldart (2022, p. 2), "[...] for Field Education, contact with Agroecology has radicalized its original link with the struggles and work processes of peasant-based agriculture".

Rural schools' curricular proposals affirm peasant agriculture by proposing the study of productive/social/commercial practices and relationships that support a rural project with agroecological strategies, develop sustainable technologies, and support and solidarity

networks with universities, schools, and national and international socio-territorial movements. Therefore, it is evident that, on the one hand, there is criticism of agribusiness and the logic of capital, and, on the other, perspectives that consider young peasants and their relationship with the countryside.

Young people's choice to remain in the countryside has a lot to do with the role of socio-territorial movements and rural schools in building perspectives for life and production in the countryside based on the construction of "socio-territorial development" (Silva; Sobreiro Filho, 2021, p. 47). It involves the production of sustainable technologies, agroecological experiences, and young people's protagonism.

In the PPP, agroecology is in school practices dynamics and the repercussions of these practices on peasant production units. In the Santana Settlement, practices are built through studies and the development of agroecological consumption and production systems such as productive yards and *mandala* productive systems. According to the statement below, knowledge of agroecology and agroecological practices, concomitant with the construction of the PPP of rural schools in Ceará, raised peasants' awareness that they were already using agroecology in daily life.

But when we actually began to study agroecology, the construction of the pedagogical, political project began to place agroecology as a formative matrix. When we started to do this in practice, we realized that many practices that we had been doing were agroecological and others were contradictory to the practice of agroecology. The burning, the felling of trees, the production of excessive garbage. The issue of garbage, today we have an agroecological practice (Oliveira, 2023, p. 168).

This statement shows that agroecology was inserted in schools through an agroecological transition. The transition from harmful conventional production techniques, such as preparing the soil with fire, felling trees, and using pesticides, took place with studies and dialogues on how to produce integrated production agricultural systems with diversity, respect for nature, and quality in the consumption and production of healthy food for their families and society.

In the curriculum, together with the common core, the diversified base dynamizes agroecological knowledge and practices materialized in the peasant territory. The 'socio-

territorial development project' involves the students and all the subjects involved in the MST educational process.

The high school curriculum incorporates agroecology through research projects, productive techniques, and community practices. This curriculum has tensions, such as the growing presence in some schools of town-dwelling students searching for rural education. The school is responsible for implementing the curriculum and for the protagonizing action of teachers; it is an essential space from which power and productive relationships gain concreteness, becoming a territory.

The formative matrices of Field Education - work, history, social struggle, culture, and collective organization - reflect on the school required to appreciate the countryside and the formation of critical and creative subjects working in society. In peasant development, agroecology has been revealed as a science, practice, and movement (Toledo, 2016) and is another matrix of human education in Field Education in Ceará.

For us, we are creating a new matrix of human education in the face of this dehumanization, exploitation, and expropriation of capital. Agroecology is not simply about planting without poison. The MST has an agroecological agrarian system. Why is the agrarian issue in the middle? Because our territories will always be disputed, either second rate or expropriated in this capitalist society because this is the logic of subalternation (Oliveira, 2023, p. 168).

Education in agroecology "excels in the principles of protection of life, health promotion, environmental protection, solidarity among peoples, respect and appreciation of diversity" (Sousa *et al.*, 2021, p. 363). Therefore, it can be stated that agroecology, as developed in rural schools, has a subversive character and can be read as a "Contentious Territorial Policy not only for its ability to permeate a wide range of relationships weaved in daily life [...], but, above all, for its propositional and supportive character" (Silva; Sobreiro Filho, 2021, p. 40).

Thus, agroecology, as a matrix of human education, is produced by causing significant changes in lifestyles and considering the countryside as a place of life, consumption, and producing healthy food - something proper to the peasantry. Participants express themselves with principles and agendas in the face of the persistent absence of public policies aimed at their basic needs. They take advantage of the

opportunity of organicity, of acting in support and solidarity networks, as well as of their achievements to develop actions in favor of retaining and protecting essential goods such as land, territory, knowledge, and common goods.

Streamlining the production and consumption of healthy food and knowing where and how it was produced or who produced it is fundamental in the fight for food sovereignty. It is considered a process to be built collectively and at different scales in a dialectical movement that affirms the need to fight so that all can be involved in this movement for equal access and possibilities. Furthermore, it enables equal conditions to reach a reading of the world that involves the desires of the other, involving empathy in/of relationships.

Agroecology as a formative matrix is a contentious territorial policy because it aggregates the strategies of the struggle for agrarian reform, the confrontation with agribusiness via the constitution of agroecological agrarian systems with social technologies, thinking about productive practices and relationships with the various subjects and socio-territorial movements.

The importance of having agroecology as a field of study, studying agroecology. But understanding that it goes beyond production, it is necessary that you organize agroecology in the curriculum that, in addition to the study of agroecology, you make it possible to have agroecology as a reference, as a foundation, as a principle that guides several other disciplines and at the same time organizes the practices of the various organizations of the school in their daily lives (Oliveira, 2023, p. 168).

Agroecology is a perspective of life in/from the countryside and a strategy of peasant resistance since "the relationship between Field Education and agroecology has been constructed by the political and formative intentionality of its collective subjects" (Caldart, 2022, p. 359). It is, therefore, a formative matrix of the movement's pedagogy, being revealed as a strategy of struggle in its scientific, practical, and movement dimensions. It considers productive practices and is a field of study, an educational principle, and a foundation. It is part of the resistance in the territory, confronting agribusiness, affirming peasant agriculture, and new perspectives of life in and of the countryside.

Its insertion as a formative matrix reveals the importance "of education and territorial

learning as components of the contentious territorial policy" (Silva; Sobreiro Filho, 2021, p. 38) of the MST today. Schools have established the link between an educational project and an agroecological production project connected with the peasant base. Thus, the rural school fulfills an important social function that involves not only educating young people but also producing healthy food for the whole society in times of crisis in the capitalist mode of production.

Field Education and agroecology assert themselves as processes of 'socio-territorial development' (Silva; Sobreiro Filho, 2021) in settlements bringing knowledge to the peasantry in Ceará. They involve issues beyond what it is to live in the countryside, have an orchard, a garden, and animal husbandry. There is an understanding of the importance of the role of young peasants and women, among other social subjects, in agrarian reform areas.

In the Santana Settlement, the curricular link with the peasant reality in educational practices predates the Florestan Fernandes School. With the conquest of the school in 2012, yearnings for the affirmation of a contextualized curriculum were and continue to be built in the partnership and articulation between elementary and high school.

Organized in collectives, the young people of the Florestan Fernandes School mobilize families' demands through an agenda of the movement's struggles. So, the school is a space *par excellence* for reflections on conflicts and solutions to problems inside and outside the settlement and communities in a dialectical perspective. From this perspective, the rural school curriculum is governed by the pedagogical instrument called the experimental field of peasant agriculture.

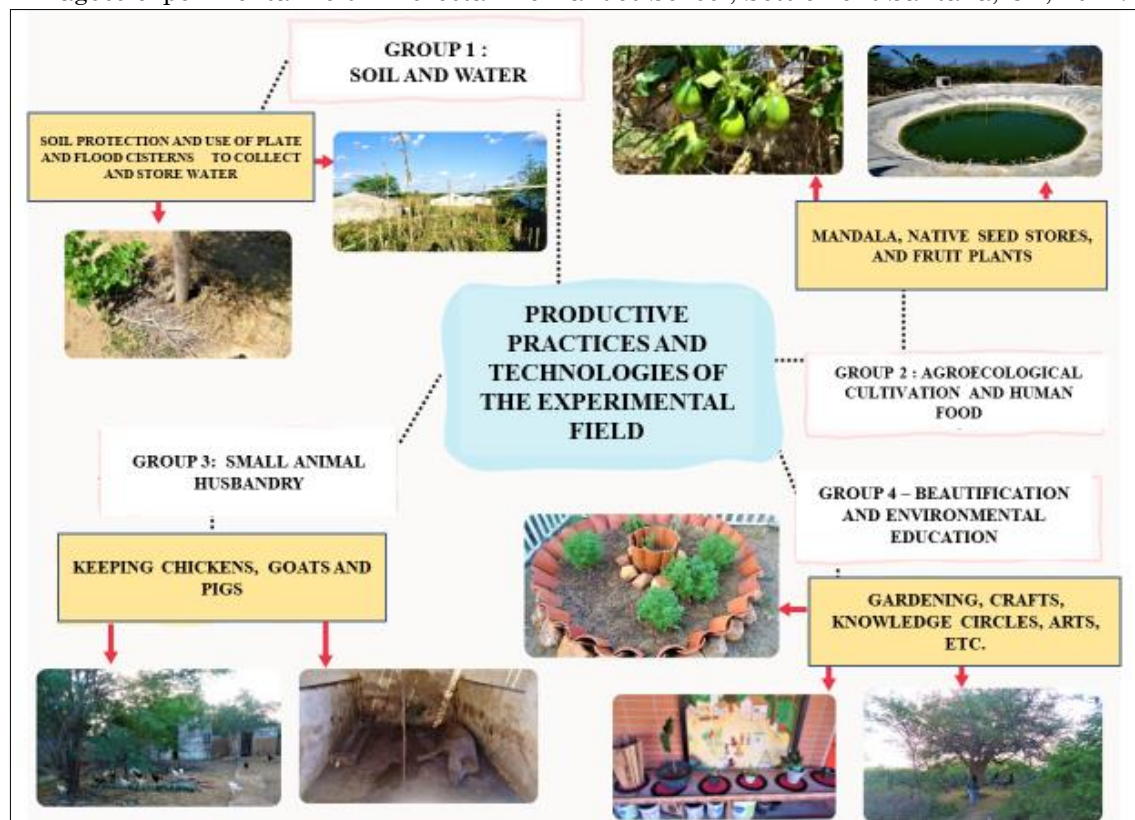
The experimental field is a theoretical-practical articulation where all production spaces are its laboratory. "[...] the experimental field is not here [at school], it is in the meadow, it is there in the waters, it is in the corral, in the various spaces where a productive activity is developed [...]" (Oliveira, 2023, p. 168). In the report, we find a reflection on the pedagogical strategy:

In this sense, we think the experimental field has the potential of agricultural work, but the work goes beyond that. [...] An agroecological work as the main articulator of educational and interdisciplinary processes. So, it is a little bit of these things that are there in the challenge of rural schools (Oliveira, 2023, p. 168).

As well as producing knowledge and developing interdisciplinary approaches, the school has the challenge of persisting in working with agroecology. This is difficult in a historical time when fast food has gained much more social support. Silva (2017) grouped the leading agroecological practices of the experimental fields into soil and water, agroecological

cultivation and human food, feeding and breeding small animals, beautification, and environmental education. In the experimental field of Dom Fragoso of the Florestan Fernandes School, pedagogical strategies corresponding to the grouping proposed by Silva (2017) were found, as systematized in Figure 3.

Figure 3 - Grouping of production practices and technologies of the experimental fields in the Dom Fragoso experimental field - Florestan Fernandes School, Settlement Santana, CE, 2022.



Source: Oliveira (2023, p.176).

In the first grouping, soil recovery and water collection via plate and flood cisterns are common and widespread practices in the settlements. In the second, there is the *mandala*, native seed stores, and fruit plants in the productive backyards. Third is small animal husbandry, loose in backyards or small spaces, such as pigsties or sheepfolds. In the fourth grouping are spaces for gardening, hospitality, and the arts. Agroecological knowledge, productive practices, and social technologies adapted to the climatic conditions of the semi-arid region are found in all these areas.

Establishing the Dom Fragoso experimental field involved a *praxis* developed with social organization, care for the land, the recovery of nature, and the production of healthy food, a strong 'contentious territorial policy' (Silva; Sobreiro Filho, 2021). This policy combats agribusiness and affirms paths for consumption,

production, and commercialization of peasant-based agriculture aimed at the interests of society, thus developing land's social function in areas of popular agrarian reform.

Given the movement's pedagogy, it was evident that the Florestan Fernandes field school's interaction with agroecology as a matrix of Rural Education makes it a territory of dispute and a PCT production of the MST. This is because the latent conflict with the State does not eliminate the intentionality of developing a peasant youth that engages in the struggle for a socio-territorial development project with agroecological principles, autonomy, dignity, and social diversity. These young people are committed to issues of interest to humanity, such as the problem of water scarcity or the intensive use of poisons. They are subjects willing to learn how to build a biodigester to produce biogas for community kitchens or

develop natural pesticides to produce pesticide-free food, among other actions. The following statement analyses and evaluates the school's youth:

And then we have realized that students have contributed to their territory, and had a positive effect, both by raising their own families' awareness, their own parents, and the transformation of their production practices. Today, we realized that if we take good care of the soil, if we work with systems, the reuse of water, we will have a new water system, let's say, as an alternative, right? (Oliveira, 2023, p. 168).

Thus, the formation of young people in dialogue with agroecology as a matrix of human formation is apparent. The rural school, whose principles materialized in the communities, has provided training that values and affirms life with dignity in the countryside. We recognize that socio-territorial movements have other fronts and strategies for struggle. In this work, however, we brought the dialogue between agroecology in the rural school and young people as a way of continuing the struggles of the countryside and for the countryside, which may often be found in cities.

In this sense, the students at rural schools take seeds of knowledge into the context of their families and society. When they plant, they build and raise territories of hope and hope in the territories.

FINAL CONSIDERATIONS

Throughout the study, the promise of agroecology in Field Education was evident due to its formative matrix's scientific, practical, and movement dimensions. Our research showed that the subversive nature of agroecology as developed in rural schools in Ceará can be read as a "contentious territorial policy" (Silva; Sobreiro Filho, 2021, p. 37). Thus, the significant changes implemented in agrarian reform areas are reverberating in society, contributing to the production of educational vegetable gardens in public schools, valuing policies of direct purchase from the producer, and opting for ecological farmers' markets promoted by socio-territorial movements.

Based on the Movement Pedagogy of and Agroecology as a policy of territorial containment, rural schools in Ceará have boosted the role of young peasants who have

chosen to study and remain, developing new readings and practices on life in the countryside and actions capable of proposing alternatives to the challenges of the struggle for quality education, with dignity and social justice in the countryside and city.

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AUTHOR CONTRIBUTION

Adeliane Vieira de Oliveira conceived the study, collected, analyzed the data and wrote the text. Alexandra Maria de Oliveira corrected and revised the text.



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