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ORGANIC PLANTING AT THE INDIGENOUS MUNICIPAL SCHOOL "TENGATUI MARANGATU": CHALLENGE FOR PEDAGOGICAL LEARNING

ROÇA ORGÂNICA NA ESCOLA MUNICIPAL INDÍGENA "TENGATUI MARANGATU": DESAFIO PARA APRENDIZAGEM PEDAGÓGICA

AGRICULTURA ORGÁNICA EN LA ESCUELA MUNICIPAL INDÍGENA "TENGATUI MARANGATU": UN DESAFÍO PARA EL APRENDIZAJE PEDAGÓGICO

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Abstract: This article will describe the results of the actions obtained in the development of the Organic Garden Project at the Tengatui Marangatu Indigenous Municipal School: Challenges for Pedagogical Learning. Located in the Jaguapiru Village Dourados/MS. The Francisco Horta Barbosa Reserve is a complex ethnic/social scenario, inhabited by people of the Guarani Nhandeva, Kaiowá, Terena ethnicities and mixed-race people. It has a population of 15,000 indigenous people confined to an area of 3,600 hectares. Given that there is a lack of food in the community, the project aimed to carry out a demonstration, in the modality of consortium/polyculture of Agroecological production, where the production will be used in

school meals, also produce a seed bank, rescue traditional cultivation practices and contribute to the teaching-learning process of students. The Garden was organized within a space of 12,000 m2 of land. During the months of October and November 2017, after preparing the soil, students began planting with creole variety seeds, with 10,000 feet of varieties of cassava stems, among these spaces were planted varieties of corn: indigenous and popcorn, beans, rice and potatoes. During the planting cycle, cleaning moments were carried out with students and partners. In the Indigenous Peoples' week, held in April 2018, the harvest festival of the cultivars took place, corn, cassava, rice, potatoes and beans were harvested. The cassava and other harvested products contributed to school meals, part was donated to the community and the rest packaged and stored in the school's warehouse.

Keywords: Indigenous knowledge; Intercropping; Ethnosustainability; Agroecology.

Resumo: O presente artigo irá descrever os resultados das ações obtidos no desenvolvimento do Projeto Roça Orgânica na Escola Municipal Indígena Tengatui Marangatu: Desafios para Aprendizagem Pedagógica. Localizada na Aldeia Jaguapiru Dourados/MS. A Reserva Francisco Horta Barbosa é um cenário étnico/social complexo, habitada por pessoas das etnias Guarani Nhandeva, Kaiowá, Terena e mestiços. Possui uma população de 15 mil indígenas confinados em uma área de 3.600 hectares. Tendo em vista que na comunidade há falta de alimentos, o projeto teve por objetivo realizar uma demonstrativa, na modalidade cultura consorciado/poli cultivo de produção Agroecológica, onde a produção será usada na merenda escolar, também produzir banco de sementes, resgatar práticas de cultivos tradicionais e contribuir no processo de ensino-aprendizagem dos alunos. A Roça foi organizada dentro de um espaço de 12 mil m2 de terra. Durante o mês de outubro e novembro de 2017, após o preparo do solo, os alunos iniciaram o plantio com sementes de variedades crioulas, com 10 mil pés de variedades de ramas de mandiocas, dentre esses espaços foram plantadas variedades de milhos: indígenas e pipoca, feijões, arroz e batatas. Durante o ciclo do plantio foram realizados momentos de limpeza com alunos e parceiros. Na semana dos Povos Indígenas, realizada no mês de abril de 2018, ocorreu a festa da colheita dos cultivares, foram colhidos milhos, mandioca, arroz, batatas e feijões. AS mandiocas e outros produtos colhidos contribuíram na merenda escolar, parte foram doadas para a comunidade e o restante embalados e guardados no deposito da escola.

Palavras-chave: Saberes indígenas; Plantio consorciado; Etnossustentabilidade; Agroecologia.

Resumen: Este artículo describirá los resultados de las acciones obtenidas en el desarrollo del Proyecto de Agricultura Orgánica en la Escuela Indígena Municipal Tengatui Marangatu: Desafíos para el aprendizaje pedagógico. Ubicado en el pueblo de Jaguapiru de Dourados/MS. La Reserva Francisco Horta Barbosa es un entorno étnico-social complejo, habitado por personas de las etnias guaraní nhandeva, kaiowá, terena y mestizos. Tiene una población de 15 mil indígenas confinados en una superficie de 3.600 hectáreas. Dado que en la comunidad existe carencia de alimentos, el proyecto tuvo como objetivo realizar un proyecto demostrativo, en la modalidad de policultivo de producción Agroecológica, donde la producción será utilizada en la alimentación escolar, produciendo además un banco de semillas, rescatando prácticas tradicionales de cultivo y contribuyendo al proceso de enseñanza-aprendizaje de los estudiantes. La finca fue organizada dentro de un espacio de 12 mil m2 de terreno. Durante el mes de octubre y noviembre de 2017, luego de preparar el suelo, los estudiantes iniciaron la siembra de semillas de variedades nativas, con 10 mil pies de ramas de yuca. Entre estos espacios, se sembraron variedades de maíz: indígena y palomero, frijol, arroz y papa. Durante el ciclo de siembra se realizaron sesiones de limpieza con estudiantes y socios. Durante la Semana de los Pueblos Indígenas, celebrada en abril de 2018, se llevó a cabo la fiesta de la cosecha, donde se cosechó maíz, yuca, arroz, papa y frijol. La yuca y otros productos cosechados contribuyeron al almuerzo escolar, parte del cual fue donado a la comunidad y el resto fue envasado y almacenado en el almacén de la escuela.

Palabras clave: Conocimiento indígena; Cultivo intercalado; Etnosustentabilidad; Agroecología.

INTRODUCTION

This article aims to present the main ideas and activities developed in the "Organic Garden at the Tengatui Marangatu Indigenous Municipal School: Challenge for Pedagogical Learning" Project, using a consortium planting model (polyculture), which was developed at the aforementioned school in Dourados/MS.

The project emerged from the results of pedagogical plans by teachers and students, with the participation of the school community and managers. It began in the second semester of 2017, developed throughout that year, involving partnerships from the school community and various private government institutions: Embrapa of Western Agriculture (CPAO),

University of Mato Grosso do Sul (UEMS), Gloria de Dourados unit (SEMAF), Municipal Secretariat of Family Agriculture (SEMAF), Coordination of Indigenous Affairs (SEAID), Casa de Sementes Crioulas Irmã Lucinda, Juti/MS, Casa de Sementes Te'y kwe Carapo/MS, (Aspta) Association of Agronomic Producers of São Joao do Triunfo, Federal University of Grande Dourados (UFGD), Degree in Rural Education (LEDUC), National Indian Foundation and Indigenous Schools (FUNAI).

The project was developed in an area of 12,000 square meters, demonstrating that it is possible to produce food in a small space of land. It is known that, for thousands of years, indigenous peoples maintained a high level of plant diversity in their backyards, which in the case of the Guarani ethnicities was called Kokue. However, with the arrival of monoculture in Brazil, these ethnicities also began to adopt the single-crop system, resulting in genetic erosion, impoverishment of traditional knowledge, and loss of biodiversity.

According to Brand and Marinho (2011), Azanha (2005), and Gallois (2005), indigenous people have different views on sustainable development, especially on agricultural production; therefore, the vision of the indigenous population is focused on nature. For Brand and Marinho (2011), nature has life in the worldview of the Guarani people. Furthermore, according to Gallois (2005), there are government actions that seek to meet the basic needs of indigenous peoples; however, there is no dialogue for such programs to be effective.

Knowledge of the environment where indigenous people live can develop a positive bond with nature, making the place an adaptive change (MARIOTTI, 2013). In this sense, nature is in favor of all living beings, including human beings (SANTOS, 2008).

It is known that man has been an exploiter of nature since ancient times, to extract from it everything he needs, such as housing and food (CONWAY, 1997). In the case of man, some are gatherers and others exploit the land by planting vegetables, in order to extract food and monetary value from it (DIEGUES et al., 1999). For Diegues et al. (1999), in the case of the gathering, forest-dwelling man, the vision is to collect, not domesticate plants. In the case of indigenous society in general, it has a collector's vision or the worldview is focused on religiosity (JOÃO, 2011).

For Vera (2011) and Pereira (2016), the worldview of the Guarani indigenous people is currently adapting to the 21st-century world. Many families have stopped being backyard planters and adopted the monoculture model, and then started growing soybeans, corn, and also lease their land to third parties.

Indigenous society is dynamic and observes the cultures of plants that are around it, thus observing sugarcane and even field plantings. According to Amorozo (2013), man is constantly

seeking adaptability, especially when it comes to food. For Canesqui (2002), the introduction of culturally important foods into the diet is a form of empowerment for society; thus, foods have meanings and can go into school meals, becoming a mandatory menu for students.

A well-nourished body is more likely to develop intellectually. The Colombian ACHUAR indigenous community has extensive knowledge about the environment where they live, because in seasons of food shortage they used alternative fields for planting and harvesting, even when migrating from one place to another, they carried seeds and germplasm for new planting for their subsistence.

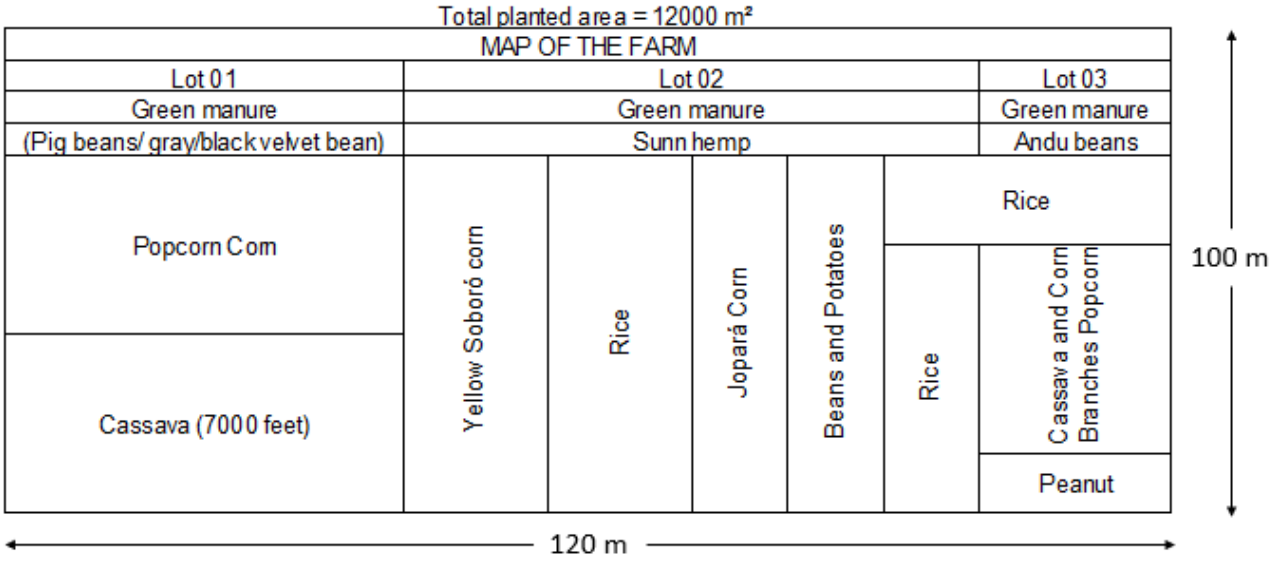
On the other hand, regarding the Guarani indigenous people, for João (2011), Brand (2011), Vera (2012), Benites (2014), and Pereira (2016), agricultural production means reciprocity and collective work with competence and technique to prepare the soil, plant, and harvest. Knowing the planting season, who should plant, how to plant, and who should harvest. The organization of traditional farmers' fields in Santo Antônio do Leverger, in Mato Grosso, developed backyard fields and had about 48 varieties of cassava (AMOROZO, 2013). These traditional farmers are indigenous people of the Cinta Larga and Fulnio-ô ethnicities. Indigenous people have wisdom and knowledge about food production.

In this context, given that the school does not solve all the students' problems, but on the other hand, it can show that they can develop their intellect and contribute to improving the community. Thus, with the actions carried out in the project developed at the Tengatui Marangatu Indigenous Municipal School, the objective was to socialize the important benefits brought to the students, school, teachers, collaborators, and community.

METHODOLOGY

The work was carried out on land provided by a Guarani farmer in the Jaguapiru community, through the signing of a commitment agreement. The area had an extension of 12,000 m2, being subdivided into three lots as a way to facilitate the students' activities within the scope of the agroecological garden project. Within each lot, manual seeding of beans, corn, peanuts, and rice was carried out. All lots received green manure fertilization, through the prior planting of gray mucuna, crotalaria, and pig bean (Figure 1).

Figure 1. Layout of crop distribution in the organic garden area.



After the experiment was implemented, weed control was done manually, with the help of students and partners from UFGD (FAIND) and UEMS, at a frequency of 45 days. The weeds that occurred were the following pests: in cassava, whitefly (*Bemisia tabaci*), cassava stem borer (*Cosmopolites sordidus*), and bud fly (*Neosilba perezi*); in corn, fall armyworm (*Spodoptera frugiperda J.E. Smith*), and also leaf-cutter ants (*Atta spp*.). The control of these pests was carried out in partnership with the students by the Biologist, Cajetano Vera from the Tengatui Marangatu Municipal School, through daily monitoring, collecting, cutting, and destroying the infected plant parts, and ant control was carried out with green fertilizers.

The ants cut the leaves of pigeon peas (Cajanus cajan), sunn hemp (Crotalaria juncea L.; Crotalaria spectabilis L.), and velvet bean leaves (*Canavalia ensiformis*; *Stizorlobium aterrinun*). The fall armyworm (*Spodoptera frugiperda J.E. Smith*) infestations were minimal in the corn, which occurred due to the presence of the smooth-billed ani bird (*Crotophaga ani*), as this bird feeds on these insects, both larvae and adults.

In the development of this project, the Agroecological Garden, involving education as a whole and the Guarani Kaiowá worldview, that is, the phases of the moon, the following results were obtained. According to the map mentioned above (Figure 1), in the area of lot one (1), 7,000 cassava seedlings (*Manihot esculenta Crantz*) of the *Euphorbiaceae* family and popcorn (*Zea mays everta*) were planted; in lot two (2), corn (*Poaceae — Zea mays*) of Creole corn varieties and rice (*Oryza sativa*) were cultivated. Also, bean varieties (*Phaseolus vulgaris*), Creole bean varieties, and potato varieties (*Ipomoea batatas*).

In lot three, peanut varieties, cassava (Manihot esculenta Crantz) of the *Euphorbiaceae* family, 3,500 cassava stem seedlings, and rice — Cerqueira Santa Helena variety were planted. Around the garden, green fertilizer varieties were planted: pigeon pea, sunn hemp, and pig bean.

RESULTS AND DISCUSSION

The villages are located in the Municipality of Dourados/MS, whose population is 200,000 inhabitants according to IBGE (2010), and are administered by indigenous leaders and traditional politicians who have several social organizations. In addition, there are four indigenous communities: Jaguapiru, Bororó, Panambizinho and Passo Pirajuí. Although the villages have about seven thousand young people in situations of social vulnerability, the birth rate is relatively high, with about 580 births per year.

In these communities, there are 07 school units, with 3,500 students enrolled, distributed in Elementary and High School. These school units serve three ethnicities: Kaiowá, Nhandéva and Terena. The Jaguapiru village brought a particular challenge, due to the process of confinement. It is common to find youth discouraged, without real perspectives of experiences, without autonomy in their territory. Confinement is a continuous loss of territory and traditional values of identities. Thus, the care for cultivating the land is lost. Several students are found who do not know how to cultivate the land or the secrets of cultivating traditional seeds because there has been a sudden historical and social rupture with the loss of Land and Territory.

In the indigenous communities of Dourados, there are important springs and streams, used for leisure and daily consumption. The rivers, lakes, springs, and water sources are in phases of disappearance, due to burning, construction of houses on the banks of rivers and springs, since the indigenous people have little physical space, they end up building their homes in the spring locations, raising ruminant animals. In the water source locations, deforestation and silting are occurring, etc.

In the community, there are two predominant types of fields: monocultures of soybeans and corn, which do not meet the food security of the local indigenous population, however, there is also small-scale cassava production, corn varieties, and zucchini, etc. Production is restricted to some families due to the lack of material resources and financing for cultivation; among the residents, some families depend entirely on basic food baskets from Funai, the State Government, and NGOs.

The division of lots per family in the indigenous community is unequal, as only some families have larger lands, and others have only a small piece of land, only for housing, with no space for food production for their sustainability. Indigenous populations live in confinement due to the population increase of indigenous inhabitants; the Dourados villages are very populous, therefore, there is a lack of housing, treated water, and food.

TENGATUI MARANGATU INDIGENOUS SCHOOL

The Tengatui Maranagatu Indigenous Municipal School, located in the Jaguapiru Village in the municipality of Dourados, was founded on February 13, 1992, by Antônio Braz Melo, mayor of the city of Dourados/MS. It has a physical area of 1979.91m2 in extension. On March 14, 2007, through Municipal Decree number 4167, it was authorized to serve Indigenous school education; Currently the school serves 893 students enrolled in Elementary School in the initial and final years.

Pedagogy at the Tengatui School works as follows: there are subjects imposed by the Ministry of Education (MEC), there are also subjects that serve Indigenous Education, such as Indigenous Languages, Indigenous History, aiming at teaching the maternal indigenous language and knowledge related to the culture and history of the ethnicities present in the school unit. About 60% of enrolled students are beneficiaries of federal government social benefits.

Historically, the current system institutionalizes a school model centered on the reproduction of domination relations. So, everything that is new and questions the standards of the traditional school, there is always great resistance in this confrontation. In this sense, one of the biggest challenges is to have a school open to the community, with the community as its protagonist. The school has the power to transform and innovate society, however, it does not always see this power.

Currently, with the recognition of the appreciation of indigenous culture in the 1988 constitution, one of the teaching models that indigenous schools should use is those that are developed from their historical, social, cultural, and political contexts, where pedagogical practices are based on traditional processes of transmission and learning of knowledge and interculturality, and with this, the affirmation of ethnic identity occurs. During the indigenous peoples' week, in April 2017, moments of harvesting were held: peanuts, varieties of corn and beans and green fertilizer seeds.

The peanuts were consumed among the students and the community, the rice, beans and corn harvested were cleaned and stored for seed and the 2018 harvest. Parts of the corn and

beans consumed in school meals, and parts donated to the community. The cassava was sequentially pulled up and donated for school meals, and another to the community. The seeds that were harvested from green fertilizers, the varieties of stems, potatoes that parts were donated for the event, ENA - National Meeting of Agroecology BH/MG, 14th Meeting of Creole Seeds–Juti/MS, 16th Meeting of Agroecology, São João do Triunfo-PR.

The community's surroundings are surrounded by the agribusiness model. This is a huge challenge from a concrete, environmental, social, and economic point of view. In short, it is a vast extension of monoculture that makes the eyes get used to looking at that immense green sea, as an ideal of agricultural production. And the idea of agribusiness tries to hegemonize all thoughts, so much so that they feel ashamed of their small productions in their backyards, as if they were defeated, some families see no other option than to lease their small spaces of land.

Simultaneously, there is a symbolic violence that leads to the levels of being considered the region with one of the highest rates of violence, from alcoholism, suicide, drug addiction, homicide, violence against women and children as results of this loss of land and territory. And with this, those who try to produce in their small backyards are also poisoned by pesticides. It is a great struggle to keep producing within a deeply unbalanced system, without forests, without water, and without animals for hunting.

In fact, the challenge is great, and the lack of critical awareness of the importance of this reality and wanting to be the protagonist of its own transformation. Lack of information, training, studies, dialogues, debates, access to new knowledge, broad worldview, commitment to the structural changes that cause these situations of deep social inequality, therefore, the Tengatui Marangatu Indigenous Municipal School is on the right track.

The school garden project brought to the Tengatui Marangatu Indigenous Municipal School and the local community a vision of unity work, reinforcing the bonds of collectivity and Guarani Kaiowá reciprocity. It allowed us to work on important themes, which were transformed into content in the classroom and field - Theory and practice - Praxis with: the struggle and the right to land, Popular Sovereignty, creole seeds, cultivation of plants and traditional Guarani Kaiowá agriculture, abundance and scarcity of food, the impacts and environmental transformations in the community, benefits or problems caused by the introduction of new technologies, awareness of the importance of consuming traditional-healthy foods, the rescue of native foods from the community, and healthy eating habits.

CONCLUSION

It is stated that indigenous villages in general are in the process of confinement. The confinement among indigenous people occurred due to the loss of traditional territories to colonists from 1920 onwards and is characterized by the impossibility of hunting, gathering, fishing, slash-and-burn agriculture, and others, in which, currently, indigenous villages are excessively populated, causing physical and cultural silting. The confinement process is harmful to the indigenous population, bringing with it the highlight, for example, of the devaluation of the language and culture inherent to the indigenous people, with the occurrence of wage labor for indigenous workers in sugar-alcohol plants, farms, government agencies, schools, etc.

The Agroecological Garden project at the "Tengatui Marangatu" School, through meticulous planning, and after the experiences lived with the students throughout the year, is being successful; teachers managed to encourage students to plant, clean, and harvest.

In this way, the planned goals are being achieved by the school unit, with a pedagogy being developed through indigenous agroecology, a school practice in the garden, an activity that enabled interaction and learning, motivating students to differentiated practices, sharing creole seeds, revitalizing and strengthening traditional knowledge and Guarani Kaiowá reciprocity, and contributing to the teaching and learning processes of students.

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