Overview of the teaching of agronomy in the state of Mato Grosso do Sul, with emphasis on the courses offered by IFMS

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ABSTRACT

The objective of this work was to carry out a survey related to the teaching of the agronomy course in the state of Mato Grosso do Sul, emphasizing the courses offered by the Federal Institute in the campuses of Ponta Porã, Naviraí and Nova Andradina. From a pre-formulated questionnaire, data were collected in loco in fifteen institutions that offer the course in the state, private and public (Federal and State). Nine courses are offered in public institutions and six in private institutions. Only one private university in the municipality of Ponta Porã obtained the maximum score by the Ministry of Education and Culture (MEC), that is, a score of five, the others all have a score of four, emphasizing that the four courses offered by state universities are not evaluated by the MEC. It observed that 86.31% of the professors have doctorates, 12.98% have master's degrees and 0.7% are specialists. The dropout rate in public institutions was around 7% and in private institutions 17%. In all institutions there are three modalities of student selection. Public institutions offer five stricto sensu courses and private institutions offer three. He also observed that seven institutions offer the agronomy course on a school farm, six have the experimental area. Thus, it can be raised that in the state of Mato Grosso do Sul the course offered meets the need for professionals in this area, since they show that in addition to the courses offered within the state at the borders and borders of the state, they also offer agronomy courses, which allows the population of the state to have this additional option to study agronomy.

Keywords: Teaching, Agronomy, Mato Grosso do Sul.

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INTRODUCTION

Brazil is a mostly agrarian country, in which its economy depends on the agricultural sector. In 2021, the participation of the agrarian sector was 27.4% of the Brazilian GDP, according to the Center for Advanced Studies in Applied Economics - CEPEA-Esalq/USP. The state of Mato Grosso do Sul has the agricultural sector as the basis of its economy, being the fourth largest producer of corn and sugarcane, in addition to being the fifth largest producer of soybeans in the country, in the 2020/2021 harvest (Ibge, 2021). Thus, the teaching of agronomy in the state is of great importance, due to the training of professionals for the agricultural sector.

The agronomy course aims to train professionals capable of working in the various areas of agribusiness (Almeida, 2000). Mato Grosso do Sul is a state with only 44 years of creation, so the policies to encourage the teaching of agronomy are recent and are still under development. In view of the constant evolution of the agricultural sciences (Molin, 2003), the need to train qualified professionals for the main sector of the Brazilian economy is remarkable. In Mato Grosso do Sul, the course is offered by public educational institutions, such as the Federal University of Mato Grosso do Sul, Federal University of Grande Dourados, State University of Mato Grosso do Sul and with greater growth in the Federal Institutes of Mato Grosso do Sul.

Scientific research plays an important role in the area of education, as it helps to identify demands or points for the evolution of higher education courses (Oliveira; Alves and Luiz, 2008).

Thus, this work aims to provide an overview of the teaching of agronomy in Mato Grosso do Sul and its importance for agricultural and economic activity in the state. In addition, it is interested in emphasizing the courses offered at IFMS - Federal Institute of Mato Grosso do Sul.

LITERATURE REVIEW

THE HISTORY OF AGRONOMY EDUCATION IN THE WORLD

What we have in written reports is that the teaching of agronomy in the world is very old, in the Bible we have reports of various types of crops, however, the teaching of agronomy actually began in 1822, the first school of agronomy in the world was founded in Roville, France. By 1848, there were already 70 farm schools seeking improvement and development (Posser, 2019).

The study of agronomy began to develop after the knowledge of agricultural chemistry, mainly through the studies carried out by Leibig dating back to 1840. With contributions also from plant physiology, there was a considerable increase in agronomic processes. (Almeida, 2004)

As early as 1960, modern agronomy was manifested in Europe, interceded by the disciples of Bachelard (French chemist), through his studies on the structural instability of soils. However, with Bachelard and scholars who succeeded his research, the methods of agronomic studies had been based on a few main areas of experimentation, experimentation, observation, and monitoring of

controlled situations. In addition, studies aimed at the analysis and diagnosis of regional situations were also of paramount importance (Almeida, 2004).

"It is impossible to write a world history of agronomy. The documents available are very heterogeneous... Even in specific situations, this is also an impossible task because, in the matter, the play of influences, inheritances, counter-blows are inevitable. How can you talk about potatoes without talking about America, or about alcohol without talking about the Crusades?" Jean Boulaine, 1996.

THE HISTORY OF AGRONOMY EDUCATION IN BRAZIL

On the initiative of Dom João VI, on June 13, 1808, a Botanical Garden was created in Rio de Janeiro, considered by many and recorded in several documents as the starting point of the era of agronomic science in Brazil.

Although in the first decades of the empire and throughout the colonial period the advance of this science was practically nil, fifty years later, after an economic crisis, five Imperial Agricultural Institutes were created in 1859 throughout the country, which would later implement agronomy courses (Reifschneider *et. al*., 2010).

According to Capdeville (1991), in Brazil the teaching of agronomy emerged approximately 200 years ago, even with a great lack of interest from the population, the first higher education course in the area of agricultural sciences was installed in the country in 1877 at the Imperial Agricultural School of Bahia, currently at the Federal University of Bahia, and from this milestone until the year 1910 eight courses in Agronomy emerged in the country until the regulation of this type of knowledge was legalized. (Capdeville, 1991).

However, the Statutes of the Imperial Agricultural School of Bahia provided in *Article 5* for the Implementation, in addition to the Higher Education Course in Agronomy, the higher education courses in Agricultural Engineering, Silviculture and Veterinary. As it is a country with agriculture based on the Large Landowners, the first efforts to implement this type of education had to endure the indifference of the elites, as well as the lack of interest of the population, since in the same way, national agriculture was based on monoculture exports, slave labor, contempt for the management and conservation of soils and the abundance of unexplored and fertile land (Capdeville, 1991).

THE TEACHING OF AGRONOMY IN MATO GROSSO DO SUL

In Mato Grosso do Sul, there are reports that the teaching of agronomic engineering began through a strong campaign idealized from 1967 to 1970 through the State Deputy, Celso Muller do Amaral, dedicated efforts for the inclusion of an agronomic school in the city of Dourados - MS, including donating the farm where today the first agronomy course is implemented in Dourados, he

had in mind that the region of Douro was totally interconnected with agriculture and livestock (Resende, 2005).

The state of Mato Grosso do Sul was divided in 1977 by Complementary Law No. 31, but it was only in 1979 that it was officially separated from the state of Mato Grosso by a law signed by General President Ernesto Geisel, becoming two different states. At that time the CEUD University Center of Dourados was interconnected to the Federal University of Mato Grosso, with this division between the states the CEUD became part of the Federal University of Mato Grosso do Sul, and later became the UFGD Federal University of Grande Dourados. (Brazil, 1977)

Legislative Decree No. 1184/67, proposed by Celso Muller do Amaral, thus granted the creation of a higher education institution entirely dedicated to agronomic engineering. Thus, seeking the creation of the campus where today the campus of the Federal University of Grande Dourados is established, a center of education, in which several undergraduate and licentiate courses are inserted, including the medical course (Resende, 2005).

The Federal Government created the Nilo Peçanha Platform in 2018, which is a virtual environment for the collection, validation and dissemination of official statistics from the Federal Network. Where all the data obtained from Brazilian education are condensed, making all administrative and technical information available to the population, a totally public environment in which there is all the statistical data from all the *campuses* of the Federal Institutes of Brazil (Pnp, 2018).

HISTORY OF THE FEDERAL EDUCATION NETWORK IN BRAZIL

In 1909, during the government of Nilo Procópio Peçanha de Oliveira, he issued the decree that created the schools of professional education in Brazil, in each capital of Brazil, called the School of Apprentices and Artificers (Policarpo, 2012). These craftsmen's schools focused on training professionals to meet the demand, which at the time was very large, from hundreds of agro-industries in Brazil, which at the time directed the country's economy towards the export of agricultural products. In addition to functioning as a socioeconomic apparatus, aiming to give opportunities to those who had fewer resources (Kunze, 2009).

During the government of Juscelino Kubitschek (1956-1961), the country consolidated itself with a policy to encourage industrial development, especially in the energy and automobile sectors (Andrade and Santos, 2013). During this period, the Industrial and Technical Schools are transformed into Federal Technical Schools, gaining greater administrative and economic freedom. In addition, schools have greater didactic autonomy, intensifying the training of professionals for the job market (Xavier and Fernandes, 2019).

During the military governments (1964 to 1985), Brazil underwent several changes in its education guidelines (Rothen, 2008). In 1970 there is an increase in international oil prices and a great economic recession, Brazil opts for the acceleration of economic growth. The Law of Guidelines and Basis of Brazilian Education makes all high school curriculum technical-professional. As a result, the Federal Technical Schools considerably increase the number of enrollments.

In need of operating engineers and technologists, in 1978 there were three Technical Schools that became Federal Centers of Technological Education. It was only in 1999 that the process of transformation of the Federal Technical Schools into Federal Centers of Technological Education (CEFETs) resumed (Ciavatta, 2006). After the Reform of Professional Education, in which there were changes in the Law of Guidelines and Bases of Brazilian Education, changing the process for professional qualification.

In 2006, there was another restructuring in Brazilian professional education, reorganizing the higher technology curricula. Also, in 2007 the process of integration into the federal institutions of technological education took place, for the purpose of establishing the Federal Institute of Education, Science and Technology (IFET), through Decree No. 6.095. IFETs are considered institutions of higher, basic and professional education, specialized in the provision of professional and technological education (Pacheco; Caldas and Domingos Sobrinho, 2012).

THE FEDERAL INSTITUTE OF EDUCATION, SCIENCE AND TECHNOLOGY IN MATO GROSSO DO SUL

The Federal Institute of Mato do Sul was created through Federal Law No. 11892 in 2008, a law that created the Federal Education Network, and instituted all the Federal Institutes existing in Brazil. In the case of the IFMS, the first campus to be created by the IFMS was the Nova Andradina campus, meeting the state's demand to offer its citizens technical courses in order to meet the demand of local productive arrangements (Brasil, 2008).

Being the first federal institution to offer a technical professional education at the secondary level, IFMS currently has ten campuses, in the cities of Aquidauana, Campo Grande, Corumbá, Coxim, Dourados, Jardim, Naviraí, Nova Andradina, Ponta Porã and Três Lagoas. The campuses of Nova Andradina, Ponta Porã and Naviraí are the only ones that have the Agronomy course, with the Naviraí campus being the most recent, with no class formed in the course so far (Brasil, 2008).

Agronomy at the Ponta Porã campus

The agronomy course at the Federal Institute of Ponta Porã came with the need to meet the demand for professionals in the area in the region. The city is a major producer of corn and soybeans,

in addition, it also stands out in the production of barley, sorghum, oats, rice, cotton, sunflower, castor bean, wheat, triticale, sugarcane and cassava (Ifms, 2018).

Ponta Porã also has a remarkable production of yerba mate, produced in high yield. Its fruit growing is expanding, especially with the production of oranges, passion fruit, grapes and bananas. Historically, cattle ranching has had great importance in the city's economy, with a herd of approximately 1.28 million head (Semac, 2011).

In the sum of the data, the Bachelor's Degree in Agronomy highlights agribusiness, an activity that is deeply rooted in Mato Grosso do Sul. It is easy to see the importance that agribusiness has in Brazil when checking its participation in the GDP, for example, in 2020, when this activity generated 24.31% of the national production. In addition, this sector is responsible for 37% of jobs (Cepea-USP/Cna 2020).

The IFMS campus in Naviraí

The Naviraí campus was created through Ministerial Ordinance No. 246, in the second expansion of the federal network in 2016, establishing that the campus would be a 70/45 campus, that is, a campus consisting of 70 professors and 45 administrative technicians, which thus allowed that through partnerships with the state government together with the municipal government to start its activities in the municipality (Mec, 2016).

In September 2021, through the publication of Ministerial Ordinance (MEC) No. 713, the Naviraí campus was classified as another agricultural campus in Brazil, with this new name the campus could even maintain students in a boarding regime, among other prerogatives. With the new campus specification, it became a 70/60 campus, that is, 70 professors and 60 administrative technicians, which meets the needs of the municipality to meet local productive arrangements (Mec, 2021).

Therefore, at the Naviraí campus, the agronomy course at the Federal Institute of Mato Grosso do Sul aims to transform students into great professionals, with a lot of ethics and critical sense. Above all, they are committed to being in constant learning and allied to the innovation of technology, thus, being able to develop Brazilian agriculture and still maintaining constant environmental preservation (Ifms, 2017).

In this view, the state of Mato Grosso do Sul stands out for its agricultural capacity. Thus, there was a need to train good professionals to collaborate with this activity. Therefore, this project aims to provide an overview of the teaching of agronomy in Mato Grosso do Sul with emphasis on the agronomy courses taught at IFMS.

METHODOLOGY

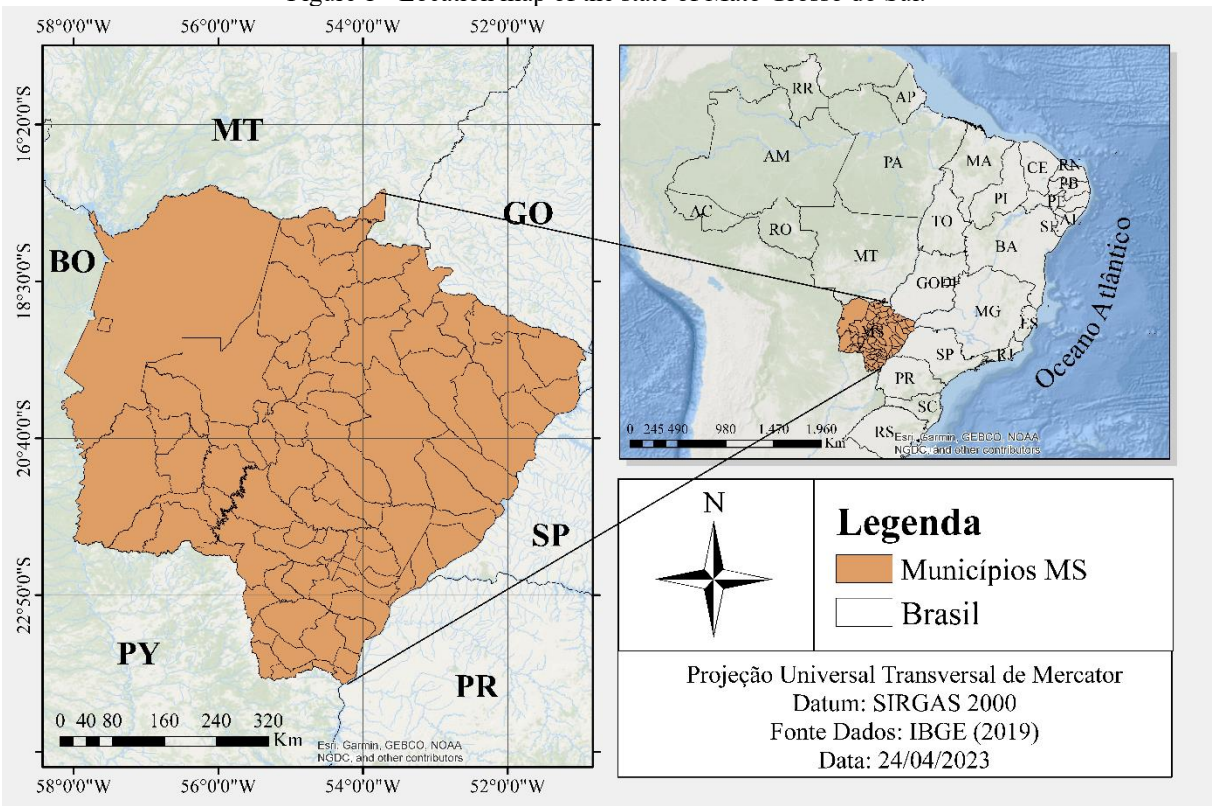
RESEARCH SUMMARY

The work is a qualitative, quantitative, descriptive and exploratory research (Gil, 2008). Qualitatively, observational analyses will be carried out, such as a bibliographic and documentary survey (Poupart *et al.*, 2008). Qualitatively, objective variables will be used, with emphasis on comparison of results and intensive use of statistical techniques (Günther, 2006).

It is characterized as exploratory, as it aims to demonstrate the panorama of the agronomy course in Mato Grosso do Sul (Figure 1) (Balla *et al.*, 2014). The research is also descriptive, as a standardized database will be used to collect information and identify the relationships between the data (Gil *et al.*, 2002).

A questionnaire will be applied to the institutions that offer the agronomy course in Mato Grosso do Sul. The target audience is the coordinators of the agronomy course of the institutions: UFGD, Unigran, Anhanguera, IFMS Ponta Porã and Nova Andradina, in addition to the coordinator of CREA in Dourados – MS.

Figure 1 - Location map of the state of Mato Grosso do Sul.



Source: Authors (2024).

THE TEACHING OF AGRONOMY IN THE MINISTRY OF HEALTH

The development of the project on the importance of offering the agronomy course in the state of Mato Grosso do Sul, seeks to bring an approach containing data that will be collected in several websites, in order to describe the importance of the course for the state. Also, to quantify

public and private institutions, and their available vacancies, aiming at a greater emphasis on the philanthropic institutions of the IFMS (Federal Institute of Mato Grosso do Sul).

THE TEACHING OF AGRONOMY OFFERED BY IFMS

Data will be collected in the coordination of agronomy courses offered by the Federal Institute of Mato Grosso do Sul, Naviraí, Nova Andradina and Ponta Porã campuses, through the course coordinations, as well as the direction. To complement this work, research will be carried out in journals and information will be sought on the MEC/SETEC platform.

CREATE, CONFEA, IBGE, MEC E PNP

Through the Federal Council of Agronomy Engineering (CONFEA) and the Regional Council of Agronomy Engineering (CREA) the data of Agronomy professionals trained in Brazil will be researched, with emphasis on Mato Grosso do Sul. Through the Nilo Peçanha Platform (PNP), data on the offer of vacancies in the Agronomy course at the Federal Institutes of Mato Grosso do Sul (IFMS) will be found.

In addition, through the Ministry of Education and Science (MEC) the grades referring to agronomy courses will be acquired, especially those of the IFMS. Finally, data on the population of Mato Grosso do Sul, the HDI and course offerings will be researched at the Brazilian Institute of Geography and Statistics (IBGE).

QUESTIONNAIRE

3.6. Name of the Institution

3.7. Name of the coordinator of the Agronomy course?

3.8. When did the first Agronomy class start?

3.9. How many students graduate per year?

3.10. Does the institution have an experimental area? What is the area?

3.11. How many professors do the Agronomy course have?

3.12. Qualification profile? Masters? Doctors?

3.13. How many students did not complete the course? Dropout rate?

3.14. Have evaluations been made? Agronomy course notes?

3.15. Does the institution hold events in the area of Agronomy?

3.16. How long is the agronomy course offered by the institution?

3.17. What is the institution's method for selecting students?

3.18. What is the capacity of students per class?

3.19. Does the institution have laboratories for agronomy disciplines?

3.20. How many classes have already graduated from the institution?

3.21. What is the course load?

3.22. Does the institution have a physical library?

3.23. Projects submitted per semester (research or extension)?

3.24. Competition for vacancies

3.25. Which laboratories are available?

With the data obtained, it is intended to have an overview of the teaching of agronomy in the state of Mato Grosso do Sul, data that will be made available to the institutions visited and available to the whole society.

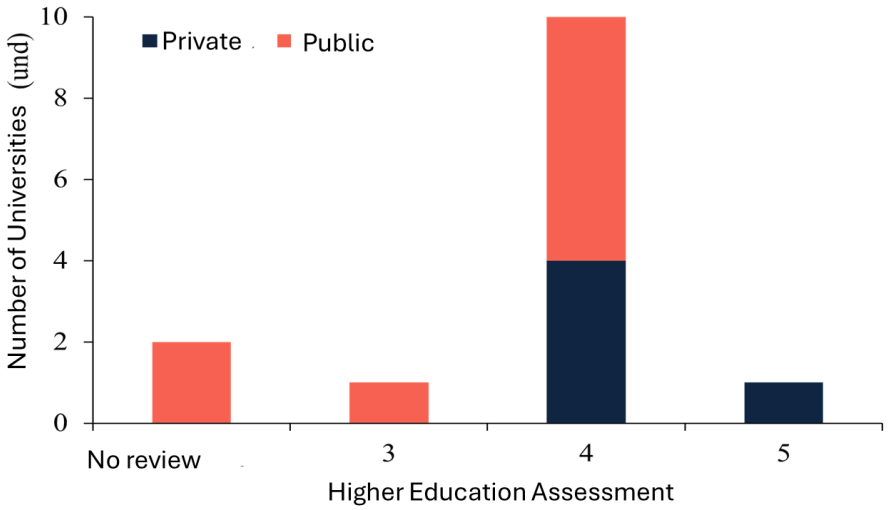
RESULTS AND DISCUSSIONS

A total of 15 visits were made to universities in the state of Mato Grosso do Sul that offer the agronomy course, 3,236 kilometers were traveled within the state (as shown in figure 4), divided into several travel fronts and distinct periods in the year 2022, that is, 100% of the institutions were interviewed, being: 9 public and 6 private institutions, of which we present the following results:

Only one private university, located in the municipality of Ponta Porã, has the maximum score from the MEC, that is, grade 5. All agronomy courses offered by IFMS have a grade of 4 in the same way as the courses offered by federal universities such as UFGD and UFMS, which have *stricto sensu* courses, shown below.

An important factor to be considered is that the courses at the State University of Mato Grosso do Sul are not evaluated by the MEC, and we observed that the structure of the agronomy course located in the municipality of Aquidauana is undoubtedly one of the best in the state, having stricto sensu courses (master's and doctorate) and 100% of the faculty of the 4 units are 100% doctorates, including teachers hired to work temporarily.

Figure 2 - Graphic representation of the results of the MEC higher education evaluation for the universities that offer the Agronomy course in Mato Grosso do Sul.



Source: Authors (2024)

When analyzing the method of admission to the institutions that offer the agronomy course in the state, it can be observed that in most institutions they have more than one selection method, which allows the student one more selection option, as shown in the table below.

Table 1 - List of admission methods of private and public universities.

Method of entry	**Private**	**Public**
Sisu	6	9
Vestibular	4	8
Diploma Bearer	5	7
Serial Process	-	1
Total	**15**	**25**

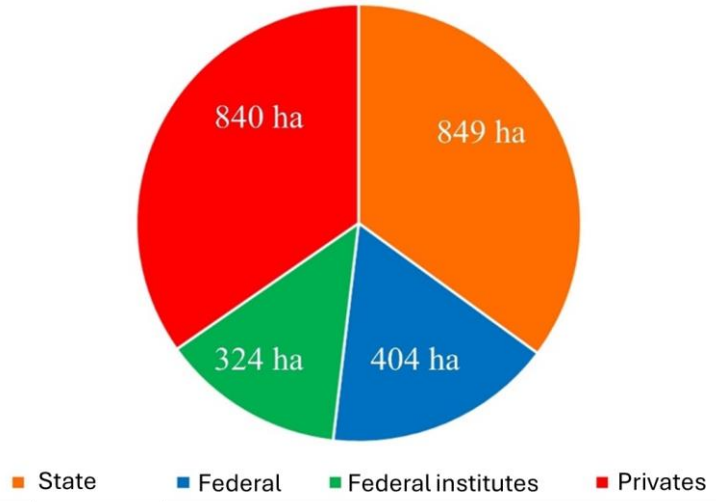
Source: Authors (2024).

In the state, the oldest course is the agronomy of Dourados, which is 45 years old, a very old project according to Legislative Decree No. 1184/67 proposed by Celso Muller do Amaral, whose family donated the school farm and thus granted the creation of a higher education institution totally dedicated to agronomic engineering. Thus, seeking the creation of the campus where today the campus of the Federal University of Grande Dourados is established, a center of education, in which several undergraduate and licentiate courses are inserted, including the medical course (Resende, 2005). The first class of agronomists graduated in 1982, a course that is now a reference for the state. The most recent courses implemented in the state are those of the State University of Mato Grosso do Sul in the municipalities of Maracaju and Mundo Novo, municipalities located in the southern region of the state.

Another factor observed, which is recommended for the evaluation of a course by the MEC, is the issue of the institution having a school farm, in this study it was observed that 2 institutions still do not have a school farm to carry out their practical activities, 7 institutions teach the Agronomy course within a school farm, that is, 100% of the course is carried out in the experimental area of the institution and 6 have a rural area offering a course in the urban unit and To carry out practical classes, students travel to the institution's rural property. Primary concerns observed by some institutions that only started the courses after having acquired the rural area, such as UFGD, Federal Institute and some units of UEMS

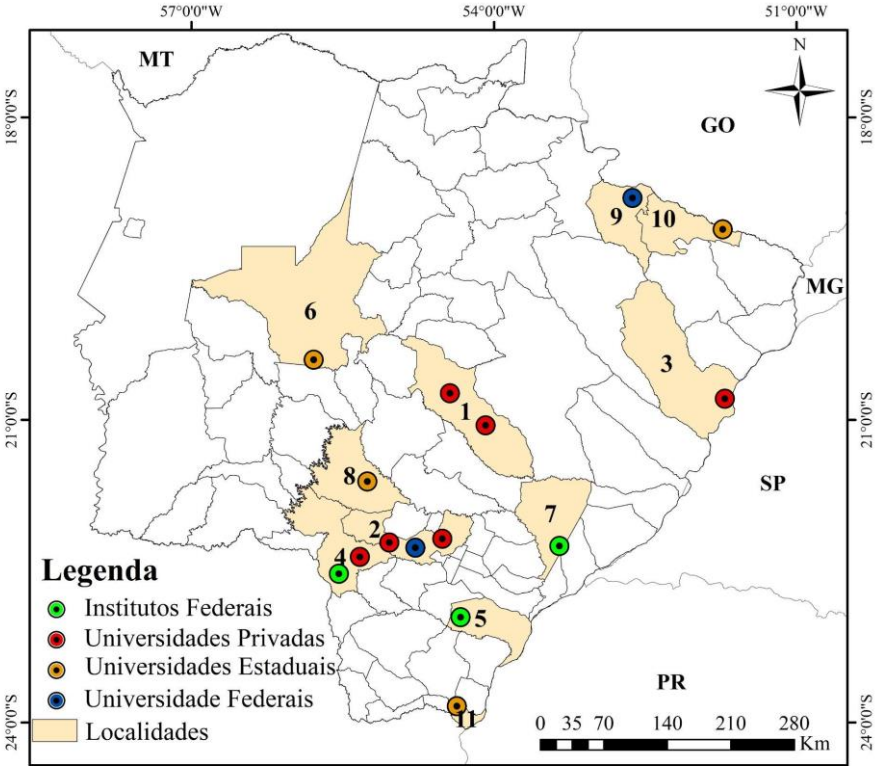
All the universities studied have areas for practical classes and experiments (Figure 3). Among all agronomy teaching institutions, state and private schools have the largest areas for conducting experiments, with 849 and 840 ha combined, respectively. UFMS in Chapadão do Sul has 30 hectares of school farm and 8 greenhouses, while UCDB has an area of 200 hectares for carrying out practical activities and UEMS in Aquidauana has 800 hectares, 15 hectares of which are experimental areas.

Figure 3 - Graph of sectors representing the sum of the experimental areas of the State, Private, Federal and Federal Institutes.



Source: Authors (2024).

Figure 4 - Geographic location of the municipalities that offer face-to-face higher education courses in Agronomy.



Legend: 1 - Campo Grande, 2 - Dourados, 3 - Três Lagoas, 4 - Ponta Porã, 5 - Naviraí, 6 - Aquidauana, 7 - Nova Andradina, 8 - Maracaju, 9 - Chapadão do Sul, 10 - Cassilândia 11 - Mundo Novo.
Source: Authors (2024).

The population of Mato Grosso do Sul, according to data from (IBGE, 2022) is 2,833,742. When analyzing the eleven municipalities where the agronomy courses are located in the state, it was observed that, with the exception of the municipality of Corumbá, the municipalities with the largest population in the state have the agronomy course. Especially in places where there is a large concentration of arable area.

Regarding the laboratories available for the agronomy course, all universities have laboratories for practical classes, with the exception of a new campus of a state public university. The courses offered in private institutions have a lower number of laboratories than the public ones (Federal and State), but they have all the essential laboratories for the course. The Federal Institutes demonstrated deficiencies in laboratories, with some laboratories being shared among all the courses offered, both at the higher level and at the integrated technical level, it is worth mentioning that these are newly implemented courses (Table 2).

Table 2 - Number of laboratories by universities that offer agronomy courses in Mato Grosso do Sul.

Universities	Number of laboratories
State	52
Federal	45
Federal Institutes	34
Private	57
Grand Total	**188**

Source: Authors (2024).

In this study, it can be observed that in all municipalities of the state the population has access to the offer of agronomy courses, since in the state there are institutions that offer the course in the form of distance learning, which allows the population to have access to the course. Another very important factor is that on the borders of the state, that is, Bolivia and Paraguay have the agronomy course in the neighboring country, as is the case of Pedro Juan Caballero, a city next to Ponta Porã; Salto Del Guairá with Mundo Novo, Japorã and Sete Quedas; Puerto Suárez next to Corumbá.

The situation is no different from the borders of the state of Mato Grosso do Sul with São Paulo, Minas Gerais, Goiás, Paraná and Mato Grosso in all these states, municipalities very close to the border with the state of Mato Grosso do Sul offer agronomy courses both at the state, federal and private levels, which facilitates the citizen of Mato Grosso do Sul to have access to agronomy courses near the state border.

A worrisome situation observed is the low rate of teaching, research and extension projects, especially in private institutions, which offer the agronomy course, in some of them they do not have, or have few projects in progress, a greater focus on extension projects in these institutions was observed. What has emerged is that in most private institutions the teacher is hired by the hour, he only teaches the class. On the other hand, in public institutions, the picture is reversed, especially in those that offer graduate courses at the stricto sensu level, although in the Federal Institutes, even though there is no stricto sensu course in two campuses, but in the three campuses where this work was carried out, there was a high number of teaching, research and extension projects (Table 3).

Table 3 - List of the offer of Graduate courses by State, Federal and Private Universities.

Line Labels	State	Federal	Federal Institutes	Private	Grand Total
Specialization	-	-	-	1	**1**
Masters	1	1	1	1	**4**
Master's and Doctorate	1	1	-	2	**4**
None	2	-	2	2	**6**

Source: Authors (2024).

Table 4 presents information on the qualification of professors who teach agronomy courses within the state of Mato Grosso do Sul (Table 4). The total number of professors is 246 doctors, 37 masters and 2 specialists, totaling 285 professionals working in this area. Among the institutions, the State Universities have the largest number of doctorates, with 72 professionals. Next, we have the Federal Universities, with 57 doctors. Federal Institutes and Private Institutions have the lowest numbers of PhDs, with 49 and 68, respectively. In relation to masters and specialists, only Private Institutions have professionals with this qualification, with only 21 masters and 1 specialist. The Federal Institutes have only 16 masters and 1 specialist.

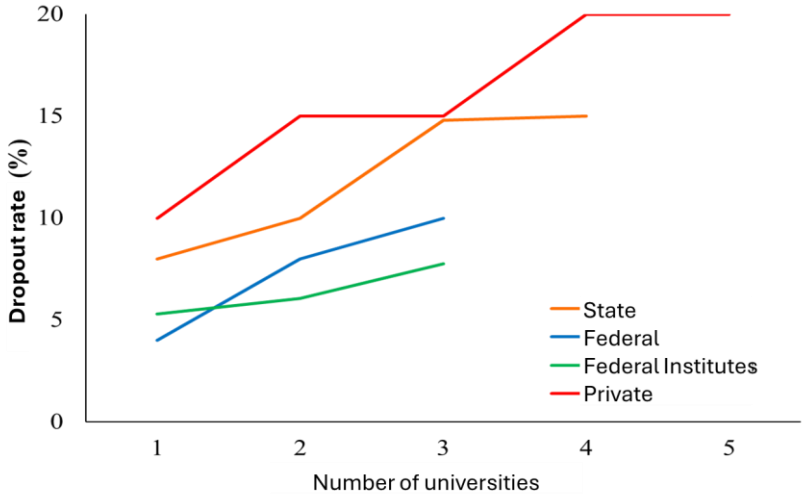
Table 4 - Teacher qualification of agronomy courses in the state of Mato Grosso do Sul.

Universities	**Doctors**	**Masters**	**Specialists**	**Total**
State	72	-	-	72
Federal	57	-	-	57
Federal Institutes	49	16	1	66
Particular	68	21	1	90
Grand Total	**246**	**37**	**2**	**285**

Source: Authors (2024).

Regarding the dropout rate, it can be observed that the Federal Institutes, in their three agronomy courses in the state of Mato Grosso do Sul, have the lowest average dropout rate: 6.37%, followed by the courses offered by the two Federal Universities: 7%; the highest rate was observed in the courses offered by Private Universities, 16%, followed by the courses offered by the State University of Mato Grosso do Sul, 12%, as shown in the graph below.

Figure 5 - Line graph representing the dropout rate of State, Federal, Federal and Private Universities.



Source: Authors (2024).

CONCLUSION

Conducting a survey on the teaching of agronomy in the state, going to each institution knowing the reality of each course offered, without a doubt, was an extremely important and

enriching work. 86.3% of the professors of the 15 institutions visited are PhDs; 13% are masters and 0.7% specialists. Emphasizing that 100% of the professors of the agronomy courses offered by UFGD, UFMS and UEMS are PhDs. Among the 15 universities in which this research was carried out, there is a total area of 2,417 hectares of experimental area, 7 of which offer courses in their rural area, that is, in their experimental campus.

When analyzing the method of selection of students, all institutions have 3 or more selection methods, and SISU is present in all institutions. Regarding the number of professors per group of institutions, there were 90 professors in 6 private institutions; 72 faculty members on four campuses of the State University of Mato Grosso do Sul; 66 professors in three campuses of the Federal Institutes and 57 professors in two Federal Universities. Regarding the student dropout rate, an average of 16% was observed in Private Universities; 12% at the State University of Mato Grosso do Sul; 7% in Federal Universities; 6.37% in the Federal Institutes.

Finally, 15 institutions were visited, drew attention to the issue of MEC's evaluation of agronomy courses offered by some public and private institutions with excellent physical and operational structure, faculty, number of ongoing teaching, research and extension projects, as well as scholarships for students and their *lato sensu and stricto sensu graduate courses,* with a grade of 4, lower than the only private institution that obtained a grade of 5 by the MEC, emphasizing that the agronomy course offered by the State University of Mato Grosso do Sul is not evaluated by the MEC.

In addition, it should be noted that in the state of Mato Grosso do Sul, public and private institutions offer well-evaluated undergraduate courses in agronomy, which are shown in the results of this research. Therefore, to better understand the perceptions of students and professors, as well as administrative staff to serve as a parameter for institutions to improve their indexes, which will culminate in an even better quality education, contributing to the development of the state and Brazil.

The State is a reference for the teaching of agronomy in the country, we suggest that the evaluation system of higher education courses in Brazil should all be carried out by the Ministry of Education, which would facilitate the analysis of the courses offered. That other works be carried out with the aim of contributing to and strengthening teaching.

REFERENCES

1. Almeida, J. (2004). A agronomia entre a teoria e a ação. Programa de Pós-Graduação em Desenvolvimento Rural, UFRGS. Acessado em 22 de fevereiro de 2022. Disponível em: https://www.ufrgs.br/temas/wp-content/uploads/2021/04/2000_agronomia_teoria_acao.pdf.

2. Almeida, J. (2000). A agronomia entre a teoria e a ação. *Revista de Educação Agrícola Superior*, 18(2), 7-13.

3. Andrade, A. M. R. de, & Santos, T. L. dos. (2013). A dinâmica política da criação da Comissão Nacional de Energia Nuclear, 1956-1960. *Boletim do Museu Paraense Emílio Goeldi. Ciências Humanas*, 8, 113-128.

4. Aragão, S. C. (2018). *A história da agronomia no mundo*. Editora Saraiva, 101-105.

5. Baiardi, A. (2017). Agronomia: vicissitudes de ser ciência. *Cienc. Cult.*, 69(4), 29-33. http://dx.doi.org/10.21800/2317-66602017000400011

6. Brasil. (1967). Decreto Legislativo nº 1184/67. Disponível em: http://www.geraldoresende.com.br/base/www/geraldoresende.com.br/media/attachments/335/335/4bd8955ab3623653f8c69db8e99230cb24c25203515cb_09-2005-5949-denomina-campus-universitario-professor-celso-muller-do-amaral-o-campus-universitario-da-ufgd-dourados-ms-.pdf

7. Brasil. (1977). Lei Complementar 31 de 11 de outubro de 1977. Cria o Estado de Mato Grosso do Sul, e dá outras providências. Disponível em: http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp31.htm.

8. Brasil. (2008). Lei Federal 11892 de 29 de dezembro de 2008 que institui a rede federal de educação profissional, científica e tecnológica.

9. Brasil. Ministério da Educação Secretaria de Educação Profissional e Tecnológica. Projeto Pedagógico de Curso Superior de Bacharelado em Agronomia. Ponta Porã, 2018.

10. Campos Ferreira, N. V. (2012). Educação secundária profissionalizante brasileira (1909-1953). *Revista Historia de la Educación Latinoamericana*, 14(19), 91-110.

11. Capdeville, G. (1991). O ensino superior agrícola no Brasil. *Universidade Federal de Viçosa (UFV). R. bras. Est. pedag.*, 72(172), 229-241.

12. Ciavatta, M. (2006). Os Centros Federais de Educação Tecnológica e o ensino superior: duas lógicas em confronto. *Educação & Sociedade*, 27(96), 911-934.

13. CNA (Confederação da Agricultura e Pecuária do Brasil). PIB do Agronegócio Brasileiro. Disponível em: https://www.cepea.esalq.usp.br/br/pib-do-agronegocio-brasileiro.aspx. Acesso em: 24/fev/2022.

14. Instituto Brasileiro de Geografia e Estatística - IBGE. (2023). Censo Demográfico 2022: Prévia da População dos Municípios com base nos dados do Censo Demográfico 2022 coletados até 25/12/2022. Rio de Janeiro: IBGE.

15. IFMS (Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso do Sul). Projeto Pedagógico de Curso PPC campus Naviraí. Resolução Consup nº 072/2017. 11 de setembro de 2017.

16. IFMS (Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso do Sul). Projeto Pedagógico de Curso PPC campus Nova Andradina. Resolução do Consup nº 022/2015. 14 de maio de 2015.

17. IFMS (Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso do Sul). Projeto Pedagógico de Curso PPC campus Ponta Porã. Resolução do Consup nº 033/2014. 01 de novembro de 2014.

18. Kunze, N. C. (2009). O surgimento da rede federal de educação profissional nos primórdios do regime republicano brasileiro. *Revista brasileira de educação profissional e tecnológica, 2*(2), 8-24.

19. Melo, R. C. (2020). História da agronomia no Brasil: Uma breve análise. *Instituto Federal Goiano - Câmpus Avançado Ipameri. Programa de Pós-Graduação LATO SENSU - Docência no Ensino Superior*. Ipameri, GO, jun. 2020.

20. Molin, J. P. (2003). Agricultura de precisão: situação atual e perspectivas. In *Milho: Estratégias de Manejo para Alta Produtividade, 1*, 89-98.

21. Oliveira, N. A. de, Alves, L. A., & Luz, M. R. (2008). Iniciação científica na graduação: o que diz o estudante de medicina? *Revista Brasileira de Educação Médica, 32*(3), 309-314.

22. Pacheco, E. M., Pereira, L. A. C., & Domingos Sobrinho, M. (2010). Institutos Federais de Educação, Ciência e Tecnologia: limites e possibilidades. *Linhas Críticas*, 71-88.

23. Pacheco, E. M., & Caldas, L. (2012). *Ensino técnico, formação profissional e cidadania: a revolução da educação profissional e tecnológica no Brasil*. Porto Alegre: Tekne, 15-3.

24. Pereira, L. A. C. (2003). *A Rede Federal de Educação Tecnológica e o desenvolvimento local*. Luiz Augusto Caldas Pereira.

25. Policarpo, R. R. (2012). Por que as instituições mudam? O caso do IFMT. Dissertação de Mestrado. Universidade Federal de Pernambuco.

26. Posser, A. J. (2019). A Agronomia no contexto do ensino superior. *Revista agronomia brasileira (UESC)*. Acessado em: https://www.researchgate.net/publication/330614447_A_Agronomia_no_contexto_do_Ensino_Superior

27. Reifschneider, F. J. B., Henz, G. P., Ragassi, C. F., Anjos, U. G., & Ferraz, R. M. (2010). Novos ângulos da história da agricultura no Brasil. *Empresa Brasileira de Pesquisa Agropecuária - Ministério da Agricultura, Pecuária e Abastecimento. Embrapa Informação Tecnológica, Brasília, DF*.

28. Resende, G. (2005). PROJETO DE LEI N.º ,DE 2005 Campus Universitário Professor Celso Muller do Amaral.

29. Rothen, J. C. (2008). Os bastidores da reforma universitária de 1968. *Educação & Sociedade, 29*(103), 453-475.

30. UFGD (Universidade Federal de Mato Grosso do Sul). Histórico da universidade federal de mato grosso do sul. Disponível em: https://portal.ufgd.edu.br/reitoria/aufgd/historico. Acessado em: 24/02/2022.

31. Xavier, T. R. T. M., & Fernandes, N. L. R. (2019). Educação Profissional Técnica integrada ao ensino médio: considerações históricas e princípios orientadores. *Educitec-Revista de Estudos e Pesquisas sobre Ensino Tecnológico, 5*(11).