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SUPERVISED INTERNSHIP: THE RELATIONSHIP BETWEEN REFLECTIVE THEORY AND PRACTICE IN THE TRAINING OF FUTURE AGRONOMICAL ENGINEERS

ESTÁGIO SUPERVISIONADO: A RELAÇÃO ENTRE TEORIA E
PRÁTICA REFLEXIVA NA FORMAÇÃO DE FUTUROS
ENGENHEIROS AGRÔNOMOS

PASANTÍA SUPERVISADA: LA RELACIÓN ENTRE TEORÍA Y
PRÁCTICA REFLEXIVA EN LA FORMACIÓN DE FUTUROS
INGENIEROS AGRONÓMICOS

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Abstract: Carrying out an internship is a crucial step in the training of every professional. In this context, the objective of this work was to describe the internship activities carried out at the company Dosso & Dosso Ltda, with the aim of developing agronomic competence and skills in corn cultivation, evaluating growth, cultural treatments and monitoring pests and diseases. aiming to increase productivity per hectare, enabling greater profit for owners. The internship was carried out from April 17, 2023 to May 25, 2023, with a total workload of 160 hours, at the company Dosso & Dosso Ltda. The company Dosso & Dosso Ltda was created in 2015 by Agricultural Engineer Vender Henrique Nunes Dosso, co-owner, the company has its headquarters as a Limited

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Business Company in the municipality of Laguna Carapã located in the southern region of Mato Grosso do Sul. The mandatory internship fulfilled its objective, which is to provide professional experience. Technical Assistance is extremely important for rural development, with agronomic consultants playing an essential role. The dynamics of rural properties, the different profiles of producers and the reality in which they operate must be taken into account when you are part of the environment. The experience acquired at Dosso & Dosso was fundamental to this learning, forming a professional with a broad vision to cooperate in food production.

Keywords: Internship, Extension, Academic education.

Resumo: A realização do estágio é uma etapa crucial na formação de todo profissional. Neste contexto, objetivou-se com esse trabalho, descrever as atividades de estágio realizadas na empresa Dosso & Dosso Ltda, com o intuito de desenvolver a competência e habilidades agronômicas na cultura do milho, avaliando o crescimento, tratamentos culturais e monitoramento de pragas e doenças visando o aumento da produtividade por hectare, possibilitando maior lucro para os proprietários. O estágio foi realizado durante o período de 17 de abril de 2023 a 25 de maio de 2023, com carga horária total de 160 horas, na empresa Dosso & Dosso Ltda. A empresa Dosso & Dosso Ltda foi criada em 2015 pelo Engenheiro Agrônomo Vender Henrique Nunes Dosso, sócio-proprietário, a empresa possui sua matriz do tipo Sociedade Empresária Limitada em está situada no município de Laguna Carapã localizada na região sul do Mato Grosso do Sul. O estágio obrigatório cumpriu o seu objetivo, que é proporcionar a vivência profissional. A Assistência Técnica é de extrema importância para o desenvolvimento rural, com os consultores agrônômicos desempenhando função essencial. A dinâmica das propriedades rurais, os diferentes perfis de produtores e a realidade em que se inserem devem ser levados em consideração quando se está inserido no meio. A experiência adquirida na Dosso & Dosso foi fundamental para este aprendizado, formando um profissional com visão ampla para cooperar na produção de alimentos.

Palavras-chave: Estágio, Extensão, Formação acadêmica.

Resumen: Realizar unas prácticas es un paso crucial en la formación de todo profesional. En este contexto, el objetivo de este trabajo fue describir las actividades de pasantía realizadas en la empresa Dosso & Dosso Ltda, con el objetivo de desarrollar competencias y habilidades agronómicas en el cultivo del maíz, evaluando crecimiento, tratamientos

culturales y monitoreando plagas y enfermedades. aumentar la productividad por hectárea, permitiendo mayores ganancias para los propietarios. La pasantía se realizó del 17 de abril de 2023 al 25 de mayo de 2023, con una carga horaria total de 160 horas, en la empresa Dosso & Dosso Ltda. La empresa Dosso & Dosso Ltda fue creada en 2015 por el Ingeniero Agrónomo Vender Henrique Nunes Dosso, copropietario, la empresa tiene su sede como Sociedad Anónima en el municipio de Laguna Carapã ubicado en la región sur de Mato Grosso do Sul. La pasantía obligatoria cumplió su objetivo que es brindar experiencia profesional. La asistencia técnica es extremadamente importante para el desarrollo rural, y los consultores agronómicos desempeñan un papel esencial. La dinámica de las propiedades rurales, los diferentes perfiles de los productores y la realidad en la que se desenvuelven deben ser tenidos en cuenta cuando se forma parte del entorno. La experiencia adquirida en Dosso & Dosso fue fundamental para este aprendizaje, formando un profesional con una visión amplia para cooperar en la producción de alimentos.

Palabras clave: Pasantía; extensión; formación académica.

INTRODUCTION

The internship is a crucial step in the training of every professional, whether it is directed towards the agricultural sciences, in the training of future agronomists. The period for carrying out the supervised internship is awaited with great expectations by academics, since, for many students, this will be the first contact with the daily work routine on rural properties, but this time, not only as a student, but as a future professional (ASSIS *et al.*, 2018).

At this moment, the academic is able to connect the theory acquired in the classroom with the practice experienced in the field, being able to apply theoretical knowledge in real situations in the field. During the period of the internship, on particular properties, the student is still in the academic world, but, is able to broaden their experience and gain new experiences in the world of work (REICHMANN, 2015).

The performance of the internship allows students to gain practical experience, learning how the job market works, but supervised by qualified professionals in the area, influencing the accumulation of techniques and knowledge, which allows new

opportunities, in addition to bringing future professionals closer to the reality they intend to work in.

According to Assis et al. (2018), the accomplishment of the supervised internship is directed to generate new experiences of the daily life of the future chosen profession, however, for this experience to be complete and productive, it is necessary the theoretical knowledge, of the methods and techniques of the course carried out, thus occurring an effective and concrete learning.

In agronomic engineering, where knowledge and application of technical-scientific knowledge are essential for solving practical problems, using sustainable management, the accomplishment of the supervised internship, becomes even more important (CHIMENDES, 2011).

During this learning period, future professionals are able to understand the complexity of agricultural production systems, and how technical assistance is a vital component in every property, which offers specialized support and more security to agronomists who are in the day-to-day on the properties (SOUZA *et al.*, 2011).

Technical Assistance is considered one of the main instruments used as support tools and source of new information to rural producers, generating economic and social development, promoting increased production and consequently generating higher income. The Technical Assistance services provide the necessary resources for producers to introduce new technology packages specific to each type of crop (PEREIRA, 2004).

In this sense, Technical Assistance has an important role in rural development, transferring technologies, generating employment and income for the people involved directly and indirectly. The agroindustrial Technical Assistance has been highlighted in the national scenario, especially with regard to soybean, corn and other agricultural crops activities (CHIMENDES, 2011).

Technical assistance is considered an effective form of rural extension, as both operate in rural development, in the promotion of sustainable agricultural practices, and conservation of natural resources. Both are important ways of bringing knowledge, technical and rural development, aiming at diversification of economic activities and the strengthening of rural communities and contributing to a virtuous cycle of learning (PEREIRA, 2004).

Thus, rural extension, developed individually characterized as technical assistance focused on corn grain crop, is fundamental to ensure the articulations, integration and strengthening of producers, incorporating new technologies, improving the quality of work and life of those involved DELGROSSI *et al.*, 2023).

It is necessary to search for and develop professionals to contribute to food production, from the field to the arrival to the final consumer. In the various stages of production, the agronomist is responsible for coordinating activities linked from the planting of crops to the harvest, with the objective of producing efficiently and maintaining the levels of productivity and economic efficiency (DELGROSSI *et al.*, 2023).

Given the above, it is necessary to search for and develop professionals in rural properties in order to contribute to food production, from the field to the consumer's table.

In this context, the objective of this work was to describe the internship activities carried out at the company Dosso & Dosso Ltda, with the intention of developing agronomic competence and skills in corn cultivation, evaluating growth, cultural practices and monitoring of pests and diseases, aiming at monitoring the attack of pests and diseases in the corn crop.

MATERIAIS E MÉTODOS

The internship was carried out during the period of April 17, 2023 to May 25, 2023, with a total workload of 160 hours, at the company Dosso & Dosso Ltda.

The company Dosso & Dosso Ltda, was created in 2015, by the Agronomist Engineer Vender Henrique Nunes Dosso, partner-owner. The company has its head office of the type Limited Company that is located in the municipality of Laguna Carapã located in the southern region of Mato Grosso do Sul.

The main economic activity is the provision of agronomy and consulting services to agricultural and livestock activities carried out in the region of Laguna Carapã, Dourados, Amambai, Caarapó, Ponta Porã and neighboring cities. During the internship period, the main activities followed were: monitoring of pests and diseases and

monitoring of spraying, equipment regulation and monitoring of corn harvesting, on rural properties where the company provides technical assistance.

During the internship period, all the farms visited had already carried out the planting of corn, therefore, in all the properties that were visited, only the monitoring of pests and diseases was carried out weekly.

The inspections were carried out in at least 20 plants and in five different locations in each plot of the crop (VALICENTE 2015). As most of the corn was still in a growth state, if there was an incidence of pests and/or diseases in more than 20% of the plants, it could infer losses for the producer.

This intense monitoring was carried out until 60 days, the most critical period for corn, where the plants are more susceptible to pests and diseases, due to a poorly developed defense system. Another important factor is that this period corresponds to the greatest growth of the plant, however, its roots and leaves are poorly developed, which requires a greater amount of nutrients (KOZLOWSKI, 2002).

After 60 days, the implementation was done fortnightly, as the levels of pests and diseases were controlled (CRUZ, 1999). The sampling was carried out with a white cloth to facilitate the counting of insects. After choosing the area and the plants, they were shaken vigorously over the cloth, so that the insects would fall on it and, later, the counting of adult insects and young forms was carried out, all this information was noted in a spreadsheet (Table 1).

Table 1. Registration of Collect and Count of Insects.

Propriety	Date	Area	Culture	Number of shakes per plant	Adult Insects: Average	Young Forms: Average	Observations
	19/04	Area 1	Corn	3	15; 10; 9; 20;12	10;1 8; 7; 12	Dry Weather, Ants.
	19/04	Plot 2	Corn	3	12; 19; 7; 6; 20	10; 5; 9; 5; 5	Wet soil
	19/04	Plot C2	Corn	3	5; 9; 15; 20; 12	10; 5; 9; 15; 4	Dry soil

	19/04	Plot C3	Corn	3	18; 8; 19; 25;4	15; 7; 16; 15; 4	Presence of Ladybugs
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Notes: The average of adult and young insects corresponds to the 20 plants.

After collecting and counting insects, the data was evaluated and for better understanding of the producers, a report was made, detailing the situation of each area, and what action was being recommended. The field technician then traveled to the properties and explained the report and guided and answered questions about the management carried out, and in more critical and necessary cases, accompanied the implementation of these management practices.

RESULTS AND DISCUSSION

The internship connects academics to professional practice, integrating this student more smoothly, where he can correlate the theory acquired in the classroom, with the practice of the properties, being able to ask questions and interact with this environment.

This is a way to integrate academics with university extension, expanding this experience by involving them in this world outside of academia, being an important way to exchange experiences (SILVA, 2020).

The exchange of knowledge between student and professional was the knowledge of the pests of greatest commercial importance in corn in the region, being them: the caterpillars *Spodoptera frugiperda*, *Anticarsia gemmatilis* and *Chrysodeixis includens* they cause great production losses, and can cause reduction between 34 and 52% (VALICENTE, 2015).

The caterpillars attack the corn plants and consume their leaves, and can destroy the entire plant. By consuming the vegetative part of the plant, it would infer a significant reduction in the photosynthetic capacity of the plant.

During the period of the internship, the three types of caterpillars mentioned above were detected, however, all were with low population level, not causing risks and economic damage to the corn production.

The survey of diseases was carried out concomitantly with the survey of insects (Figure 1), carried out by plots and choosing at least 20 plants at 5 points per plot, using a magnifying glass to diagnose the diseases.

Figure 1. Corn field where pest and disease surveys were carried out.



The main diseases that were observed in the corn crop are: Cercospora leaf spot (*Cercospora zea-maydis*); Polysora rust (*Puccinia polysora* Underw.); Common rust (*Puccinia sorghi*); Tropical rust or White rust (*Physopella zea*); Helminthosporium leaf blight (*Exserohilum turcicum*); Bipolaris maydis leaf spot (*Bipolaris maydis*) (CASELA *et al.*, 2006).

To measure the level of infection of diseases and decide whether to apply chemical control with fungicide, a diagrammatic scale was used to measure the severity of diseases with grades from 1 to 9, with 1 being the absence of disease and nine the highest index of severity of the disease (RIBEIRO *et al.*, 2016).

During the period of the internship, the maximum level of diseases found on the properties was grade 3, being considered low, not causing damage to the crop. This low level of diseases in the corn fields of the region can be related to the low amount of rainfall (Figure 2), due to this, in these farms no chemical and/or biological control was indicated.

Figure 2. Rainfall Regime of the City of Laguna Carapã in the Year 2023.



Source: INMET - Instituto Nacional de Meteorologia (2023).

However, in the properties where it was necessary to carry out chemical control in pest management, mainly for the control of the lesser cornstalk borer and the fall armyworm, chemical control was carried out, in order to prevent the development of pests, avoiding damage to the crop.

To carry out the spraying, first the nozzle was washed, to avoid traces of other products and then the nozzles were adjusted, to ensure that the appropriate amount of product determined in the application rate (1/h) of the pesticide mixture falls, to control the disease as indicated by Dornelles, (2008).

The adjustment of equipment are fundamental practices for management in agriculture. Equipment with improper adjustment, in addition to direct damage to crops, there are losses of money and product (MARTINI *et al.*, 2017).

Improper calibrations can lead to wrong dosages, which can increase problems in crops, another point is the correct adjustment of seeders, to form a stand of plants suitable for that cultivar, respecting the conditions and their characteristics to maximize the productive potential (Figure 3).

Figure 3. Adjusting the pressure of the sprayer nozzles.



Harvest (Figure 4) is an agricultural procedure in which the producer must plan all the previous stages to integrate this process with the other phases of production, since the implementation, transportation, drying and storage of grains must be interconnected (MARTINI *et al.*, 2017).

The grain moisture must be greater than 13% at harvest, however, if it is necessary to anticipate the harvest, the moisture content must be in the range of 18 to 20% (LORENZETTI *et al.*, 2023).

Figure 4. Corn harvest in the municipality of Laguna Carapã.



The completion of the internship is of utmost importance in the academic life of students, providing an improvement of their theoretical and practical knowledge, acquired in the classroom, influencing the development of teamwork and the exchange of relevant professional experiences in the area of monitoring pests and diseases in corn production.

By being in the field, it is possible to acquire new knowledge by being in contact with the owners of the farms, their managers, employees, responsible for making the cultural practices in corn, knowing the routine and duties in a rural property.

Another point that should be taken into account during the internship period is to have a good relationship with the field supervisor and the employees who accompany and guide the student during the internship, being essential for the knowledge of the production processes in the visited farms, which helps in the development of my activities, of the academic.

The practice is quite different from the theory, because, in the day-to-day we come across different realities, different people and different personalities, however, it was possible to apply concepts that were passed on by professors during the time at the university and that in the day-to-day were often not very used, in addition to seeing and learning things that I did not learn at the university.

All the processes accompanied during the internship are important. Soil sampling is one of these steps, because despite being a laborious and tiring work, when carried out properly, it will determine the correction and fertilization processes of the next harvest, influencing the production and yield of the crop (BRASIL *et al.*, 2018).

With the completion of the soil analysis result, the technical manager can know the real situation of each crop and each plot, thus being able to work individually, reducing costs.

Technical assistance and rural extension stand out in the rural environment, as a tool, in the implementation of new technologies, whether in machinery or in changes in management, generating sustainable development of grains, and in the monitoring of pests and diseases. This exchange of information strengthens the technical knowledge of farmers, in addition to promoting the integration of collective strategies aimed at facing common challenges, such as pest outbreaks and climatic variations.

CONCLUSION

The completion of the supervised internship is fundamental in the academic training and development of the student as an extensionist.

Technical assistance acting as a tool of rural extension, is fundamental in the implementation of new technologies and new knowledge in the properties. Technical Assistance is of utmost importance for rural development, with agronomic consultants playing an essential role in the dynamics of the properties.

The completion of the internship, accompanying an extension professional, allowed to generate new theoretical and practical knowledge about corn production in a sustainable way, respecting diversity and correctly using the available technologies, being fundamental for the student's training, in addition to adding new knowledge to the producers.

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