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FIELD DAY IN THE SEMIARID REGION OF NORTHERN MINAS GERAIS: MANAGEMENT OF THE MILK PRODUCTION SYSTEM

DIA DE CAMPO NA REGIÃO SEMIÁRIDA DO NORTE DE MINAS GERAIS: MANEJO DO SISTEMA DE PRODUÇÃO DE LEITE

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Abstract: The Meeting with Rural Producers is a tool that can be used to exchange experiences generated in the Research Centers with rural producers and field technicians. Based on the above, the objective, through the practice of the second field day, was to guide and encourage agricultural producers in the semi-arid region regarding the use of technologies strategically to improve milk production. The second field day was carried out at Sítio Boa Sorte, located in the municipality of Verdelândia, a semi-arid region in the North of Minas. The second field day was developed through technical lectures on management, production, and use of silage for dairy cattle; genetic improvement of cattle for milk production with

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emphasis on the semiarid region; implantation, management, and use of forage palm and BRS capiaçu grass for cattle; roughage supplementation strategies for dairy cattle; management and utilization of vaccines in cattle. There was a participation of 409 producers on the second field day, most of them belonging to the municipalities of Verdelândia, Jaíba and Janaúba. It was found that there is a demand for more field days with lectures and guidance by rural producers. It is important to continue with the lectures and technical guidance for producers in the semi-arid region of Northern Minas Gerais. The reception of this rural extension had a positive impact on milk productivity in the region.

Keywords: dairy cattle, extension, forage, Unimontes, Verdelândia

Resumo: O Encontro com Produtores rurais é uma ferramenta que pode ser utilizada para trocar experiências geradas nos Centros de Pesquisas com produtores rurais e técnicos de campo. Com base no exposto, objetivou-se por meio da prática do segundo dia de campo orientar e incentivar produtores agropecuaristas da região semiárida quanto ao uso de tecnologias de forma estratégica visando à melhoria da produção de leite. O segundo dia de campo foi realizado no Sítio Boa Sorte localizado no município de Verdelândia, região semiárida do Norte de Minas. O segundo dia de campo foi desenvolvido por meio de palestras técnicas sobre manejo, produção e utilização de silagem para bovinos leiteiros; melhoramento genético de bovinos para produção de leite com ênfase na região semiárida; implantação, manejo e utilização de palma forrageira e capim-BRS capiaçu para bovinos; estratégias de suplementação volumosa para bovinos de leite; manejo e utilização de vacinas em bovinos. Houve participação de 409 produtores no segundo dia de campo, sendo a maioria pertencente aos municípios de Verdelândia, Jaíba e Janaúba. Verificou-se que existe uma demanda por mais dias de campo com a realização de palestras e orientações por parte dos produtores rurais. É importante a continuidade das palestras e orientações técnicas aos produtores da região semiárida do Norte de Minas Gerais. A recepção dessa extensão rural foi positiva de impacto na produtividade de leite na região regional.

Palavras-chave: bovinocultura de leite, extensão, forragem, Unimontes, Verdelândia

INTRODUCTION

Forage plants play a fundamental and unquestionable role in ruminant production in Brazil. Because these are sources of nutrients for animals to maintain, produce and reproduce. With about 187.55 million cattle, Brazil has the largest commercial herd in the world, with animals managed 162.53 million hectares of native or cultivated pastures (ABIEC, 2021). Of this total of cattle, 37.95 million heads are involved in the production of 34.84 billion liters of milk in the country (Anuário do Leite, 2021), coming from crossbred cows (80%).

In Brazil, the management of the milk production system is characterized by the use of extensive production systems during the summer and autumn seasons and in winter the use of semi-intensive and intensive production systems is predominant. In the semiarid region of the North of Minas, the long periods of drought associated with the fluctuations in the nutritional value of forage plants "force" milk producers to conserve forage and inputs and to manage animals intensively during the dry period in order to maintain the milk productivity. However, this handling of animals is not an easy task, which raises the importance of extension actions developed at Unimontes and other research, extension and management technical assistance institutions such as EPAMIG, EMATER, and SENAR Minas, respectively, in support and transfers of agronomic and zootechnical technologies to rural producers (Monção et al., 2019; Monção et al., 2021).

Despite the fact that there is an increasing number of rural producers with access to the internet and other technologies, it is clear that there are still gaps in milk production due to low technical monitoring and the vast number of information available on the internet, making understandings sometimes difficult confused (Monção et al., 2021). On the other hand, many rural producers do not have access to the internet and technical assistance. The problem in general is that the milk producer in the semiarid region still lacks information from the region regarding the management of natural resources and animals (Monção et al., 2019).

The field day is a tool that has been used by the aforementioned institutions to change the scenario of milk production through the dissemination of technologies generated in the Research Centers and exchanges of experiences with rural producers (Menegat et al., 2019; Monção et al., 2019; Monção et al. al., 2021). However, in the city of Verdelândia located in the North of the State of Minas Gerais, this practice of rural and university

extension through the field day is still scarce and, in certain situations, unknown by rural producers, especially small ones. However, it is possible to verify in this environment that the few existing meetings and meetings had positive effects on local and regional animal/vegetable production. Gradually, certain paradigms brought from the ancestors are modeled and adapted to the current systems of milk production and this response on the part of the producers directs the University and other institutions to continue rural extension activities.

Based on the above, the objective was, through the practice of the second field day, to guide and encourage agricultural producers in the semi-arid region of Northern Minas Gerais regarding the adoption and use of technologies to improve milk production on the property. The field day is an important moment for producers and technicians because there is exchange and improvement of knowledge (Monção et al., 2021). Furthermore, the occasion allows the interaction of those involved, especially with regard to the University-Field.

MATERIAL AND METHODS

The second field day was carried out at Sítio Boa Sorte, located in the municipality of Verdelândia (15°37'04.1"S and 43°36'13.4"W), in the semiarid region of Northern Minas Gerais. The climate of the region, according to the Thornthwaite classification, is of the BS'h type, with rains in the summer season and well-defined dry periods in autumn, winter and spring. The average annual precipitation is less than 800 mm, with an average annual temperature of 27 °C. The climate is tropical mesothermic, almost megatherm, due to the altitude, subhumid and semiarid, with irregular rainfall, causing long periods of drought.

The actions carried out during the II Field Day for rural producers were carried out in July 2021 after a prior survey of activities and needs routinely occurring on local rural properties (i.e., silage production, weeds and forage palm management for ruminants, milking and animal management, diet management and Selection of dairy cows adapted to semiarid conditions). The event was carried out with the authorization of the local prefecture, which also provided a medical and police team to accompany and monitor those involved regarding the use of masks, body distance between individuals, body temperature and use of gel alcohol. This procedure was necessary because the event took place during the Covid-19 pandemic.

The II Field Day was developed through technical lectures on management, production and use of silage for ruminants; Genetic improvement of cattle for milk production with emphasis on the semiarid region; implantation, management and use of forage cactus and BRS capiaçu grass for ruminants; roughage and concentrate supplementation strategies for dairy cattle; management and use of vaccines in cattle. The entire methodology used was adapted from the I Field Day published by Monção et al. (2021).

In the North region of Minas, dairy farming is increasing due to the shorter payback time of investment capital and income generation. In addition, the development of cheese dairies has boosted the milk market in the region, which has contributed to the reduction of rural exodus. In addition to the technical lectures, companies from the region attended presentations on agricultural machinery, veterinary products and animal nutrition.

During the meetings, Data show, banners and folders were used, among other resources to transmit information to producers and technicians. All didactic material and field use, such as seeds, enriched mineral supplements, milking material and other managements, were acquired through local stores, companies and aid from programs/projects developed by Unimontes/Janaúba, and SENAR Minas and partner institutions such as Secretary of Agriculture and Livestock of Verdelândia.

The lectures were publicized through verbal contact with storekeepers in the region, printed posters, digital media, social networks and the distribution of folders in strategic locations by the Municipal Agriculture and Livestock Department and SENAR Minas.

RESULTS AND DISCUSSION

The difference of the II Field Day in relation to the previous events was the presence of Family Agriculture components selling their homemade products and some organic ones (Figures 1 and 2).

Figure 1. Exhibition of products from family farming in the municipality of Verdelândia-MG.

Figure 2. Commercialization of products from family farming in the municipality of Verdelândia-MG during the II Field Day.

In the I Field Day held earlier, some producers resisted participating due to inexperience with these events and/or perhaps because they did not believe in this extension link between the University and the rural environment. Others did not participate due to the pandemic and involvement in the farm's everyday activities, especially when it comes to dairy

farmers. In that event, 93 producers participated. However, realizing the importance and positive impact of the 1st Field Day on animal/vegetable production, rural producers made more effort to be present at the 2nd event of this nature.

On the II Field Day, 403 producers from different municipalities participated, such as Jaíba, Matias Cardoso, Mucambinho, Janaúba, Porteirinha, Nova Porteirinha, Mato Verde, Espinosa, Montes Claros, Monte Azul, Sebastião Laranjeiras and Verdelândia (Figure 3), the which shows a greater acceptance of the producers when compared with the 1st field day. The extension actions through the II Field Day at Agropecuária Boa Sorte served many rural producers in the Semiarid, North of Minas and Southwest of Bahia because agriculture is increasingly connected with social media.

Figure 3. Commercialization of products from family farming in the municipality of Verdelândia-MG during the II Field Day.

There was a demand for more Field Days with the holding of lectures and guidance by rural producers. The reception of this rural extension had a positive impact on the regional productivity of the municipalities involved. In addition to receiving guidance from the various technicians involved, the producers claimed that they were able to plan for the purchase of inputs, medicines and agricultural machinery, a unique opportunity exposed on the day of the event. Other producers reported that the II Field Day provided them with contact with owners and representatives of dairy products and agricultural implements in the region, which was

important in the commercialization of individual and community milk and acquisition of equipment for use on the property.

The main limitation of milk production systems in the semi-arid region of Brazil is the quantitative and qualitative offer of roughage throughout the year for the animals. In practice, forage plants such as buffalo grass (*Cenchrus ciliaris*), chain grass (*Urochloa mosambicensis* (Hanck). Dandy), andropogon grass (*Andropogon gayanus* Kunth) and native legumes are the most managed for mass production. However, the production of forage mass conserved for periods of greater demand by animals of these forages alone is not always sufficient for the number of animals (Monção et al., 2019ab, 2020 ab) and sometimes, when available, has a low value nutritional.

Working with forage species that are adapted to the semi-arid climate, drought tolerant, with uncertainties about precipitation and its behavior is the greatest interest and challenge of producers in these regions. Thus, in the extension actions presented on the II Field Day, adapted forages and mass conservation strategies for use, especially during the dry season, were highlighted. During the lecture on silage of forage plants and rehydrated cereal grains, the importance of sampling and interpretation of soil analysis for the cultivation and management of forage plants for silage, as an example of BRS capiaçu grass, sorghum, corn, and millet, the managed in the region for conservation. In addition, the ideal harvest height and phenological stage for different forages as well as the steps (i.e., cutting, silo filling, compaction, types of tarpaulins, sealing) involved in the silage process were addressed. A topic that was well explored in the lecture was the use of moisture sequestering additives associated or not with bacterial-enzymatic inoculants during the ensiling of grasses and grains. Many producers had doubts about the choice, form of use and the importance of this technology in forage conservation, as was also observed in the previous event. The great novelty reported by ranchers was the “simplicity” of rehydrating and ensiling ground corn, as well as the importance of this procedure for milk production.

In the lecture on Choice of animals with dairy aptitude and management of diets for dairy cows given by prof. Dr. Vicente Ribeiro Rocha Júnior discussed the importance of F1 Holstein x Zebu crossbred cows. These animals have been shown to be quite adapted to the semiarid conditions because it is associated with the rusticity and adaptation coming from the Zebu animals and the milk productivity conferred by the Holstein breed. The F1 Dutch x

Zebu matrices also stand out for their tolerance to thermal stress, especially heat. Several studies carried out at the State University of Montes Claros (Unimontes) prove the productive efficiency of this animal in the semiarid region of Northern Minas (Santana et al., 2019; Ramos et al., 2021; Rigueira et al., 2021).

Focusing on milk production, the management and use of forage cactus (*Opuntia* and *Nopalea*) and BRS capiaçu grass were also highlighted on the 2nd Field Day. In the previous event, these themes were also addressed and we realized that there is still a lot of difficulty in managing the forage palm and the BRS capiaçu grass.

Forage cactus is one of the few plants for animal consumption in the semiarid region that can produce up to ≈250 t/ha of green mass in hostile environments with humidity, and this has aroused interest by many dairy producers in the region about the technical guidelines for this culture. This culture is fundamental in these regions due to the efficiency of water use for the production of dry matter compared to other forage plants. Forage cactus, under rainfed conditions, produces 10 to 30 t/ha of dry mass, with an average of 65% of non-fibrous carbohydrates and 60% of total digestible nutrients. It is a food rich in energy and water for animals that are in production in regions where water availability, in some places, is very limited (Monção et al., 2019). In addition, with the high cost of acquiring inputs such as corn, sorghum, millet, wheat bran used in the formulation of diets for ruminants, the energy content of palm has been a great ally to the producer in reducing animal feed costs. This is because the ingredient such as corn that is not produced on a large scale in these regions has a high share in the food cost (Monção et al., 2019).

Regarding BRS capiaçu grass, it has genetic potential to produce up to 72 tons of dry matter per hectare a year in the semi-arid region of Northern Minas with good nutritional value as long as physical resources are not limiting. This grass has great importance in the

growth of dairy farming in the semiarid region of Northern Minas Gerais. Therefore, on the II Field Day, management techniques related to planting, fertilization during planting, spacing between rows, planting methods, maintenance fertilization, irrigation, weed control, pests, diseases and insects were adjusted. The cutting height of BRS capiaçu grass was the subject of great debate on the II Field Day because some producers are ensiling the material with high moisture content. The consequences are: high losses of dry matter in the form of effluents, and low intake and animal performance. Some even reported giving up grass cultivation for this reason. However, on the 2nd Field Day, simple techniques were presented, such as pre-wilting the forage before shredding as a strategy to increase the dry matter content. In addition, moisture-sequestering additives such as pre-dried agro-industrial residues and ground cereals were presented to producers as a way to circumvent dry matter losses.

CONCLUSION

The importance of disseminating technologies developed in the study and research centers for rural producers is detected, where through the field day it aims to increase regional animal/vegetable production. Also, improve the quality of life in rural areas and the source of income for those involved.

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