South American Publishing

SAP Environmental Research and Ecotoxicity. 2024; 3:107
doi: 10.56294/ere2024107

ORIGINAL

Identification of women's participation in the reproductive cycle, breeding and fattening of pigs

Identificación de la participación de la mujer en el ciclo reproductivo, cría y ceba en los cerdos

Michel Andrés Medina[1], Juan Diego Mendoza Peña[1]

[1]Universidad de la Amazonia. Florencia - Caquetá, Colombia.

Cite as
Medina MA, Mendoza Peña JD. Identification of women's participation in the reproductive cycle, breeding and fattening of pigs. SAP Environmental Research and Ecotoxicity. 2024; 3:107. https://doi.org/10.56294/ere2024107

Publication History
Submitted: 19-05-2023
Revised: 28-09-2023
Accepted: 04-01-2024
Published: 05-01-2024

ABSTRACT

In Colombia, their participation remains limited, particularly in the pig industry, where they represent only 20 % of the workforce. In the province of Caquetá, the development of the industry has benefited rural households, although the role of women is still undervalued as they are limited to performing and managing activities and do not take on leadership and management roles. Global pork production has grown significantly, reaching approximately 110 million tonnes, and demand is expected to increase. However, this growth brings challenges, including opening markets and producing sufficient high-quality meat. China leads consumption, accounting for 50 %, while the US, Spain and Germany are the main exporters. Still, the industry faces health and environmental concerns, such as African swine fever. In rural areas, women play a vital role in pig production, although they face barriers in accessing resources and financing. The general objective of the research is to analyse the configuration of the role of rural women in pig production in the municipality of Valparaíso Caquetá. The method used was the application of an interview type tool which was applied to a woman pig producer. The results showed the great importance of women in backyard production and that they play a fundamental role in the production process.

Keywords: Woman; Financing; Production; Economy.

RESUMEN

La producción mundial de carne de cerdo ha crecido significativamente, alcanzando aproximadamente 110 millones de toneladas, y se espera que la demanda aumente. Sin embargo, este crecimiento conlleva desafíos, incluida la apertura de mercados y la producción de suficiente carne de alta calidad. China lidera el consumo, representando el 50 %, mientras que Estados Unidos, España y Alemania son los principales exportadores. Aun así, la industria enfrenta preocupaciones de salud y ambientales, como la peste porcina africana. En las zonas rurales, las mujeres desempeñan un papel vital en la producción porcina, aunque enfrentan barreras para acceder a recursos y financiamiento. En Colombia, la participación de la mujer sigue siendo limitada, particularmente en la industria porcina, donde representa solo el 20 % de la fuerza laboral. En el Caquetá, el desarrollo de la industria ha beneficiado a los hogares rurales, aunque el papel de las mujeres sigue subvalorado al limitarse a realizar y gestionar actividades y no asumir roles de liderazgo y gestión. El objetivo general de la investigación es analizar la configuración del rol de la mujer campesina en la producción porcina en el municipio de Valparaíso Caquetá; para la recolección de los datos se empleado la aplicación de una herramienta tipo entrevista donde se aplicó a una mujer productora de cerdos, como resultados se presenció la gran importancia que tiene la mujer en la producción de traspatio y que cumplen un rol fundamental en el proceso de producción y finalmente se concluyó que se resalta la necesidad de mantener un equilibrio entre los aspectos técnicos, económicos y emocionales para mejorar la producción porcina y asegurar su viabilidad y beneficio a largo plazo para las familias involucradas.

Palabras clave: Mujer; Financiamiento; Producción; Economía.

© 2024; The Authors. This Open access article is distributed under the Creative Commons Attribution 4.0 license (https://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

In recent years, pork production has remained one of the most significant global industries, with actual production of approximately 110 million tons.[1] It is expected that pork consumption purchases will increase to approximately 129 million tons,[2] however, this could bring benefits and some challenges, such as keeping markets open and producing the right amount of quality meat to meet demand.[3]

China, the European Union, the United States, Brazil, Russia, Vietnam, Canada, the Philippines, Mexico, Japan, and South Korea are the leading countries driving consumption growth. China will account for 50 % in 2023. Productivity will be highest in 2024, reaching 57,94 million tons. In 2019, global export earnings were US$32,9 million, of which countries such as the United States, Spain, Germany, and Denmark accounted for 55,3 %, and Japan and China accounted for 29 % of global import volume.[4]

The pork production industry faces significant challenges, including health problems and diseases such as African swine fever, which continue to affect meat production worldwide, reducing production yields and causing a high percentage of damage to the global economy.[5] Thus, industrial production, such as meat production, has a significant environmental impact because it is associated with large amounts of waste that pollute water and carbon dioxide emissions.[6]

On the other hand, gender equality in rural areas is one of the problems that cannot be ignored even in the 21st century. However, an increase in women's participation in more important roles such as performance, management, and decision-making has been observed. In this regard, public policies are being sought to help promote gender equality, socialization, and productivity for women in the agricultural sector.[7]

In several developing countries, women play a key role in the family management of pig production, where their involvement is essential in the distribution of reproductive and productive activities. Despite these advances, there is still a gap in the recognition of women's work in the pig sector, limiting women's advancement in the field and their access to training opportunities and project financing.[8]

The role of women in the agricultural sector worldwide

In the agricultural sector, gender differences stem from the division of labor, with men governing production activities and women participating in domestic tasks and unpaid work.[9] As a result, women's work is less visible and important to society, as it has been governed by traditional norms in which men are the dominant factor, reducing the value of women's work.[10] However, according to Cantillo Facundo[11], women's role is crucial in the countryside, especially in livestock farming, as it is now more common for them to be involved in managing, administrating, and organizing the productive and reproductive management of the family unit. This has led to greater gender equality, with women participating in decision-making and in areas that until now were solely managed by men.[7]

Women's participation in the pig farming sector worldwide

Globally, there are still sectors where inequalities in participation, opportunities, and benefits exist, minimizing the role of rural women in the world.[12] However, activities, policies, and credit have been linked in all countries to highlight women in agricultural production by encouraging new opportunities.[13] Despite this, there is still little information on women's roles and participation in pig production. For this reason, empowerment is encouraged through professional support and education, where women participate significantly.[14]

On the other hand, women account for between 20 % and 30 % of the workforce in agricultural production. It is estimated that around 59 million women currently live in rural areas, although their participation in pig production varies according to the region and country. In South America, the countries with the most significant amount of rural land owned by women are Chile and Peru, followed by Ecuador. It is worth mentioning that women can become farmers or landowners.[13]

Opportunities for women's employment in agricultural work have expanded, and while this now represents more excellent job opportunities, the characteristics and conditions of these jobs mean that wages are lower than those of men. In countries such as Peru, Uruguay, Bolivia, and Brazil, women occupy almost 50 % of jobs in the agricultural sector, but they have reduced access to absolute job security.[15]

Traditionally, women have played a secondary role in pig production, focusing on domestic or support tasks. However, their participation has increased, especially in developing and managing family farms. Despite these advances, inequalities in access to resources and opportunities persist. Empowerment policies and programs highlight and support women's role in pig production, encouraging their participation in productive and leadership areas.[13,14]

Pig production in Colombia

Pig processing is a key factor in the pig industry. It has a major economic impact and is an indicator of the sector's formalization, which is essential for the steady and sustainable growth of national production.[16]

Colombia accounts for only 1 % of pork production in the Americas (180 000 tons), showing a steady downward trend in recent years. The country has approximately 14 000 pig farms, where approximately 1,7 million pigs are raised, of which 3838 are considered techniques farms, i.e., only 27 %.[17]

In 2023, the country's livestock production reached 5,3 million tons, reflecting an increase of 0,4 % compared to 2022. Among these, the increases in pork production (6,6 %) stood out. This sector has made significant progress, showing progressive increases over the years. In this regard, the gain of 5 775 811 animals and pork production of 564 778 tons represent 4,3 % in 2023, a growth of 7,3 % in the line involving the most productive sectors, namely Antioquia, Valais, Cundinamarca, Meta, and Eje Café.[18]

The country's pork consumption experienced a notable increase, from 4,8 kg per person in 2010 to 12,2 kg per person in 2022. This has made pork highly valued as an animal protein, with a significant increase in the country. Between 2010 and 2020, its presence in the country's food basket grew considerably, from 35 % to 70 %.[19]

Colombian pig farming has identified two different systems: "backyard farms" and "commercial family pig farms." The 2023 census conducted by the Colombian Agricultural Institute (ICA) reveals that there are 192 673 pig farms in Colombia, of which a significant 78,9 % (152 069) belong to small backyard producers. The remaining 21,07 % is made up of 35 797 commercial producer families, 4025 commercial production industries, and 782 technical workers.[20]

Women's participation in the pig farming sector in the country

According to Sierra[21], women in the Colombian rural sector suffer from high levels of inequality, as in 2020 and 2021, there was higher unemployment among women, ranging from 12,1 % to 15,4 %, compared to men, which varied from 5,2 to 7,2 %. It also states that men own 63,7 % of rural properties in the country.

Porkcolmbia[22] also presented results revealing that, at the national level, rural pig production is represented by 20 % women and 80 % men. This goes hand in hand with the fact that livestock activities carried out by women are the primary basis for the breeding, care, and management of animals, as long as it is not the main activity, since, in terms of roles, it begins to be the responsibility of men, as long as it is a family environment.[23]

The pig farming sector in the department

The department of Caquetá, in the Colombian Amazon region, has an area of 88 965 square kilometers, representing approximately 7,8 % of the country's territory. It is characterized by its natural resources, landscapes, and climatic diversity. In recent years, the pig farming sector has grown, driven by the progressive demand for pork. This increase has led producers to modernize their practices and improve the quality of their livestock.[24]

There are 2886 farms or areas dedicated to pig farming. Of these, 73,5 % are small-scale backyard farms, which typically house around 10 pigs each. Meanwhile, 26,4 % are commercial farms, either family-run or industrial, with an average of 50 pigs per production unit. Only 0,1 % are technified pig farms, which maintain an average of 1132 per production unit.[25]

In the region, commercial family farms and backyard farms predominate, with many farmers adopting more efficient and sustainable practices to generate more sustainable and higher-quality production. Pork consumption has increased significantly, becoming a popular option in the basic food basket and motivating more producers to enter the market.[26]

To address these challenges, the local government and various organizations are implementing support initiatives, including training and financing programs and improvements in marketing infrastructure. These actions seek to increase production and ensure the sustainability and competitiveness of the pork sector in Caquetá.[27]

The role of women in pig production

In the department of Caquetá, this is an activity mainly for local trade and consumption, which does not represent it as a primary activity of productive importance, leading to disparities in management by its members.[25]

Women's link to pig production lies in family ties, as their ancestors also played this role, which allows women to have in-depth knowledge of these traditional and sustainable practices in pig farming. This can be fundamental to improving the sustainability and productivity of the system, and recognizing and strengthening their role can lead to more efficient agricultural practices and women's empowerment in communities.[28]

Given the gender disparities in rural economic productivity, which are evident in the complexity of acquiring property, financial and productive resources, and accessing the formal labor market, in some regions of the country, rural women do not own land and report difficulties in accessing credit, infrastructure, and equipment, which are essential for the profitability of productive initiatives.[29]

Pig production in the municipality of Valparaíso

According to UPRA[30], in 2021, the municipality of Valparaíso had 164 backyard farms, where it is important to understand gender roles. For this reason, it is essential to understand the dynamics in which women participate in pig production, their tasks and activities, and how they are involved in pig farming.[31]

The economy of the municipality of Valparaíso Caquetá is based mainly on dual-purpose livestock farming, as well as pig production, which supplies the municipality's needs and is exported to Florencia Caquetá, the department's capital and other departments.[32] Considering that pig production is a key source of income and livelihood for families in the region and that in many countries, the female workforce predominates in food productivity, in terms of crops for consumption and poultry production, Colombia dominates the pig industry. Women are responsible for 60 % of all food produced worldwide.[33,34]

Gender Studies

The field of gender studies investigates how gender influences experiences, opportunities, and inequalities in various social, economic, and cultural contexts. This field focuses not only on women but also on male identities and other genders, considering the connections in gender dominance and patterns that affect different groups.[35]

Gender analysis emerged from feminist movements in the 1960s and has evolved to include various theoretical approaches, from radical feminism to intersectional feminism. Intersectional feminism considers how gender intersects with other social categories

such as race, class, sexuality, and ethnicity. Its purpose is to understand and challenge the power structures that perpetuate gender differences and to promote equality and social justice.[36]

Methodologies and Approaches in Gender Studies

Gender research employs both qualitative and quantitative techniques. Qualitative methods, such as interviews and focus groups, facilitate exploring personal experiences and perceptions of gender, while quantitative methods help identify patterns and trends in gender participation in various contexts.[37]

A key approach is intersectionality, which analyzes how different forms of discrimination intersect and affect people. This enables a more comprehensive understanding of women's experiences and facilitates a more comprehensive perception of the experiences of women and other genders. In addition, gender research takes a critical perspective that challenges traditional norms and roles, promoting social change and the inclusion of marginalized voices.[38]

Finally, the research question was formulated: What is the role of rural women in the pig production system in the municipality of Valparaíso, Caquetá? This research aims to analyze the configuration of the role of rural women in pig production in the municipality of Valparaíso, Caquetá.

METHOD

Location

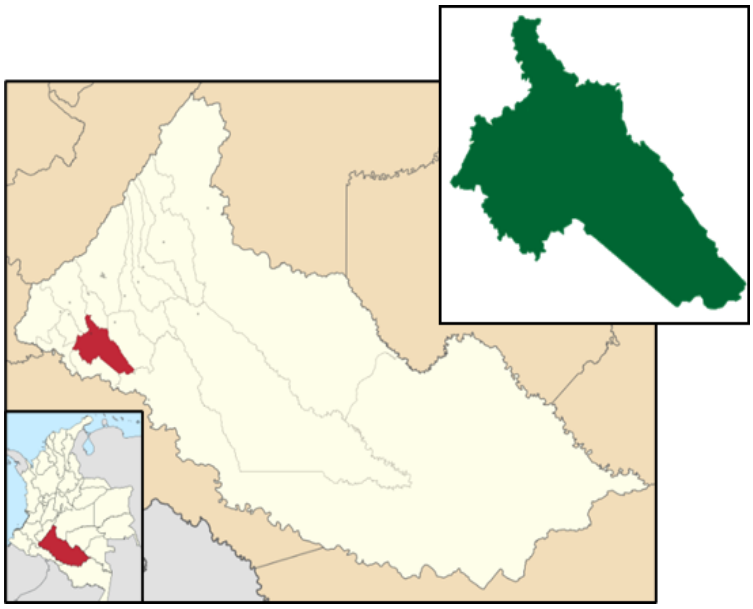


Figure 1. Location of the municipality of Valparaíso in Caquetá and Colombia

The research was carried out in the municipality of Valparaíso Caquetá, located 47,5 kilometers southwest of the city of Florencia Caquetá, the department's capital. The municipality has an altitude of approximately 211 meters, and its geographical coordinates are latitude 1,19333, longitude -75,7064, latitude 1° 11' 36" North and longitude 75° 42' 23" West. It has an area of approximately 108 000 hectares (1080 square kilometers) and has more than 20 villages throughout the municipality (figure 1).[39]

Population and sample

The study was conducted with a women's association, ASMERVACACO, involving 40 rural women scattered across the following villages: La Yumal, Santa Helena, Porvenir, Santa Fe trocha 10, Santiago de la selva, La Muños, El Topacio, Las Mercedes, Galilea, Andalucía, and El Águila, near the municipal capital. These rural women are dedicated to housework and pig farming, where they play a fundamental role in all stages of pig production.

Methodological approach

The research is based on the historical hermeneutic paradigm, which allows for the interpretation and analysis of the meaning of the experiences and contributions of rural women, who often face invisibility in a predominantly male environment.[40]

This type of research is descriptive, which implies a detailed and comprehensive approach to the realities observed. It allows for an exploration of the experiences of rural women in pig production.[41]

The qualitative research approach, which allows for the collection of narrative data and the analysis of its meaning, seeks to understand how women contribute to pig production and how their roles have advanced and changed over time.[42]

To collect the information, a semi-structured interview tool was used with a female producer. The aim was to obtain quantitative data that would provide an estimated baseline for pig production. The interview addressed variables such as reproduction, piglet gestation, rearing, and fattening.

RESULTS

In the word cloud

Pig production is a complex process that involves a series of carefully implemented activities, ranging from infrastructure management, such as the barn and temperature control and bathing of the pigs, to the daily care and feeding of the animals. Experience in pig management is essential to properly execute each step of the process and improve production efficiency.

Each stage requires control in timing, reproduction, sow management, fertility control, hygiene, and animal welfare. These activities focus not only on the growth and health of the pigs but also on the final process for sale on the market.

Finally, economic aspects such as money, income, and sales are vital since the objective of pig production is to be a profitable activity. Maintaining a balance between costs and benefits that leaves a high level of motivation and satisfaction is essential to continuing to implement this production strategy so that families will have better opportunities in the future (figure 2).



Figure 2. Word cloud

From a holistic perspective, properly implementing infrastructure and environmental management is crucial to animal welfare. According to García et al.[43], the proper design of pigsties and the control of environmental parameters such as temperature not only promote the health of pigs but also reduce stress, thus improving productive performance. Therefore, infrastructure must be designed with both animal welfare and resource optimization.

Daily management and care, including feeding, are equally essential. Several studies have shown that a balanced diet, tailored to the specific needs of pigs at each stage of development, directly impacts their growth and health.[27] In addition, the technical knowledge and experience of the staff in charge are crucial to ensuring these practices are implemented efficiently. Ongoing training on nutrition and animal health improves production quality and minimizes losses.

Likewise, hygiene and animal welfare are fundamental components closely related to the quality of the final product. A clean, disease-free environment prevents health problems that could negatively impact costs and the producer's reputation in the market.

In the Sankey Diagram

It shows the co-occurrence of several topics. On the right side, they are grouped into four main categories: difficulties, represented by the color blue; history, represented by the color green; satisfiers, represented by the color purple; and anecdotes, represented by the color red. The structure and thickness of the connections indicate the relationship and frequency of each topic with the categories, allowing us to observe how the concepts are grouped.

This category of difficulties includes concepts such as demotivation, illness, intervention, prevention, and control, and it co-occurs with the concept of economy in the history category. This section indicates that these topics are perceived as obstacles or problems within the analysis. They reflect areas of difficulty that may require intervention or prevention.

Next is the history category, which groups concepts such as economy, knowledge, hope, infrastructure, income, and health. It is related to the satisfiers category, as both include the concepts of parenting, attachment, motivation, satisfaction, and productivity. These factors are important in the historical context of the analysis, providing a perspective on the issues that have had a constant impact over time.

On the other hand, the category of satisfiers found that the concepts of upbringing, attachment, motivation, satisfaction, and productivity are correlated with the categories of history and anecdotes, suggesting that they are perceived as positive or rewarding elements within the analysis. These factors contribute to the well-being of pig production.

Finally, the concepts of experience, emotion, and joy are included in the anecdote category. A co-occurrence was found only with the category of satisfiers, which are related to the concepts of motivation, satisfaction, and productivity. This shows that the family has had moments of satisfaction throughout its history as producers (figure 3).

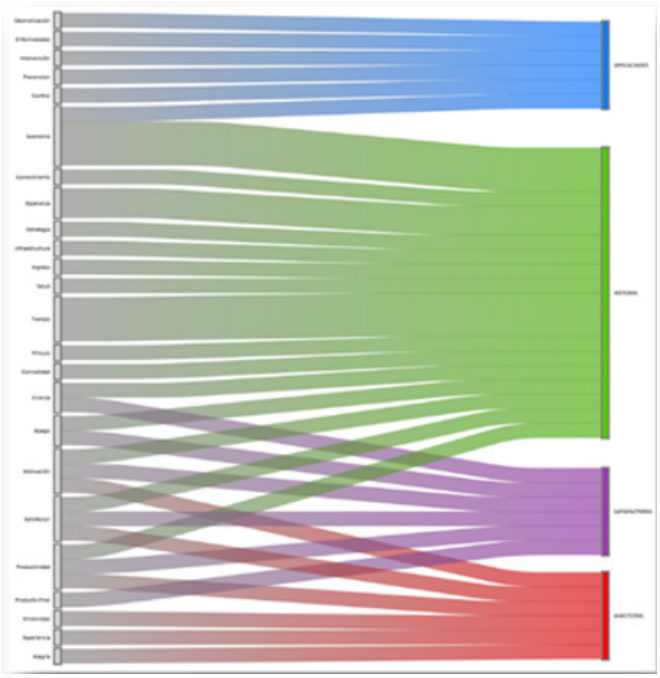


Figure 3. Sankey diagram

According to the World Health Organization[44], control acquired through knowledge allows difficulties to be transformed into opportunities for improvement. At the same time, factors such as motivation, satisfaction, and productivity appear linked to history and anecdotes, showing that emotional well-being and positive experiences are intrinsically related to social and economic conditions. This coincides with the theories of Deci et al.[45], who highlight the importance of satisfaction and motivation in personal and professional development.[46,47]

Finally, anecdotes underscore the emotional and experiential impact, highlighting the importance of achievements and meaningful connections in daily life. This reinforces the idea that personal stories and positive memories are essential for generating attachment, joy, and a sense of purpose.

Network diagram

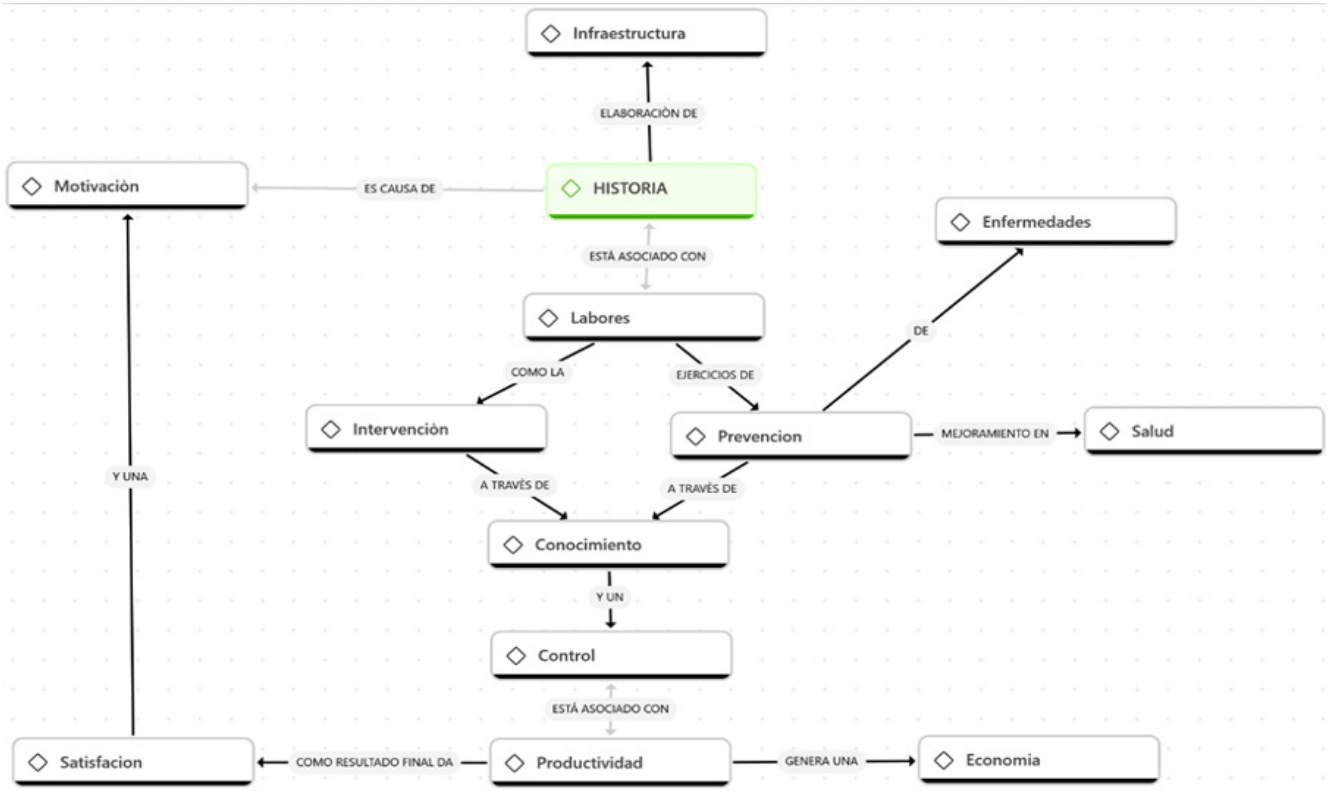


Figure 4. Network diagram

The diagram highlights how the history of this pig production arose mainly through motivation and necessity.[48,49] Over time, these became the fundamental factors for generating efficient, stable production and acquiring knowledge, leading to preventive interventions and activities that improve health and reduce the impact of diseases on pigs. These actions generate control, promoting productivity, satisfaction, and economic strengthening.[50,51,52] The model highlights the importance of integrating prevention as a mechanism to achieve collective pig welfare and economic improvement (figure 4).[53,54]

According to the World Health Organization (WHO)[44], the relationship between prevention and health is well documented in the scientific literature, which states that preventive strategies are more cost-effective than corrective treatments. This approach minimizes the burden of disease and improves economic indicators by reducing public health spending and increasing labor productivity,[46] which is also one of the constant goals of this production implemented by this group of women.[55]

CONCLUSIONS

Pig production requires comprehensive management of technical, economic, and environmental factors. Properly implementing strategies at each stage of the process improves efficiency and profitability and contributes to animal welfare and the sustainability of the activity. This comprehensive approach allows farming families to improve their quality of life and open new opportunities in a competitive and dynamic sector.

The document analyzes the pig production process from a comprehensive perspective that includes infrastructure management, environment, feed, and animal welfare to ensure efficiency and profitability in the activity. It highlights the importance of experience and control in areas such as reproduction and hygiene, which impact the health and growth of pigs and their market value.

Using a Sankey diagram, the main issues involved in pig production are examined and grouped into four categories: difficulties, history, satisfiers, and anecdotes. Difficulties, such as demotivation and disease, highlight problem areas that may require intervention. History shows elements such as economics and health that have been relevant over time. Satisfaction, such as breeding and motivation, are associated with positive experiences in production, while anecdotes reflect moments of family and emotional satisfaction in pig farming.

BIBLIOGRAPHIC REFERENCES

1. Dulce E, Pérez J, Otaño MC. Cadena agroindustrial de la carne porcina: la coordinación como puente para el desarrollo de ventajas competitivas. Rev Econ Desarr. 2021;1(7):1–21. https://revistasacademicas.unsam.edu.ar/index.php/redd/article/view/1049

2. Olivares RMJR. Análisis de sensibilidad y de riesgo de un en Tejupilco, Estado de México. 2023. Disponible en: http://ri.uaemex.mx/handle/20.500.11799/138480

3. Marin A. Universidad Nacional de Rosario, Facultad de Ciencia Política y Relaciones Internacionales. Rosario: UNR; 2008. p. 7–9.

4. USDA Foreign Agricultural Service. Data on commodity production: 0113000. 2024. Disponible en: https://fas.usda.gov/data/production/commodity/0113000

5. Campos GJM. Peste porcina africana y su impacto en la economía. 2023. https://repository.ucc.edu.co/server/api/core/bitstreams/53dac68b-2a3d-4d51-93c6-fe0caba5262b/content

6. Sancholuz J. Efluentes en una producción intensiva porcina: impacto ambiental, generación y posibles tratamientos. 2023. Disponible en: http://repositorio.ub.edu.ar/handle/123456789/10922

7. Valencia Peña MA. Equidad de género en el sector productivo pecuario: historia y contexto mundial. Bogotá: Universidad Cooperativa de Colombia; 2023.

8. Osabohien R, Olurinola I, Matthew O, Azuh D, Aderounmu B. Female participation in agriculture and economic development in 33 African Countries. Afr J Reprod Health. 2021;25(5 Suppl):107–15. https://doi.org/10.29063/ajrh2021/v25i5s.10

9. Ramírez L, Méndez A, Ceballos M. Las Mujeres En El Sector Agrario. Oaxaca: Centro de Estudios Sociales y de Opinión Pública; 2022. Disponible en: https://congresooaxaca.gob.mx/docs65.congresooaxaca.gob.mx/centros_estudios/CESOP/estudiosCESOP/MUJERES_EN_EL_SECTOR_AGROPECUARIO.pdf

10. Torres Y, Pablos-Heredero C, Morantes M, Rangel J, Espinosa JA, Angón E, et al. El papel de la mujer en la explotación de ganado bovino de doble propósito en Ecuador. Arch Zootec. 2016;65(251):309. https://doi.org/10.21071/az.v65i251.690

11. Cantillo Facundo SL. El papel de la mujer joven rural en el sector pecuario colombiano. Bogotá: Universidad de Ciencias Aplicadas y Ambientales U.D.C.A; 2018. Vol. 66.

12. ONE. Medición del aporte de las mujeres en las actividades agropecuarias en República Dominicana. 2018. Disponible en:

https://oig.cepal.org/sites/default/files/medicion_del_aporte_de_las_mujeres_en_las_actividades_agropecuarias_en_r._.pdf

13. Restrepo Betancur LF. Participación femenina en el sector agropecuario en Sudamérica. Mundo Agrario. 2024; 25(58):e241. https://doi.org/10.24215/15155994e241

14. FAO. La situación de las mujeres en los sistemas agroalimentarios. Roma: Organización de las Naciones Unidas para la Alimentación y la Agricultura; 2024. https://doi.org/10.4060/cc5343es

15. Trevilla Espinal DL, Soto Pinto ML, Morales H, Estrada-Lugo EIJ. Feminist agroecology: analyzing power relationships in food systems. Agroecol Sustain Food Syst. 2021;45(7):1029–49. https://doi.org/10.1080/21683565.2021.1888842

16. Siza L, Díaz Castañeda K, Dueñas Moreno A, Gómez Correa A. Cadena de producción de carne porcina en Colombia. Bucaramanga: Porc Meat Production Chain in Colombia; 2021.

17. Piñeiro Noguera C, Bermejo GM. Guía de mejores técnicas disponibles para el sector porcícola en Colombia. Bogotá: Asociación Porkcolombia, Fondo Nacional de la Porcicultura; 2015.

18. Carvajalino Villegas M. Informe de memorias al congreso 2023-2024. Bogotá D.C.: Oficina Asesora de Planeación y Prospectiva; 2024.

19. Alfonso-Pardo S, Mahecha-Ledesma L, Gallego-Castro LA, Angulo-Arizala J. Potential use of porcine zoogenetic resources (Sus scrofa domestica) in silvopastoral, for family livestock production systems. Agron Mesoam. 2023;34(3). https://doi.org/10.15517/am.2023.53662

20. Diaz-Rodríguez GJ, Jiménez Ramírez JS, Serrano H, López-Arévalo HF, Sánchez-Palomino P, Montenegro OL. Manejo no tecnificado de cerdos (Sus scrofa) en las regiones Andina, Amazónica y Orinoquía de Colombia. Cienc Tecnol Agropecu. 2021;22(1). https://doi.org/10.21930/rcta.vol22_num1_art:1902

21. Sierra LG. Mujer Rural. Centro de Estudios e Investigaciones Rurales. 2024;1–6.

22. Porkcolombia. Informe de sostenibilidad. 2023.

23. Farah Quijano MA, Pérez E. Mujeres rurales y nueva ruralidad en Colombia. Cuad Desarro Rural. 2003;(51):137–60.

24. Yomayuza Herrera KV, Casallas Martinez IM. Informe taller "Hablemos y construyamos juntos temas clave de objetivos de desarrollo sostenible, cambio climático y acciones de mitigación en nuestro territorio" en Cesar y Caquetá. 2023.

25. Celis Parra GA, Ortiz Meneses JF, Balanta Martínez VJ. Aspectos generales en la nutrición de bovinos y porcinos con RNMB. 2021.

26. Bautista TJ. Impacto del programa El Campo Emprende (ECE) en el desarrollo de los emprendimientos agroindustriales para la reducción de la pobreza en el departamento del Caquetá durante el periodo. Nucl Phys. 2023;13(1):104–16.

27. Martínez A, López D. Impacto de la alimentación en el rendimiento de cerdos en crecimiento. Rev Nutr Anim. 2019;10(2):87–95.

28. Lomello V, Skejich P, Andreani M, Giovannini F, Boyne L, Silva P, et al. Resultados del relevamiento sobre la participación y contribución de las mujeres en el sistema agroindustrial porcino en Argentina. Rev Fac Agron Vet UNRC. 2023;6(12).

29. Fondo Europeo para la Paz. La porcicultura, oportunidad de empoderamiento productivo y económico de las mujeres putumayenses. 2023. Disponible en: https://www.fondoeuropeoparalapaz.eu/la-porcicultura-oportunidad-de-empoderamiento-productivo-y-economico-de-las-mujeres-putumayenses/

30. UPRA. Evaluaciones Agropecuarias 2023. Unidad de Planificación Rural Agropecuaria; 2023. Disponible en: https://upra.gov.co/es-co/Paginas/eva_2023.aspx

31. Hernández Downs YA, Rodríguez Madrigal JD. Caracterización del manejo zootécnico del cerdo criollo (Sus scrofa domesticus) en el área rural del municipio de Río Blanco, Matagalpa. Managua: Universidad Nacional Agraria; 2013.

32. Jiménez Viasús JF. Conectividad ecológica estructural en el municipio de Valparaíso (Caquetá, Colombia). Perspect Geogr.

2022;27(1):106–24. Disponible en: https://revistas.uptc.edu.co/index.php/perspectiva/article/view/14245

33. Rivera MY, Correa Chizava MA. Aproximación empírica de las actividades económicas, sociales y políticas de las mujeres rurales del municipio de Vistahermosa que evidencie su aporte a la nueva ruralidad. Villavicencio; 2016.

34. Arredondo Botero J, Muñoz Florez J, Arenas L, Mosquera M, Pacheco E, Álvarez L. Porcicultura tradicional en el Pacífico colombiano. Arch Latinoam Prod Anim. 2021;29(3-4):225–35.

35. Montalvo Romero J. El trabajo desde la perspectiva de género. Rev Fac Derecho. 2020;49:1–19. https://doi.org/10.22187/rfd2020n49a6

36. Lux M, Pérez Pérez MC. Los estudios de historia y género en América Latina. Hist Crit. 2020;(77):3–33. https://doi.org/10.7440/histcrit77.2020.01

37. Blasco Herranz I. Historia y género: líneas de investigación y debates recientes en Europa y Norteamérica. Hist Memoria. 2020:143–78. https://doi.org/10.19053/20275137.nespecial.2020.11584

38. Nieto EMG, Spínola ME. On the imposition of the gender system and transphobia: Gender creative children and trans* youths' life stories. Obets. 2021;16(1):115–34. https://doi.org/10.14198/OBETS2021.16.1.08

39. Valparaíso en el departamento de Caquetá. Municipio.com.co; s.f. Disponible en: https://www.municipio.com.co/municipio-valparaiso-caq.html

40. Lourdes M, Cea R. Análisis desde el paradigma hermenéutico sobre la articulación entre los niveles educativos de la enseñanza de la Física y Química en la Educación Secundaria en España. 2022. https://uvadoc.uva.es/bitstream/handle/10324/57638/TFM-G1694.pdf

41. Ramos-Galarza CA. Alcances de una investigación. CienciAmérica. 2020;9(3):1–6. https://doi.org/10.33210/ca.v9i3.336

42. Acosta Faneite SF. Los enfoques de investigación en las Ciencias Sociales. Rev Latinoam Ogmios. 2023;3(8):82–95. https://doi.org/10.53595/rlo.v3.i8.084

43. García J, López M, Ramírez C. Diseño de infraestructura en la producción porcina: factores clave para el bienestar animal. Rev Agropecuaria. 2020;15(3):120–34.

44. World Health Organization (WHO). Global action plan for the prevention and control of noncommunicable diseases 2013-2020. Geneva: WHO; 2020. Disponible en: https://www.who.int

45. Deci EL, Ryan RM. Intrinsic motivation and self-determination in human behavior. New York: Springer Science & Business Media; 1985.

46. Marmot M, Wilkinson RG. Social determinants of health. Oxford: Oxford University Press; 2006.

47. Equipo Técnico EOT Valparaíso. Revisión y ajuste del esquema de ordenamiento territorial - EOT del municipio de Valparaíso, departamento de Caquetá. Valparaíso: Municipio de Valparaíso; 2020.

48. Silva Jiménez YP, Durán CA, Concha CM, Otero JD. Experiencias exitosas de asociatividad: un caso de empoderamiento de las mujeres rurales y equidad de género en cadenas de valor agrícola. Rev Novedades Colombianas. 2020; 71–96.

49. Racca G. Innovación y Equidad: El Rol Emergente de las Mujeres en la Porcicultura. 3tres3; 2024. https://www.3tres3.com/latam/guia333/empresas/msd-salud-animal-argentina/posts/14797

50. Otero-Durán I. Documento final compilado con el diagnóstico del departamento de Caquetá. Bogotá D.C.: Programa Conservación y Gobernanza en el Piedemonte Amazónico; 2020.

51. Ordóñez Olivares H. Estrategias para potencializar el eslabón de producción cárnico porcino en el municipio de Barrancabermeja. 2022. p. 1–119.

52. ONU. En Colombia, las mujeres rurales son 'Raíces, mujeres sembradoras del cambio'. 2023 oct 13. https://lac.unwomen.org/es/stories/noticia/2023/10/en-colombia-las-mujeres-rurales-son-raices-mujeres-sembradoras-del-cambio

53. Martínez-Moyano E, Hernández-Aya DB, Hernández-Guerrero KA, Arias-Betancourth JJ, Zapata-Ortíz CA. Assessment of sustainable livelihoods and the application of community capitals: case study of cattle families from El Doncello, Caquetá-Colombia. 2024;32:185–210.

54. FAO. Los cerdos locales en los sistemas tradicionales. Roma: Food & Agriculture Org; 2001.

55. Interporc. "El liderazgo femenino ha impulsado firmemente el crecimiento del sector porcino". 2023 oct 20. https://www.3tres3.com/noticias_empresa/interporc-el-liderazgo-femenino-en-el-sector-porcino_49909/

FINANCING

The authors did not receive any funding for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Michel Andrés Medina, Juan Diego Mendoza Peña.
Data curation: Michel Andrés Medina, Juan Diego Mendoza Peña.
Formal analysis: Michel Andrés Medina, Juan Diego Mendoza Peña.
Research: Michel Andrés Medina, Juan Diego Mendoza Peña.
Methodology: Michel Andrés Medina, Juan Diego Mendoza Peña.
Project administration: Michel Andrés Medina, Juan Diego Mendoza Peña.
Resources: Michel Andrés Medina, Juan Diego Mendoza Peña.
Software: Michel Andrés Medina, Juan Diego Mendoza Peña.
Supervision: Michel Andrés Medina, Juan Diego Mendoza Peña.
Validation: Michel Andrés Medina, Juan Diego Mendoza Peña.
Visualization: Michel Andrés Medina, Juan Diego Mendoza Peña.
Writing – original draft: Michel Andrés Medina, Juan Diego Mendoza Peña.
Writing – review & editing: Michel Andrés Medina, Juan Diego Mendoza Peña.