

## IMPACT OF THE SARS- COV-2 (COVID-19) PANDEMIC ON THE WELFARE OF WORKING EQUIDS, COLOMBIA 2021

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**Abstract:** In countries with low development indicators, working equids play an important role in the socioeconomic sector, since they promote the food security of communities. For this reason, animal welfare is a fundamental component, seeking to improve its level, including aspects that guarantee the sustainability of the system. In this investigation, the socioeconomic impact of the SARS-CoV-2 pandemic on owners who depend on working equids and welfare of those animals was described. 105 structured interviews were carried out, which included general aspects of their family, work, economic environment (before, during and after COVID-19) and variables related to the welfare of their equids. The field work included places in 6 departments of Colombia, with different uses of equids (tourism, agricultural production, livestock, construction, and forestry). According to the results and the analysis of socioeconomic variables, people received less income during the pandemic, which could have a direct impact on their quality-of-life indicators. However, in places with a sugarcane and milk production vocation, results were observed that go against the previous statement. Weight loss in equids and hoof conditions was the main finding that affected the welfare of these animals. Considering the Sustainable Development Goals (SDG) of the 2030 agenda, it is essential to propose concrete actions to the union of owners of working equids, including strategies to promote their living conditions from the perspective of “One Health and One Welfare”.

**Keywords:** *welfare, economy, pandemic, Sustainable Development Goals, food security*

## INTRODUCTION

Animal Welfare has gained greater interest in Latin America, especially during the last 20 years. This is reflected through an increase in scientific activity, but also in the changes

applied by the livestock sector (1). The SARS-CoV-2 (COVID-19) pandemic has disrupted communities and ways of life, with devastating effects on society in almost every country on earth, and has also tested food supply chains, the economy, like animal production systems, all of these with a high level of interrelation. The nature of the pandemic demanded an important commitment from government authorities to face the challenges, not only in terms of health, but also in economic terms. At a time when there remains much uncertainty and more work is required to understand the pandemic and its impact on the human population, only one certainty remains: collaboration between all sectors is key to responding to the crisis and the future (2).

The COVID-19 pandemic caused by the Sars-CoV-2 virus has affected the world economy and Colombia has not been the exception; some countries in the world are suffering the effects of stopping their activities to contain the virus and save lives. The equid production chain was also immersed in the COVID-19 scenario, with the general implications of the sector. It is important to understand that equids are widely used for work in agriculture and transportation, so that they provide direct and indirect income to different families, mainly in the rural sector, contributing to access to basic goods and services (3).

In Colombia, horses, mules and working donkeys are used in the field mainly for dairy work, transportation, heavy draft, light draft, security (mounted police). According to the ICA census in 2022, there are more than one million and six hundred thousand horses, distributed mainly in Antioquia, Tolima, Córdoba, Cundinamarca, Casanare, Cauca, Meta, and Cesar. (4)

The present study shows the socioeconomic impact of the pandemic on people who

economically depend on working equids in Colombia, as well as the regional differences and the different production chains in the country.

## **MATERIALS AND METHODS**

A descriptive, observational, cross-sectional study was carried out. The methodological approach of the project was qualitative and quantitative -mixed-, based on the collection of data in a population of owners of working equids and the general evaluation of their animals.

The study was carried out in several places in Colombia, seeking to find different uses of the equid within the national economy. The field work was carried out in 6 departments, for a total of 9 municipalities. The locations were chosen for convenience, considering logistical aspects. The nine places were: urban area of Cartagena (Bolívar), Santana (Boyacá), Villeta (Cundinamarca), rural sector of Santa Marta (Magdalena), Planeta Rica (Córdoba) and 4 municipalities of Antioquia (Andes, Apartadó, Cocorná and Entrerriós).

Considering the population census of horses, reported by the ICA for each department, a margin of error of 10% and a confidence level of 95%, a sample size of 105 people was obtained, whose inclusion criterion is that they were owners, whose economic activity depended more than 50% on working equids, and who had a maximum of 3 horses, mules or donkeys.

A non-probabilistic snowball sampling was carried out, due to the difficult access to information in certain municipalities in Colombia. In the call to the owners, Veterinary Doctors linked to the Municipal Agricultural Technical Assistance Units (UMATA) of each municipality in Colombia were contacted, with the purpose of informing them of the scope of the project.

Visits were scheduled in rural and urban

areas to carry out the survey of the owners, being strict in the prerequisite that their equine contribute largely to the family's socioeconomic activities.

The UMATA were responsible for disseminating the information and making the calls to the selected areas. The objective of the project, the management of information and the type of survey or form to apply were explained to the owners. Then, surveys were carried out on owners who had an equine present in the designated place and who signed the informed consent, guaranteeing confidentiality. The researchers completed the form after performing a general physical inspection of the equids that participated in the study. No personal data was collected that would allow the research subjects to be individualized.

The field work included a previous pilot exercise that served to evaluate the instrument with the different variables incorporated, which were organized into 3 large groups:

Sociodemographic characteristics, Socioeconomic activities related to the equid human bond and equid welfare.

The survey carried out was originally designed by Nottingham University, the translation and adaptation carried out by the group of researchers. Each survey consists of 75 questions and took around 15 minutes to complete by the population sample. One hundred and five structured interviews were conducted, which included general aspects of their family, work, economic environment (before and during the pandemic) and general impact on their equids welfare.

## STATISTICAL ANALYSIS

The socioeconomic surveys were carried out through (Microsoft forms®). The data obtained from the primary sources, qualitative and quantitative variables, were stored in an Excel spreadsheet (Microsoft Office®), chi

square independence test (X<sup>2</sup>) was performed, with a significance level of 0.05, to determine if there was a dependency relationship between the variables analysed.

After the field work, a prioritization exercise of municipalities was carried out based on the following variables: welfare condition of the equids and quality of life of the owners, including their families. Of which 4 places were obtained, to give continuity to the monitoring, follow-up, and accompaniment process.

## ETHICAL CONSIDERATIONS

The project was submitted to the Committee for the Care and Use of Animals (CICUA) from CES University. It was considered without risk, taking into consideration, that the information was not sensitive to psychological issues for people, therefore, expedited endorsement was granted. Confidentiality and the right to privacy were guaranteed, as was the principle of reciprocity, providing feedback to social and government leaders with the results. The above appears in the minutes of session number 46 of mentioned committee.

## RESULTS

The description of the population under study according to the main demographic characteristics was grouped as follows: a total of 105 people were surveyed, of which 90.48% belonged to the male gender and 9.52% to the female gender, whose ranges of age ranged between 18 and 80 years. According to the educational level, 44.76% of the respondents attended primary school, 32.38% of people had no academic level, 20% of the people had secondary education and only 2.86% of the individuals completed university studies with respective grade certificate.

In 69.52% of the homes of the equids owners interviewed there was the presence of at least one child, while in 49.52% of these families

there was at least one elderly adult, which is an important indicator of vulnerability.

To understand the impact of the pandemic in relation to income to support the family unit and the dependence on these resources due to direct work with horses, we must start from the figures before SARS-CoV-2 began. It was found that 42.86% people earned one to three legal monthly minimum wages in force before the pandemic (which is equivalent to 242 to 728 US dollars per month), while 37.14% people received family income less than 242 dollars per month. Regarding the effect of the pandemic on family income, 74.29% of respondents stated that they had totally or significantly lost their income during the time of restriction of free movement. Unlike the above, only 12.38% of equine owners stated that the pandemic meant an increase in family income. In the remaining percentage there were no substantial changes.

Despite the impact on income and expenses, 51.43% of those surveyed stated that the pandemic did not alter their quality of life, while 41.9% of people perceived that the pandemic affected them and 6.67% of Individuals expressed that their living conditions improved.

Of the population of equine owners, 54.28% did not suspend their work with animals (transport, agriculture, etc.), while 19.04% of them stopped working during 4-6 months of the pandemic. Only 0.95% of respondents did not work for 10-12 months. The remaining percentage stated that they had fluctuating interruptions, but not continuous ones, without the possibility of specifying the total time.

For 53.33% of equine owners, income was 100% dependent on working with their animals. While 20.95% depended economically on their animals in a range that varied between 30% and 59%. Additionally, for 11.42% of people the income represented

by the work of their animals was less than 30% and for 8.57% of those interviewed the income varied between 60 and 99%.

It was determined that for 60% of those surveyed, access to traditional food and supplements for their equids during the pandemic was maintained in relation to the pre-pandemic period, while for 34.28% of them the food supply decreased and for 5, the remaining 72% was increased.

Additionally, it was observed that 59.04% of the owners did not have alternative employment and 40.94% of them did, mainly in agricultural work unrelated to the use of equids or in informal transportation with the use of motorcycles. Consistent with the above, 56.19% did not agree with the replacement of equids used in labor support tasks, a trend that is advancing in part of the main cities in Colombia.

Many equids (55.23%) were used for loading agricultural products, pulling cars ranked second in frequency with 29.52%. 12.38% of horses, mules or donkeys were used mainly for personal or family transportation, while 2.85% were used to support livestock production management work.

Of the total number of respondents, 64.76% of the owners stated that they worked with their equids 4 to 6 days per week, while 22.85% people did so 7 days per week and 12.38% Those interviewed worked 1 to 3 days per week. Additionally, many respondents (44.76%) worked 5 to 7 hours with their animals per day and 34.24% of people expressed working less than 4 hours per day.

According the health status of the animals, 63.80% of those interviewed expressed that the pandemic had not had any effect on their horses, 14.28% of the owners reported that the main consequence had been weight loss, while 9.52% of those surveyed revealed that weight gain had been the greatest consequence for their livestock.

Regarding the specific health problems that arose during the pandemic in animals, 33.33% of people reported that the main disorders were in the legs or limbs due to the change in the person responsible for the farrier work, followed for the 21.90% who noticed that there was an increase in respiratory problems (presence of mucus), 20% indicated that there was an increase in the presentation of cases of acute gastrointestinal syndrome (colic) and finally, 8.57% of the owners reported that their animals presented behavior alterations.

As an alternative to prepare for pandemics or future phenomena like that experienced with SARS-CoV-2 (COVID-19), the owners stated that it would be important to learn about first aid (64.76%), while 22.85% see farrier as an interesting alternative.

## DISCUSSION

In many countries, working equids used for transportation and traction contribute directly and indirectly to the subsistence of households, communities and society as a whole, due to their close relationship with production and commercial activities. The above coincides with the results of this work, where more than half of the owners of horses, mules or donkeys depended 100% on their animals as the only family economic support, showing the sensitivity of the productive chain.

Likewise, equids represent a draft force for agricultural work, transportation, and tourism. During the time of the SARS-CoV-2 (COVID-19) pandemic, welfare of these animals varied, since their owners did not have sufficient resources to meet their needs or lacked the appropriate knowledge to care for them.

According to the National Administrative Department of Statistics of Colombia (DANE), agricultural GDP grew by 2.8% during 2021, while the economy fell 6.8%. According to

official statistics, crops such as coffee, rice, fruit trees, potatoes and cereals recorded the greatest growth, and in livestock activity, cattle, pigs, poultry, and fish farming stood out. The most notable case was that of coffee growing (5). The above, when contrasted with the results of the study, allowed us to establish that not all sectors of equine use were impacted in a similar way, for example, in Villeta (Cundinamarca) and in Santana (Boyacá) the economy revolves around sugar cane production, and that sector was greatly favored during the pandemic by the increase in the consumption of "agua panela" (a drink made from solidified sugar cane juice). According to the results of this research, another sector that did not feel the economic impact of the pandemic significantly was Entrerriós (Antioquia), given its high milk production, a situation that did not have variability in the period analysed.

According to Swan (6), most working equine owners located in Asia, Africa and Latin America earn less than US\$1 per person per day in the family. This is why these households fall within the international denomination of poverty. The present study established higher family income for the environment analysed compared to the author, however, the economic impact of the pandemic for these families was evident. Therefore, it is imperative to seek to improve welfare conditions of working equids, their owners and family environments to avoid the negative impact of a future pandemic, from a perspective of the concept of health and welfare.

It is important to understand that the economic impact occurs in multiple ways, the Colombian Farmers Society -SAC- argues that mandatory isolation generated a decrease in economic demand (decrease in household consumption), this factor is not very relevant compared to the situation experienced

directly by the farmers, who stated that due to the displacement to the collection centers and, in turn, the outbreak of the coronavirus in the supply centers, the harvested products were not allowed to be sold at a fair price, despite the fact that The majority of owners (54.28%) did not stop working during the pandemic, stating that their income decreased, which could be attributable to the argument presented above(7), a situation that also impacted owners of working equids and their families. directly or indirectly.

An important fact, according to DANE in 2019, the population living in the rural sector in Colombia reaches 11 million, of which approximately 3.7 million families in Colombia are dedicated to agricultural activities. According to the same reference, 87% of them had to face economic difficulties because of the pandemic (5).

In this research work, it was observed that 59.04% of the owners did not have alternative employment because they are peasants who have worked in rural areas all their lives and whose only source of income is agriculture with the support of their o their equids.

In accordance with the first Sustainable Development Goal (end of poverty), new research published by the World Research Institute of Development Economics of the United Nations University (8), warns that the economic consequences of the pandemic world could increase poverty throughout the world, even reaching figures greater than 500 million additional people to those already existing. The above, added to the results of this research, serve as a warning of the level of vulnerability of the productive chain.

Regarding equine traction, a situation that is not foreign to Colombia, it is more commonly used in poorer communities and, therefore, the animals are generally malnourished and have limited access to water. Furthermore, they receive relatively poor veterinary care,

environmental and demographic risk factors for the poor welfare of working horses, donkeys, and mules in developing countries (9). The above in the face of the challenge of the pandemic can clearly become more evident.

The participation of women in work with horses is very low, only 10 of the 105 respondents belonged to that gender. Women are also more affected by the economic effects of SARS-CoV-2 (COVID-19), as they disproportionately work in insecure labor markets. Nearly 60% of women work in the informal economy, which further exposes them to falling into poverty. As stated in the fifth Sustainable Development Goal (gender equality), attributing to the effects of the COVID-19 pandemic a reversal of the few achievements that have been achieved in terms of gender equality and women's rights. The coronavirus outbreak worsens existing inequalities for women and girls worldwide; from health and the economy to security and social protection (2). The above, within the framework of this project, became more evident in Apartadó (Antioquia), a place in which this population segment was most noticeable, women who were the economic support of their homes, inheriting said vocation and work to their children and daughters.

On the other hand, the fourth Sustainable Development Goal shows how education allows upward socioeconomic mobility and is key to getting out of poverty (8). Nearly one-fifth of the world's population, more than half of all children and adolescents worldwide, are not meeting minimum basic competency standards. In the study, it was reported that 44.76% of the respondents had completed primary school, 32.38% had no academic level, 20% had secondary education and only 2.86% had university studies.

Working equids are noted in the world for

their rusticity, along with donkeys and mules, with 90% of their population being used for this purpose. These types of equines are found mainly in underdeveloped countries, and the majority lack any of the five freedoms (10).

Regarding the body condition of the animals, most of the owners reported that the main sequelae left by the pandemic had been weight loss, this may be due to little or poor nutrition, bringing with it digestive and musculoskeletal problems, alterations that were the main problems reported by the owners in this study.

In relation to the third Sustainable Development Goal (health and well-being), during the pandemic the world faced a global health crisis unprecedented in recent times of humanity, SARS-CoV-2 (COVID-19)

worsened human suffering, destabilizing the global economy, and dramatically changing the lives of billions of people around the world. Factors that can directly or indirectly affect welfare and health of animal populations that coexist with or depend on humans (5). For this reason, research like this is key to highlighting the need to satisfy the determinants of animal welfare.

Although DANE presented growth figures in the agricultural sector during the pandemic (7), this work demonstrated that, in general terms, there was an impact on small producers and their equids on the socioeconomic level, which had an impact on the conditions, welfare of their families, and of the animals, with great consequences for the country's food security.

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