

EVALUACIÓN DE LA MORTALIDAD EN EL SÍNDROME GASTROENTERICO, AGUA-PIENSO Y HALLAZGOS ANATOMOPATOLÓGICOS EN CRÍAS Y PRECEBAS PORCINAS.

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Resumen.

Se evaluó la mortalidad en el síndrome gastroentérico en las categorías porcinas: crías y precebas en el período del 2012-2014. Fueron analizados los resultados de los exámenes de agua de bebida (pozo-tetinas) y pienso (sensoriales, físico-químicos y microbiológicos). Se tuvo presente los hallazgos anatomopatológicos (macroscópicos) de los animales autopsiados. En el procesamiento de los datos se empleo el paquete estadístico SSPS versión 15. Existió predominio de la mortalidad por enfermedades gastrointestinales en las precebas durante los meses más calurosos del año, siendo el comportamiento casi estacionario en las crías desde abril 2012 hasta diciembre del 2014. El agua de pozo presentó alteraciones sensoriales y microbiológicas, no siendo así en el agua de las tetinas. Existieron alteraciones en los parámetros sensoriales, físico-químicos y microbiológicos en el pienso. Las principales causas de muerte por el síndrome gastroentérico, se asocia en las crías a la Colibacilosis mientras en las precebas a la Colienterotoxemia y Disentería Porcina.

Palabras claves: Crías, precebas, síndrome gastroentérico.

EVALUATION OF MORTALITY IN GASTROENTERIC SYNDROME, WATER-CONCENTRATED AND ANATOMOPHATOLOGICAL FINDING IN SWINE NEWBORN AND PIGLET.

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Abstract

Mortality was assessed in Gastroenteric Syndrome in newborn and piglets in 2012-2014 periods. It was analyzed the results of examinations of drinking water (pool-drinking device) and concentrated (sensory, physicochemical and microbiological). Pathologic findings (macroscopic) of the autopsied animals were set up. It was employed the SPSS version 15 for data processing. It was found predominance for mortality for gastrointestinal illness in piglets the hottest months of de year but the behavior in newborn was almost stationary since April 2012 until December 2014. Pool water shows sensorial and microbiological changes but not in drinking device. There were changes in sensor, physic-chemical and microbiological parameters in feeding. Main cause of mortality for Gastroenteric Syndrome was Colibacilosis in newborn while Colienterotoxemy and Swine Dysentery in piglets.

Key words: *Newborn, piglets, Gastroenteric Syndrome*

Introduction.

Limitations in Cuba regarding the acquisition of food and other resources to the intensive production has resulted in the decline of pig farming specialist who struggles to recover but requires large inputs for production.

This has resulted in small and medium productions, with less need for inputs, have come to occupy an important place in pig production in the country, however, this sector does not have the technical resources of specialized production (Vazquez et al., 1997)

For animals growing health problems are exacerbated because pigs are regrouped and mixed, suffering high levels of stress, losing passive immunity, resulting in pneumonia two to three weeks after weaning. In conclusion, if pigs are handled in the same way, the result is the presence of a number of preventable diseases (Fuentes, 2001).

This paper presents such as:

Scientific problem.

Mortality in the gastro-intestinal syndromes in swine breeding and piglets categories.

Hypothesis

The gastroenteric syndrome in different pig categories leads to high mortality.

General objectives:

Assess mortality in the gastro-intestinal syndrome in two different swine categories and microbiological in food, drinking water and pathological results (macroscopic) animals autopsied over a period of three years.

Specific objectives:

- } To evaluate the trend in mortality gastroenteric syndrome in swine categories: piglets breeding and in the period from 2012 to 2014 period.
- } To analyze the results of analyzes of drinking water (teats and well), I think and pathology (macroscopic) animals autopsied in the years analyzed.

Materials and methods.

The work was performed in a swine entity, evaluating mortality from gastro syndrome in two different swine categories: young and piglets in the period from 2012 to 2014. The results of the tests of drinking water were analyzed: well (032- Normative References 2: 1986) and nipples (NC: 827: 2011) as well as sensory, physical and chemical analyzes (NC: 74-22: 1985) and microbiological (NC: ISSO-605: 2008, NC: ISSO-7459: 2009, NC: ISSO-4832: 2010) start feed imported Sagarpa A-0864-112 Championships. Pathologic findings (macroscopic) of autopsied in the three years in the Provincial Veterinary Laboratory of Villa Clara animals were evaluated.

Data were obtained from passive files of the Statistics Department of swine entity, creating databases in Microsoft Excel that were exported to the statistical package SPSS version 15; The data was analyzed by descriptive statistics (analysis of time series, absolute frequency, relative frequency and average) .To determine trends moving averages are used extensively

3 and smoothing method.

Results

and

Discussion.

In the analyzed period (2012 - 2014) died of gastrointestinal diseases piglets 944 representing 52.6% of the overall mortality of the categories analyzed, while 852 died in pig offspring to 47.4%, a difference that turned out to be significant with driveability a level of 95% (table 1). In studies on gastrointestinal processes Rodriguez et al., (1996) gets out of a total of 217 animals studied, 118 babies (54.37%) died from these diseases, while the remaining 99 (45.63%) belonging to the category piglets, also they died from gastroenteric disorders.

Tabla 1. Mortalidad por el síndrome gastroentérico en crías y precebas porcinas. Mortality for gastroenteric Syndrome in newborn and piglets.

| Mortality | Absolute Frequency | % |
|------------------|---------------------------|------------|
| Piglets | 944 | 52,6 |
| Newborns | 852 | 47,4 |
| Total | 1796 | 100 |

Source: Record control of the main causes of death.

X^2 of goodness of fit =4,713 $P<0,05$

In 2012 the highest mortality by gastroenteric syndrome in offspring was presented in May to 12.0% in 2013 corresponded to the months of May and July (10.7%), November and December (11.0%), however in 2014 during the months of January to 10.4% and June with 11.9% (table 2). Of note (smoothing method) that from April to December 2014 the behavior of mortality was almost stationary relative to the above referred Peña et al., (2013) that have a higher occurrence gastroenteric processes at the hottest time of the year where the ambient temperature and relative humidity are higher.

Table 2. Mortality by gastroenteric syndrome in newborn by year and month.

| Month / Year | 2012 | % | 2013 | % | 2014 | % |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| January | 12 | 5,0 | 20 | 6,7 | 34 | 10,9 |
| February | 16 | 6,6 | 12 | 4,0 | 25 | 8,0 |
| March | 22 | 9,1 | 23 | 7,7 | 29 | 9,3 |
| April | 18 | 7,5 | 18 | 6,0 | 19 | 6,1 |
| May | 29 | 12,0 | 32 | 10,7 | 20 | 6,4 |
| June | 20 | 8,3 | 22 | 7,3 | 37 | 11,9 |
| July | 23 | 9,5 | 32 | 10,7 | 22 | 7,1 |
| Agost | 20 | 8,3 | 23 | 7,7 | 33 | 10,6 |
| September | 19 | 7,9 | 27 | 9,0 | 20 | 6,4 |
| October | 20 | 8,3 | 25 | 8,3 | 20 | 6,4 |
| November | 22 | 9,1 | 33 | 11,0 | 28 | 9,0 |
| December | 20 | 8,3 | 33 | 11,0 | 24 | 7,7 |
| Total | 241 | 100 | 300 | 100 | 311 | 100 |

Source: Record control of the main causes of death.

During 2012 the highest mortality from gastro piglets syndrome occurred in the months of May to 10.7%, June, September and November to 10.3% in 2013 from April (10.3%), September and November (10.0%) and December (10.6%), however in 2014 during the month of December to 11.1% (table 3). The presentation of gastrointestinal diseases in the winter could be associated with deficiencies in the production process of swine entity, existing instabilities and technological constraints that affect the design process, as well as deterioration of physical and chemical aspects (humidity) and microbiological. In a further analysis of the sample of well water it was observed alterations in appearance and microbiological indicators, showing poor hygienic and sanitary conditions. Chlorinated water nipples according to their sensory evaluation were no changes (Table 4). Microbiological indicators show that it meets the quality specifications

Tabla 3. Mortality by gastroenteric syndrome in piglets.

| . Month /Year | 2012 | % | 2013 | % | 2014 | % |
|---------------|------------|-------------|------------|-------------|------------|-------------|
| January | 11 | 4,3 | 22 | 6,5 | 28 | 8,0 |
| February | 18 | 7,1 | 24 | 7,1 | 29 | 8,3 |
| March | 25 | 9,9 | 26 | 7,6 | 33 | 9,4 |
| April | 19 | 7,5 | 35 | 10,3 | 24 | 6,8 |
| May | 27 | 10,7 | 27 | 7,9 | 24 | 6,8 |
| June | 26 | 10,3 | 25 | 7,4 | 34 | 9,7 |
| July | 17 | 6,7 | 25 | 7,4 | 30 | 8,5 |
| Agost | 18 | 7,1 | 26 | 7,6 | 32 | 9,1 |
| September | 26 | 10,3 | 34 | 10,0 | 25 | 7,1 |
| October | 19 | 7,5 | 26 | 7,6 | 27 | 7,7 |
| November | 26 | 10,3 | 34 | 10,0 | 26 | 7,4 |
| December | 21 | 8,3 | 36 | 10,6 | 39 | 11,1 |
| Total | 253 | 100 | 340 | 100 | 351 | 100 |

Source: Record control of the main causes of death.

In a further analysis of the sample of well water it was observed alterations in appearance and microbiological indicators, showing poor hygienic and sanitary conditions. Chlorinated water nipples according to their sensory evaluation were no changes (Table 4). Microbiological indicators show that it meets the quality specifications according to NC: 827: 2010, which is reflected the number of fecal coliforms must be null and Total Coliforms 2.2. When the water source has alterations in the organoleptic and microbiological indicators presenting probabilities rise diseases. Lomborg says, (2001), to reduce disease, water should be treated for human and animal consumption, and removal of dissolved substances, undissolved and microorganisms harmful to health may be necessary.

Table 4. Water Sensory and microbiological analysis

| Sensory analysis | |
|-------------------------|-------------------------------|
| Agua de pozo Water well | Water nipples Agua de tetinas |

| | | | |
|-------------------------------|--|------------------------|----------|
| Appearance | Light dirt particles in the background | Appearance | Typical |
| Smell | Typical | Smell | Typical |
| Color | Typical | Color | Typical |
| Microbiological analysis | | | |
| MPN Coliformes totales/100 mL | >16 | MPN C. total/100 mL | <2.2 |
| MPN Coliformes fecales/100 mL | >16 | MPN C. fecal/100 mL | <2.2 |
| <i>Escherichia coli</i> | Negative | <i>Escherichiacoli</i> | Negative |

Source: **Record control analysis of water samples.** Legend: **MPN: Most probable number**

The results of analysis of the feed in the sensory evaluation showed alterations in appearance, while the physical-chemical-moisture indicator found slightly elevated, which must be assessed for the conservation of the product. Microbiological indicators showed that the tolerances for the count of fungi (Table 5) is exceeded. According to studies by Campabadal (2009) lack the abrupt change in food and physico-chemical and microbiological, sensory disturbances of feed affects the development and growth of the animals causing the occurrence of diseases.

Table 5. Feed sensory, physic-chemical and microbiological analysis.

| Sensory analysis | |
|--------------------------|-----------------|
| Appearance | Abundant powder |
| Smell | Typical |
| Color | Typical |
| Physic-chemical analysis | |
| % Humidity | 12.8 |
| % Dry matter | 87.2 |
| Microbiological analysis | |
| Coliformes total/g | -10^2 |
| Quantity of fungus /g | $11 * 10^3$ |
| <i>Salmonella</i> /25g | Absent |

Source: **Control Register analysis of feed samples.**

The pathology results (Table 6) showed that all calves died of colibacillosis. The piglets by coli enterotoxaemia in Swine Dysentery 55.5% and a 44.4%. Ricardo (2008) states that the highest percentages of deaths pigs and piglets categories, mainly Colibacillosis, coli enterotoxaemia and dysentery.

Table 6. Anatomo-pathological results of dead newborn and piglets in the Department of Pathology of the Provincial Veterinary Diagnostic Laboratory.

| Diseases | Newborns | | Piglets | |
|---------------------|----------|-----|----------|------|
| | Quantity | % | Quantity | % |
| Colibacillosis | 9 | 100 | | |
| Coli-enterotoxemia | | | 5 | 55.5 |
| Fibrinous pneumonia | | | 4 | 44.4 |
| Total | 9 | | 9 | |

Source: Register of control of dead piglets in the Department of Pathology of the Provincial Veterinary Diagnostic Laboratory.

Conclusions.

- } In the evaluation period there was prevalence of mortality from gastroenteric syndrome in piglets compared to the offspring during the hottest months of the year.
- } Behavior in infant mortality from April to December 2014 was almost stationary.
- } Water Well presented sensory and microbiological changes, but were not in the water nipples.
- } In the feed he showed alterations in the physic-chemical and microbiological sensory parameters.
- } The main cause of death occurred in the offspring of Colibacillosis, in piglets by coli enterotoxaemia and swine dysentery.

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