Animales incluidos en cada grupo fueron pesados. La media de peso fue de 62 ± 2.0 kg.

Se realizó un estudio cuantitativo descriptivo, con el objetivo de determinar la cantidad y calidad del leche producida por las madres, así como el comportamiento productivo de la raza Dorper, comparándolo con la raza White Dorper, reportando mejor ganancia diaria y peso al destete.

Hacia esos resultados, que son el objetivo de esta obra, se determinó que la raza Dorper puede adaptarse fácilmente a las condiciones climáticas de Colombia, como la Dorper es una de las razas que pueden adaptarse y moverse de zonas aridas a zonas tropicales.

En Colombia, el sector ganadero es una alternativa económica para el productor, ya que proporciona unaidluna, en el morning, balanced commercial feed, with values of crude protein of 14%, ash 10%, humidity 13%, fat 2.5% and fiber 25%.

**Sampling.** Sólo se incluyeron animales con peneles unidos en el estudio, para esta determinación, un estudio clínico se realizó a todos los animales para descartar problemas de mastitis, la mastitis California test se utilizó y sólo las leches que no tuvieron este resultado fueron incluidas en el estudio. Antes del molienda, udders and teats were cleaned using a soap solution, then rinsed with sterile water and dried with sterile gauze, disinfected with iodine solution. Once asepsis was completed, the first milk jet was discarded and the sample was collected in Whirl-pack bags. The samples were taken in the morning before the lambs were reunited with their mothers. Approximately 20 ml were taken of each ewe (10 ml per teat).

**Processing.** Los animales fueron procesados en el laboratorio de calidad del leche y mastitis control en la Universidad Pedagógica y Tecnológica de Colombia (Tunja, Boyacá). Porcentajes de grasa, proteína, lactosa, sólidos no grasos y niveles de friaje expresados en grados centígrados fueron determinados con un analizador de Fourier transform infrared technology (MilkoScan Mars). Conteo celular (SCC) fue realizado con un equipo Portacheck para cabras.

**Statistical analyses.** Se realizó una análisis de varianza (ANOVA) entre grupos de DIF, utilizando la comparación de medias de significancia. El software Statgraphics Centurion, Windows 10 version.

**RESULTS**

La tabla 1 muestra los resultados de medias para el parámetro físico- químico para cada grupo de DIF, para leche de Dorper.

El porcentaje de grasa muestra una variación entre la primera mitad del día (21-40), y luego disminuye (grupo 3), pero sigue siendo superior al porcentaje del primer grupo. Sin embargo, no se encontraron diferencias estadísticamente significativas entre los grupos. Porcentaje de sólidos totales describió un comportamiento similar, sin diferencias estadísticas entre los grupos (p>0.05), pero en este caso, el grupo 3 tuvo una menor valor que el grupo 1 (Tabla 1).

La mayor diferencia de proteína se encontró en el primer grupo, y luego disminuyó con el transcurso del tiempo, con diferencias estadísticamente significativas encontradas entre los grupos 1 y el otro grupo. La lactosa se encontró alta en el grupo dos (21-40 DIF), pero disminuyó con el transcurso del tiempo (41-60 DIF) y sigue siendo mayor que el grupo uno, y encontró también diferencias estadísticamente significativas entre los grupos.

No hubo diferencias encontradas entre grupos de no grasa, sin embargo, los valores fueron deformaciones.
Table 1. Means values for each physicochemical parameters for each group of days in milk.

<table>
<thead>
<tr>
<th>parameter</th>
<th>G1 (3-20 d)</th>
<th>G2 (21-40 d)</th>
<th>G3 (41-60 d)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>fat (%)*</td>
<td>7.37 ± 2.33</td>
<td>8.09 ± 0.13</td>
<td>7.54 ± 0.10</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>protein (%)</td>
<td>5.45 ± 0.30a</td>
<td>5.04 ± 0.15b</td>
<td>5.06 ± 0.04b</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>lactose (%)</td>
<td>4.77 ± 0.17c</td>
<td>5.22 ± 0.13a</td>
<td>5.07 ± 0.04b</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>NFS (%)*</td>
<td>11.13 ± 0.43</td>
<td>11.07 ± 0.28</td>
<td>10.98 ± 0.08</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>t.solids (%)*</td>
<td>18.70 ± 2.05</td>
<td>19.17 ± 0.20</td>
<td>18.53 ± 0.15</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>f point (°C)</td>
<td>-0.5836 ± 0.02a</td>
<td>-0.575 ± 0.004ab</td>
<td>-0.5695 ± 0.016b</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>SCC cells/ml</td>
<td>223.5 ± 19.46a</td>
<td>75.3 ± 13.81b</td>
<td>231.8 ± 17.75a</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

G: group, d: days, *no significant differences, NFS: non fatty solids, SCC: somatic cell counts (x1.000 cells/ml), >: mayor, <: menor, t: total, f: freezing point

scended from group one to group three. In the case of freezing point, exist significant statistical difference between group one and three, but there is not differences between group two and others two groups.

For SCC there is not a significant difference between group one and three, but the group two shows a marked reduction, be this group different statistically of the other two groups.

DISCUSSION

Previous work found improved daily weight gain in Dorper lambs during the first 28 days on lactation, which is correlated with milk quality, since this is the principal feed at this stage, likewise reported that the capacity of Dorper ewes to produce large quantities of milk, contribute to the high growth potential of the lambs.

Moreover, the better quality for raw milk was found in the first and second group. Besides Dorper breed showed a better capacity for maintaining production regimen during gestation and under adverse conditions of feeding, due to maintain better body condition and greater insulin-like growth factor-1 (IGF-1) concentrations, when it was compared with Rambouillet breed.

The studies about Dorper breed raw milk quality are old and scarce around the world. Researchers mentioned that for ewes after 10 days in lactation, the fat content in milk was 7.1%, value that is similar to in the present findings (Table 1), but they found that after 40 DIM the fat percentage was 5.5% on average, which is different with reported here whose value was 8.09% on average. Likewise, they reported that the average value of protein is 5.6%, which is elevated compared with any of groups analyzed here; also, the value of 4.6% for lactose that they reported is lower than shows here.

Previous work reported values of fat in ½ Lacaune x ½ Ile de France ewes of 4.95%, 5.24% and 4.89% when the animals were fed soybean seed-supplemented diet with 0, 70 and 140 g/kg respectively, than was lower if we compare with all groups studied here, this due the differences between productive focus of the two breeds, because this crossbred is half dairy and half meat, meanwhile, the Dorper breed is a meat-breed. Results for protein too were lowers than reported here, even for diet with mayor content of soybean seed.

In the same way, others found an average fat percentage for Lacaune and East Friesian breeds (both dairy breeds) of 6.86% and 7.31% respectively, which are lower for values reported here for Dorper breed in three groups. Lacaune’s protein percentage was 4.93%, but for East Friesian this percentage was 5.18%, the first of them is lower for any groups analyzed here, but the second result is higher than groups 2 and 3.

Others performed a study for the determination of the variations that exist between raw milk of Santa Ines ewes (meat breed), undergoing treatment of oxytocin, obtaining an average for percentage of fat of 4.96% for untreated ewes, and 5.84% for treated ewes, which are lower than reported here, due possibly to breed difference and feed regimen. However, the results for not fatty solids were 11.22% for the untreated group and 11.57% for the treated group, values that are higher than reported here for any group studied, due possibly to an increase of other milk constituents.

The peak of production is related to the lactose content for Santa Ines ewes, reported the major level of production at 37 DIM. This is correlated with found here for lactose content which was higher in group two (21-40 DIM); also, the results of this study are similar to reported by others, who correlated the percentage of lactose and production peak, and found that this occurred in the third week (21 DIM) for Talaverana breed.

Generally in sheep, high content of lactose is associated with low fat and protein values, due to the dilution factors; similar process were found here, where group G2 (highest lactose content) has the lowest percentage of protein compared to G1, but not occur the same for fat percentage.

The “Guide of udder health for dairy sheep” stated that a result between 0-200.000 cells/ml are negative results, and 150.000-500.000 cells/ml are trace results, due to apocrine secretion with a cytoplasmic particles normal in milk.

The present study shows that group one and three had trace results, and group two has negative results. It has been mentioned that mastitis, even this is subclinical cause loss of milk yield and modification of main components, as a result of damage in the mammary secretory tissue. It has been mentioned that percentage of protein is reduced when the SCC increase above 500.000 cells, while for fat percentage this is reduced when SCC increase above 2.000.000 cells/ml.
SCC varied across lactation in our study. Our values are higher than those reported by others for Lacaune x 1/2 Ile de France whose results were between 145,750 and 203,000 cells/ml. But our results were lower than reports of others, whose ranked were between 263,000 and 467,000 cells/ml.

Some publications refer that mean freezing point for Lacaune’s milk in Brazil was -0.577 (°C) and were similar to results of group 2, but different for the others two groups. This trait is related with the percentage of total solids that have the milk, and in dairy industries it is very important because it can function like an indicator of milk quality through the determination of water addition.

Is well known that climatic conditions can affect milk quality and quantity, likewise feeding regimen and quality of feed, numbers of lambs per birth and sex of lambs (males or females). Statistical differences found between the three groups for percentage of protein and lactose, freezing point and somatic cell counts. There were not statistical differences between fat, total solids and not fatty solids. Physicochemical characteristic of Dorper raw milk were better than others breeds even dairy or meat breeds. The information related with this topic in Colombia is the first, and was updated in the world.

REFERENCES


