Supernumerary Teat Removal Can Be Avoided in Dairy Sheep

Carlos Palacios & José-Alfonso Abecia

To cite this article: Carlos Palacios & José-Alfonso Abecia (2014) Supernumerary Teat Removal Can Be Avoided in Dairy Sheep, Journal of Applied Animal Welfare Science, 17:2, 178-182, DOI: 10.1080/10888705.2014.884404

To link to this article: http://dx.doi.org/10.1080/10888705.2014.884404

Published online: 25 Mar 2014.
Supernumerary Teat Removal Can Be Avoided in Dairy Sheep

Carlos Palacios\(^1\) and José-Alfonso Abecia\(^2\)

\(^1\)Department of Farm Building, Agronomy and Environmental Sciences, University of Salamanca, Spain
\(^2\)Department of Animal Production and Food Science, Veterinary Faculty, University of Zaragoza, Spain

The aim of this work was to determine whether the removal of supernumerary teats from dairy sheep when they are born is a useful procedure in the farming routine. Ewes were divided into 3 groups according to the number of teats at milking: ewes who were born with 2 teats; ewes who were born with 4 teats and had the 2 supernumerary nipples cut just after birth; and ewes who were born with 4 teats and did not have nipple amputation performed. Removal of supernumerary teats at lambing produced a significant reduction in milk production during the first 2 milking periods (\(p < .01\)). There were no differences between ewes with 2 or 4 teats, which suggests that this procedure is not necessary on dairy sheep farms. Because the presence of supernumerary teats is highly heritable, the elimination of this trait could be accomplished through selection methods.

Keywords: sheep, supernumerary, teats, milk, production

Hyperthelia, or supernumerary teats, is a common abnormality of the udders of some livestock species. It negatively affects machine milking functionality, especially if the supernumerary teats are connected to lactating mammary glands (Brka, Reinsch, & Kalm, 2002).

The Animal Welfare Approved program in the United States (AWA, 2013) defines supernumerary teats as teats that are additional to the usual number of teats found on a cow (four), sheep (two), or goat (two). They can sometimes produce milk, but more often, they are not fully formed and can obstruct milking.

Dairy calves, dairy ewe lambs, and dairy goat kids may be born with extra teats on their udders. The presence of supernumerary teats has an embryonic origin. Thus, eight pairs of isolated mammary buds are present in all mammal embryos, and after an involution process,
the seventh mammary pair located in an inguinal position is maintained in sheep. Occasionally the sixth pair can also be maintained, producing the supernumerary teats in this species (Delouis & Richard, 1991). In the dairy industry, supernumerary teats are usually removed. Some organizations, such as the Royal Society for the Prevention of Cruelty to Animals (http://kb.rspca.org.au) in Australia, believe that the clipping/removal of supernumerary teats of dairy calves, lambs, and kids for aesthetic reasons only should not be performed.

The AWA Standards for Dairy Sheep in the United Kingdom (Department for Environment, Food, & Rural Affairs, 2007) indicate that if supernumerary teats are removed, the procedure must be carried out by a competent person using an effective local anesthetic before the lambs are 5 weeks old. If it is necessary (for therapeutic reasons only) to remove supernumerary teats, the procedure must take place before the nonhuman animal is 3 months old, and the animal must be appropriately restrained. An effective local anesthetic is required; the area should be disinfected and any bleeding following the removal of the supernumerary teat with clean, sharp scissors should be stopped.

The average frequency of infection has been found to be 4.3% in sheep, and it is 29.7% in goats (Oppong & Gumedze, 1982). There is no scientific evidence of differences in milk production of ewes with two or four teats. Moreover, the effectiveness of the removal of supernumerary teats in enhancing the performance of dairy sheep should be clarified. Supernumerary teats should not be removed if they do not interfere with the main teats.

The aim of this work was to determine whether the removal of supernumerary teats from dairy sheep when they are born is a useful procedure in the farming routine.

MATERIALS AND METHODS

The work was carried out in a commercial dairy sheep farm located in Olmedo, Spain (41°N). A total of 1,144 milking periods corresponding to the first two parturitions of 596 Assaf ewes (first milking, \( n = 596 \); second milking, \( n = 548 \)) were analyzed. Ewes were divided into three groups according the number of teats at milking: Group 2 (\( n = 305 \)) consisted of ewes who were born with two teats; Group 4-2 (\( n = 70 \)) consisted of ewes who were born with four teats and had the two supernumerary nipples cut just after birth; and Group 4 (\( n = 221 \)) consisted of ewes who were born with four teats and did not have nipple amputation performed. At this farm, supernumerary teats are clipped the day ewe lambs are born, under local anesthesia using surgical scissors.

Ewes were milked by machine following the routine established at the farm, so that two milking procedures were performed every day (6 a.m. and 6 p.m.). At this farm, ewes are milked after lambing (once the Colostral phase is over), and lambs are reared artificially.

To determine the effect of supernumerary teat removal procedures at birth on milk production during the adult life of ewe lambs, 5-month milk yield controls were recorded and used to calculate the total milk yield per lactation (TMY) following the Fleischmann method (International Committee for Animal Recording, 2001), together with the corresponding lactation length (LL; difference between lambing and drying-off dates). TMY per a 150-day standardized length (TMY150) of the milking period was also calculated. Milk production was measured fortnightly.
The experimental design was based on a $3 \times 2$ factorial model, with the number of teats and the lactation number as fixed effects, and the Poisson distribution specified in a model that included the teats (two, two but with two removed, or four) and lactation number (first or second) and their interactions. The probability level for statistical significance was set to $p < .05$, and the results were expressed as mean ± standard error of the mean (SEM).

RESULTS

Overall, the removal of supernumerary teats at lambing produced a significant reduction in TMY and TMY150 during the two first milking periods ($p < .01$); ewes in Group 4-2 produced less milk than the other two groups (TMY = 317 ± 6; 273 ± 12; and 317 ± 7 L; TMY150 = 298 ± 5; 261 ± 11; and 298 ± 6 L, for Groups 2, 4-2, and 4, respectively). No differences between ewes with two or four teats were observed. The differences were mainly due to significant differences in the first milking period, because no differences between groups were observed in the second period (Figure 1).

Mean LL was affected by teat clipping in the first milking period (Table 1); ewes suffering from clipping had a significantly shorter milking length in comparison with ewes with two or four teats. Again, these differences were attenuated in the second period.

![FIGURE 1 Mean (± SEM) total milk yield per lactation (TMY) and total milk yield per a 150-day standardized length (TMY150) of the milking period of Assaf ewes with two teats (Group 2); two teats but suffering from the removal of two supernumerary teats at lambing (Group 4-2); or four teats with no amputation (Group 4) during their two first milking periods. a,b Different superscripts indicate significant differences between groups ($p < .01$).]
TABLE 1
Effect of Supernumerary Teat Removal on Milk Production

<table>
<thead>
<tr>
<th>Group</th>
<th>First Milking</th>
<th>Second Milking</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>146 ± 3&lt;sup&gt;a&lt;/sup&gt;&lt;sup&gt;x&lt;/sup&gt;</td>
<td>158 ± 2&lt;sup&gt;y&lt;/sup&gt;</td>
<td>152 ± 2&lt;br&gt;(305) (283)</td>
</tr>
<tr>
<td>Group 4-2</td>
<td>129 ± 6&lt;sup&gt;b&lt;/sup&gt;&lt;sup&gt;x&lt;/sup&gt;</td>
<td>161 ± 4&lt;sup&gt;y&lt;/sup&gt;</td>
<td>143 ± 4&lt;br&gt;(70) (49)</td>
</tr>
<tr>
<td>Group 4</td>
<td>147 ± 4&lt;sup&gt;a&lt;/sup&gt;&lt;sup&gt;y&lt;/sup&gt;</td>
<td>155 ± 3&lt;sup&gt;y&lt;/sup&gt;</td>
<td>150 ± 2&lt;br&gt;(221) (216)</td>
</tr>
</tbody>
</table>

Note: Mean (± SEM) lactation length (days) of Assaf ewes with two teats (Group 2); two teats but not suffering the removal of two supernumerary teats at birth (Group 4-2); or four teats with no amputation (Group 4) during their two first milking periods (<i>n</i>).

<sup>a,b</sup> Different superscripts in the same column indicate significant differences between groups (<i>p</i> < .01).

<sup>x,y</sup> Different superscripts in the same row indicate significant differences between milking periods (<i>p</i> < .01).

DISCUSSION

Because there is not a physiological explanation for the reduction in milk performance of those ewes whose extra teats were removed when they were born, the most important finding of this study is the lack of differences between the other groups. Ewes with four teats had the same milk yields as ewes with two teats. Differences were not found in the second milking period; the significant milk losses do not justify the removal practice.

To our knowledge, this is the first report demonstrating that ewes with four teats produce the same amount of milk as normal ewes, and so it is not necessary to remove the two extra teats at birth. This is especially important in those systems in which lambs are not present during the ewe’s lactation. In the present experiment, it is interesting to note that the time between teat clipping and the onset of the first milking period was about 15 months, and no signs of infection or tissue alteration were observed in the clipped area.

Animal welfare is the combination of subjective and objective aspects of the conditions of life for animals—including health and disease, behavior, husbandry, and management—and it is thus a complex and abstract construct (Fitzpatrick, Scott, & Nolan, 2006). Although it is recognized that many prevalent diseases are major contributors to adverse welfare worldwide, some management routines (such as supernumerary teat removal) that have been established on the farms could also be considered as stressors and produce behavioral or productive changes in the flock.

CONCLUSION

The absence of differences between ewes with or without the removal of supernumerary teats suggests that this procedure is not necessary in dairy sheep farms. Because the presence of supernumerary teats is highly heritable, the elimination of this trait could be performed through
selection methods. Thus, classic attempts to include teat-size measurements as aids in the selection against teat defects in cattle (Frisch, 1982) could be included in the dairy sheep genetic programs.

ACKNOWLEDGMENT

The authors want to thank Granja de Desarrollo Ovino, of Olmedo, Spain, for data records.

REFERENCES


