Dressing Percentage in Romanian Spotted Breed

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Abstract
The purpose of this research was to determine whether there are significant differences in terms of carcass weight, forequarters, hindquarters and the dressing percentage among Romanian Spotted breed steers and first generation crossbreed obtained between Romanian Spotted and Holstein at slaughter age of 12 and 17 months respectively. Study was done on Romanian Spotted breed steer aged 12 months (36 heads) and 17 months (19 heads); Romanian Spotted x Holstein first generation crossbreed of aged 12 months (29 heads) and 17 months (20 heads). The Romanian Spotted breed steer, show superiority in terms of carcass weight compared to crossbreed of Romanian Spotted x Holstein, therefore this breed has a better suitability for fattening for meat. Regarding dressing percentage is higher in crossbreed of Romanian Spotted x Holstein compared with Romanian Spotted breed steers, but the difference is insignificant.

Keywords: beef, dressing percentage, forequarters, hindquarters, weight.

1. Introduction

Meat was, is and is likely to remain an indispensable food in human nutrition. Of all animal products used in human nutrition, meat ranks first, with the highest content of protein substances, an easy digestibility and pleasant taste [1]. Meat serves as a raw material in the food industry in the preparation of canned products of high nutritional value. Statistics show that the world's population is almost constant interest in meat as a food base to cover the carbohydrates, fat and protein needs which can be found in meat and meat products [2]. In addition to being rich in protein, it is also loaded in essential nutrients, including minerals, vitamins of the B group which helps produce red blood cells and protein metabolism, helping to increase muscle mass without any fat [3]. Dressing percentage is one of many factors affecting the value of a slaughter animal. A basic knowledge of dressing percentage is important in understanding slaughter cattle pricing system and pricing variability [4].

The purpose of this research was to determine whether there are significant differences in terms of carcass weight, forequarters, hindquarters and the dressing percentage efficiency among Romanian Spotted breed steers and first generation cross-breed obtained between Romanian Spotted and Holstein at slaughter age of 12 and 17 months. Using crossbreeding in a dairy herd a small niche market in producing veal, specifically read veal, could be exploited.

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2. Materials and methods

Study was done on Romanian Spotted breed steer aged 12 months (36 heads) and 17 months (19 heads); Romanian Spotted x Holstein first generation crossbred of aged 12 months (29 heads) and 17 months (20 heads). The animals were received quantitatively by weighing individual facilitating deduction as described governed by STAS 3181-62 at Cominca S.A. Oradea, were the study was conducted. Animals were prepared for slaughter by resting for 12 hours and 24 hours diet, veterinary control, hygiene cleaning skin of dirt; water was removed three hours before slaughter.

These steps were necessary before slaughter to avoid the consequences of stress and fatigue which causes a number of changes of meat quality such as: change the pH in muscle; increase the amount of glycogen; increasing the indoxil sulfuric acid in the blood. All these causes affect bleeding, which becomes more difficult, and for a quality meat requires a complete bleeding. The following steps were made before slaughter: stunning, bleeding, skinning, evisceration, carcass trimming, quality and veterinary control.

Carcass weight determinations were done as "hot" immediately after slaughter and drying and also at 24 hours after cooling. The correct assessment of carcass weight is "cold" because it better illustrates their marketing value, knowing that in most cases the meat is sold generally within 24 hours. After cooling, carcasses weighed less with 1.5 to 1.7%.

Arithmetic mean and standard deviation (s) was calculated. Statistically significant differences between breeds were tested by the method of t-test using PC programme EXCEL.

3. Results and discussion

Data on the average weights of carcasses after proper cooling for Romanian Spotted breed and crossbreed of Romanian Spotted x Holstein, for 12 months and 17 months respectively, are shown in Table 1.

Table 1. The means (± SEM) of carcass from Romanian spotted and Romanian spotted x Holstein steer (kg)

<table>
<thead>
<tr>
<th>Breed</th>
<th>Slaughter age</th>
<th>365 ± 5 days Weight (kg) X ± SEM</th>
<th>500 ± 5 days Weight (kg) X ± SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romanian Spotted</td>
<td>36 heads</td>
<td>192.20 ± 2.81 NS</td>
<td>247.8 ± 7.22 **</td>
</tr>
<tr>
<td>Crossbreed Romanian Spotted x Holstein (g1)</td>
<td>29 heads</td>
<td>184.08 ± 3.17</td>
<td>227.53 ± 6.13</td>
</tr>
</tbody>
</table>

NS = non significant; * = significant; ** = distinct significant

Average carcass weight at slaughter for crossbreed of Romanian Spotted x Holstein at 12 months was with 18.12 kilograms lower than Romanian Spotted steer at the same age. Comparative statistical analysis shows that the difference is insignificant, the investigation being confirmed by previous research on this issue [5]. Carcasses weight was also lower for the hybrids at the age of 17 months with a distinct significant difference of 20.27 kg. This comparison highlights the fact that at one year age the average carcass weights differences between the two breeds are statistically uninsured. In contrast at the age of 17 months stands out Romanian Spotted breed superiority, that confirms the literature data [6,7].

An average carcass weight of 187.9 ± 3.4 kg at slaughter age of 143 ± 2 days was found in Fleckvieh x Holstein steer in a study conducted in South Africa [8]. Carcass weight difference can be explained by superior Fleckvieh breed compared to Romanian Spotted breed. Better results at age of 18 months, were obtained by Muller et al (2010) [9] in Fleckvieh x Holstein with a carcass weight of 267 kg but dressing percentage was lower of 50.1%.

To illustrate the carcass weight on quarters, forequarters and hindquarters were weighed and results obtained are presented in Tables 2 and 3.
Table 2. Average forequarters weights from Romanian spotted and Romanian spotted x Holstein steer (kg)

<table>
<thead>
<tr>
<th>Breed</th>
<th>Slaughter age</th>
<th>365 ± 5 days</th>
<th>500 ± 5 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of heads</td>
<td>Weight (kg)</td>
<td>No of heads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\bar{x} \pm$ SEM</td>
<td>$\bar{x} \pm$ SEM</td>
</tr>
<tr>
<td>Romanian Spotted</td>
<td>36</td>
<td>43.11 ± 0.92NS</td>
<td>19</td>
</tr>
<tr>
<td>Crossbreed Romanian Spotted x Holstein (g1)</td>
<td>29</td>
<td>41.07 ± 9.27</td>
<td>20</td>
</tr>
</tbody>
</table>

NS = non significant; * = significant

Average weight of forequarter was higher for Romanian spotted breed both at one year of age and at 17 months, with insignificant and respectively significant differences. Slaughtered at 626 days, Czech Pied had a forequarter weight of 85.9 kg [10].

Table 3. Average hindquarters weights from Romanian spotted x Holstein steer (kg)

<table>
<thead>
<tr>
<th>Breed</th>
<th>Slaughter age</th>
<th>365 ± 5 days</th>
<th>500 ± 5 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of heads</td>
<td>Weight (kg)</td>
<td>No of heads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\bar{x} \pm$ SEM</td>
<td>$\bar{x} \pm$ SEM</td>
</tr>
<tr>
<td>Romanian Spotted</td>
<td>36</td>
<td>54.99 ± 0.82</td>
<td>19</td>
</tr>
<tr>
<td>Crossbreed Romanian Spotted x Holstein (g1)</td>
<td>29</td>
<td>51.97 ± 0.91</td>
<td>20</td>
</tr>
</tbody>
</table>

NS = non significant; * = significant

Hindquarters average weight at 12 months was in favour of Romanian spotted breed but with an insignificant difference of three kg while at 17 months the average weight among hindquarters was significant (with 3.98 kg).

Table 4. Dressing percentage (%)

<table>
<thead>
<tr>
<th>Breed</th>
<th>Slaughter age</th>
<th>365 ± 5 days</th>
<th>500 ± 5 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of heads</td>
<td>Dressing %</td>
<td>No of heads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\bar{x} \pm$ SEM</td>
<td>$\bar{x} \pm$ SEM</td>
</tr>
<tr>
<td>Romanian Spotted</td>
<td>36</td>
<td>52.41 ± 1.60</td>
<td>19</td>
</tr>
<tr>
<td>Crossbreed Romanian Spotted x Holstein (g1)</td>
<td>29</td>
<td>53.78 ± 1.71</td>
<td>20</td>
</tr>
</tbody>
</table>

NS = non significant

Dressing percentage at one year and at 17 months was about equal, with an insignificant advantage of 1.37% and 1.76% respectively, for crossbreed steer. Data regarding the dressing percentage corresponding with those of the literature values, among 54.1% and 65.55% in Romanian spotted breed [11], and among 55.1% and 66.7% in hybrids. Hungarian Simmental was found to have a higher dressing percentage of 57.84% [12]. Bartoň et. al (2006) [13], studying the effect of breed on growth performance and carcass composition of several breeds found in Czech Simmental bulls a dressing percentage of 57.5%. Dressing percentage of similar values, from 52.29% to 54.32%, were found by Zaujec et al. (2009) [14], in the Slovak Pied and Holstein.

4. Conclusions

The Romanian Spotted breed steer show superiority in terms of carcass weight compared to cross-breed of Romanian Spotted x Holstein, therefore this breed has a better suitability for fattening for meat. Regarding dressing percentage...
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References