**Does the Polled Gene Reduce Growth? No.**
By Jeff Sorenson, S/M Fleckvieh Cattle
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As a long-time breeder of polled Fleckvieh Simmental cattle, I sometimes hear the remark that, “The polled gene reduces growth.” That hasn’t been my observation, but I’ve heard it enough to wonder whether it may be true. I wanted to learn, “Does the polled gene, in and of itself when present, reduce growth?” In short, the answer is No.

To determine whether the polled gene reduced growth in our herd, I analyzed thirteen years of ASA data reported on our herd, as far back as the ASA’s computer-generated annual calf crop reports are available. This included 372 calves, or 28.6 head per year on which in-herd weaning weight indexes were reported (ET calves, twins and calves without contemporaries were not included in the analysis).

To research the question, I sorted calves by sex and into four categories:
1. (H) p x p – Horned calves with two horned parents
2. (P) p x PP – Polled calves with one horned parent and one homozygous polled parent (its sire)
3. (H) P x p – Horned calves with one or more heterozygous polled parent(s)
4. (P) P x p – Polled calves with one or more heterozygous polled parent(s)

For each calf, in each of eight lists (two sexes x four categories) I listed its 205-day adjusted weaning weight ratio. Then, I averaged the ratios in each of these eight lists. This told me how the calves in each category, by sex, compared for pre-weaning growth compared to all others.

My question was whether the presence of a polled gene, with all other factors being equal, diminished pre-weaning growth. To isolate that factor, I made the assumption that calves in categories 3 and 4, which all have one or more heterozygous polled parent(s), have similar genetic ability for growth by other factors, the only difference being the random assignment to these calves at conception of a polled gene – or not. The data are shown in the table below.

<table>
<thead>
<tr>
<th>Sex and Category</th>
<th>1 Bull (H) p x p</th>
<th>1 Heifer (H) p x p</th>
<th>2 Bull (P) p x PP</th>
<th>2 Heifer (P) p x PP</th>
<th>3 Bull (H) P x p</th>
<th>3 Heifer (H) P x p</th>
<th>4 Bull (P) P x p</th>
<th>4 Heifer (P) P x p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Calves</td>
<td>26</td>
<td>26</td>
<td>15</td>
<td>19</td>
<td>60</td>
<td>60</td>
<td>84</td>
<td>82</td>
</tr>
<tr>
<td>Average Weaning Ratio</td>
<td>100.15</td>
<td>100.69</td>
<td>97.80</td>
<td>99.00</td>
<td>97.77</td>
<td>100.57</td>
<td>101.27</td>
<td>100.16</td>
</tr>
</tbody>
</table>

An analysis of this data says this:
1. Horned calves by horned parents (category 1) are slightly above average, but not any more than polled calves by heterozygous polled parents (category 4) and not enough to be significant.
2. Calves by homozygous polled sires (category 2) did have reduced performance. This coincides with my experience, that early homozygous polled sires from Germany (where they acknowledged that they single-trait selected for polled before all other traits) did set growth back.
3. Comparison of horned and polled calves (categories 3 and 4) by heterozygous polled parents shows no correlation between the polled gene and reduced performance.
4. The surprising exception is that in bull calves by heterozygous polled parent(s), the presence of the polled gene was a significant positive for performance over their horned contemporaries.

My conclusions from pre-weaning data in this herd?
1. The polled gene, in and of itself, is not correlated with loss of pre-weaning growth.
2. Early homozygous polled sires, single-trait selected for the polled gene, did produce lower pre-weaning performance.
3. Good heterozygous polled parents produced performance equivalent to calves from good horned parents.
4. Digging deeper, in the past five years 2010-2014, twenty-one polled bull calves by heterozygous polled parent(s) averaged weaning ratios in our herd of 103.14 – compared to calves with similar genetics which inherited the horned gene instead.
5. Multiple-trait selection, done rigorously over years, has made well-bred polled cattle equivalent to their horned contemporaries for pre-weaning growth.