INTRODUCTION

- The United States is the most important producer (20%) of beef in the world (USDA, 2014).
- Grass-fed beef has imported to USA is typically lower-valued and destined to ground beef (USDA, 2012).
- The lack of technology in Central America induces on losses in the different stages of processing live animal to meat (CATIE, 1994).
- Most of the feeding systems in USA are grain-finished in feedlots (Xue et al., 2010).
- The quality characteristics of grass-fed are different from grain-fed in terms of marbling, color, texture, tenderness, juiciness and flavor (Xue et al., 2010).
- Enhancing meat products can replace the flavor and moisture loss resulting from raising leaner animals (AMI, 2010).

OBJECTIVE

The objective of this study was to evaluate the palatability differences between U.S. and Honduras sourced beef strip loin steaks and determine if enhancing Honduran treatments could improve eating quality.

METHODS

- U.S beef consumers (n = 240) were recruited from Lubbock, TX and surrounding areas.
- U.S sourced strip loin from grain-finished cattle were selected to equally represent: USDA Select quality grade (SE) (n = 10) and Top Choice [ (TC) upper 2/3 USDA Choice ] (n = 10).
- Strip loin from Honduras included dual-purpose cattle (DP), grain-fed (GF), sugar-cane (SC), enhanced (12%) dual purpose (EDP), enhanced grain-fed (EGF) and enhanced sugar-cane (ESC) (n = 10).
- Strip loin were collected from three different packing plants in Honduras.
- U.S and Honduran samples were vacuum packed and aged 0-4°C for 21 days.
- Sub-primals were fabricated into 2.5 cm thick steaks and frozen (-20°C).
- Steaks were thawed for 24 h at 2-4°C prior to consumer evaluation and were cooked on clamshell grills to a well-done (77°C) degree of doneness.
- Each steak was portioned into eight 1cm³ cubes and served warm to panelists.
- Each sample was evaluated on an 8-point hedonic scale for the traits of tenderness, flavor, juiciness and overall liking; also each trait was classified as acceptable or unacceptable for each trait.
- Willingness to pay for each sample was rated in U.S. dollars $0, $3, $6 and $10 per pound.
- Data for sensory attributes were analyzed using the GLIMMIX procedure of SAS as a completely randomized design with an alpha level of 0.05.

RESULTS

Table 1. Comparison of U.S Top Choice, U.S Select quality grade and Honduran dual purpose, grain and sugar cane fed meat strip loin samples in tenderness, juiciness, flavor and overall liking traits.

<table>
<thead>
<tr>
<th>Trait</th>
<th>Top Choice</th>
<th>Select</th>
<th>Enhanced Grain</th>
<th>Enhanced Dual Purpose</th>
<th>Enhanced Sugar Cane</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenderness (5.56)</td>
<td>4.96</td>
<td>4.34</td>
<td>4.39</td>
<td>3.67</td>
<td>2.69</td>
<td>3.26</td>
</tr>
<tr>
<td>Juiciness (4.95)</td>
<td>4.23</td>
<td>4.38</td>
<td>5.60</td>
<td>3.09</td>
<td>3.55</td>
<td>3.31</td>
</tr>
<tr>
<td>Flavor (4.86)</td>
<td>4.46</td>
<td>4.06</td>
<td>6.05</td>
<td>3.18</td>
<td>3.63</td>
<td>3.31</td>
</tr>
<tr>
<td>Overall (5.02)</td>
<td>4.56</td>
<td>4.10</td>
<td>6.06</td>
<td>2.84</td>
<td>3.41</td>
<td>3.29</td>
</tr>
</tbody>
</table>

Honduran enhanced grain finished strip loin samples were ranked greater than U.S treatments and Honduran strip loin samples for all palatability traits showing that enhancement is functional for obtaining similar and greater palatability traits to U.S treatments.

CONCLUSION

Willingness to pay

Figure 1. Willingness to pay rating in U.S. $ for U.S. Top Choice, Select quality grade, Honduran dual purpose, sugar cane and grain fed strip loin samples. Means with different letter are significantly different (P < 0.05).

REFERENCES


