

NATIONAL BEEF QUALITY AUDIT -- 1995: A CHARACTERIZATION OF FEDERALLY INSPECTED HARVESTING OPERATIONS

B. A. Gardner¹, J. L. Nelson¹, S. L. Boleman², G. C. Smith³, J. W. Savell⁴,
H. G. Dolezal⁵, S. L. Northcutt⁶, D. R. Gill⁷, J. B. Morgan⁶ and F. K. Ray⁵

Story in Brief

Audits of commercial beef processing operations representing at least 75% of the U.S. Federally Inspected facilities were conducted from April through November 1995. The National Beef Quality Audit (NBQA) -- 1995 assessed whether or not changes had occurred relative to correcting deficiencies affecting the value/desirability of market-ready cattle compared to the 1991 NBQA. From each lot of cattle in a given plant, data were collected on 50% of the cattle for hide defects, bruises, viscera condemnations and head/tongue condemnations. Harvesting-Floor Audits revealed 47.7% of the cattle evaluated were not branded, while 38.7% had butt brands, 16.8% were side branded and 3% were branded on the shoulder. Average brand sizes were 36 sq inch for butt brands, 100 sq inch for side brands and 49 sq inch for shoulder brands. Of the cattle audited, 61.6% had no mud and 5.1% had mud on the legs, belly, side and back. Horns were found on 32.2% of the cattle. Bruise data revealed 51.6% of the cattle were free of bruises, but 30.9% had one bruise, 12.8% had two bruises, 3.7% had three bruises and 1.9% had more than three bruises. Of the cattle having bruises, 7.2% were bruised on the round, 41.1% on the loin, 20.8% on the rib, 30.8% on the chuck and 0.1% were on the brisket; 11% of the bruises resulted in a devaluation of the subsequent boxed beef product. Data from the 1995 Audit indicate the beef industry has done little to correct deficiencies determined in 1991.

(Key Words: Beef, Quality, Carcass Traits.)

Introduction

The beef industry is currently challenged with producing cattle for a profit and must improve the quality and consistency of its product to become more competitive with alternative protein sources. As a result, pressure to minimize producer controllable defects has risen. The 1991 National Beef Quality Audit served as a benchmark for the beef industry, establishing baselines for quality

¹Graduate Student ²Graduate Student -- Texas A&M University ³Colorado State University ⁴Texas A&M University ⁵Professor ⁶Assistant Professor ⁷Regents Professor

shortfalls and identifying targets for desired quality levels by the year 2005. Since the completion of NBQA -- 1991, the industry has had three years of opportunity to change. Accordingly, the National Beef Quality Audit -- 1995 was conducted to assess whether or not changes had occurred relative to correcting deficiencies affecting the value/desirability of U.S. market-ready cattle and reducing quality concerns compared to the benchmark study.

Materials and Methods

From April to November 1995, a survey of 27 Federally Inspected market-ready beef processing facilities was conducted. These plants, representing at least 75% of the Federally Inspected steers and heifers harvested in 1995, were selected to include regional differences found in the United States. From each lot of cattle in a given packing plant, 50% of the animals harvested in one day were evaluated by members of the Packing-Plant Audit teams (personnel from Colorado State University, Texas A&M University and Oklahoma State University). Data collected included: the incidence, size and location of brands; presence of mud and horns; number, location and severity of bruises, grubs and injection-sites. Viscera (liver, lung, tripe), head, tongue and whole carcass condemnations were recorded as described by FSIS personnel. To account for variation associated with seasonality, nine of the 27 plants were audited twice -- once in the spring and once in the fall.

Data were analyzed to determine causative factors affecting value/desirability of slaughter cattle. Frequencies of each type and combinations of defects were calculated.

Results and Discussion

Brands. The 1995 National Beef Quality Audit revealed 47.7% of the cattle evaluated were not branded; however, 38.7% had butt brands, 16.8% had side brands and 3% had shoulder brands (Figure 1). The sum of these percentages is 106.2% which indicates 6.2% of the cattle were branded in multiple locations. Lorenzen et al. (1993) indicated 29.9, 13.8 and 0.8% of the cattle audited in NBQA -- 1991 had brands on the butt, side and shoulder, respectively. Of the cattle branded, mean sizes were: butt brands = 6 x 6 (36 sq inch), side brands = 10 x 10 (100 sq inch), shoulder brands = 7 x 7 (49 sq inch).

Mud and Horns. Mud damage, which occurs primarily in late fall, winter and spring, can be devastating to a hide when it forms "balls" and the mud/manure "balls" dry on an animal's side and become permanently affixed to the hide. Hide damage associated with mud and manure "balls" can range from a hide receiving the lowest grade to being completely rejected. In the 1995 survey, the

audit team found mud on 38.4% of the cattle (Figure 2). Of the cattle with mud, 18.8% had mud only on the legs, 14.5% had mud on the legs, belly and side and 5.1% had mud on the legs, belly, side and back. These data differ substantially from that collected in 1991 when mud was observed on only 7% of the cattle.

Figure 3 compares results of the 1991 and 1995 Audits for the percentage of cattle with and without horns. In 1995, 67.8% of the cattle audited were polled or had been properly treated for horns; however, 32.2% of the steers and heifers had horns. The 1991 Audit reported the incidence of horns was 31.1%, similar to the findings of the present study.

Bruises, Grubs and Injection-Sites. Figure 4 reveals what the beef industry has done in correcting deficiencies associated with bruises. Of the 59,645 carcasses evaluated in 1995 for bruises, 51.6% were free of bruises, while 30.9% had one bruise, 12.8% had two bruises, 3.7% had three bruises and 1.0% had at least four bruises. Data from the 1995 NBQA also revealed 7.2% of the bruises were located on the round, 41.1% on the loin, 20.8% on the rib, 30.8% on the chuck, and 0.1% occurred on the brisket. Moreover, 11% of the bruises resulted in product discounts. These data differ considerably from that reported from the 1991 Audit in which approximately 5.0% of the cattle were bruised. The distribution of bruises in 1995 was similar to that in 1991 as both audits found loin bruises to be the most common followed by the chuck, rib and round, respectively.

A highlight of the 1995 NBQA was that of injection-sites; data from the 1995 Audit revealed 98.3% of the carcasses were free of obvious injection-sites. Moreover, of the carcasses monitored in 1995 and 1991 a decreased percentage of the injection-sites were recorded for the round and top sirloin butt regions. The incidence of grubs was minor as 0.3% of the carcasses showed evidence of grub damage.

Viscera, Head, Tongue and Carcass Condemnations. Viscera (liver, lung, tripe), head, tongue and whole carcass condemnations for the 1991 and the 1995 Quality Audits are reported in Table 1. These data reveal the percentage of livers, tongues and tripes condemned as well as the incidence of pregnancy was higher in 1995 than 1991.

Implications

Results of the 1995 National Beef Quality Audit indicate the U.S. beef industry has done a successful job of addressing the injection-site problem identified in 1991, but few improvements in other producer controllable defects, particularly brand location and size and the presence of horns, have taken place in the past three years. As said by Fred Knopp, editor emeritus of the *Drovers*

Journal, "American cattlemen have repeatedly hit the snooze button when the 'wake-up alarm has sounded' regarding threats to the beef product and to their individual economic futures" (NCA, 1992). It is time beef producers adopt a zero tolerance of "producer-controllable" defects.

Literature Cited

- NCA. 1995. Final Report of the National Beef Quality Audit -- 1995.
NCA. 1992. Final Report of the National Beef Quality Audit -- 1991.
Lorenzen, C.L. et al. 1993. *J. Anim. Sci.* 71: 1495.

Table 1. Percentage of items rendered unacceptable (U.S. Condemned) according to USDA FSIS^a standards stratified by year of audit.

| Item | % Incidence | |
|--------------------|-------------|------|
| | 1991 | 1995 |
| Liver | 19.2 | 22.2 |
| Lungs | 5.1 | 5.0 |
| Tripe | 3.5 | 11.0 |
| Head | 1.1 | .9 |
| Tongue | 2.7 | 3.8 |
| Fetus ^b | .9 | 1.4 |
| Carcass | .1 | .1 |

^a Food Safety Inspection Service of the USDA

^b Numbers represent percentages of fetuses present, not condemned, for *all* cattle. Percentage of fetuses present for female cattle only was 2.4% and 4.3% for 1991 and 1995, respectively, assuming 37.8% (1991) and 31.6% (1995) of the offals examined were from female cattle. Carcass characterizations indicate 37.8% and 31.6% occurrence of heifers for 1991 and 1995, respectively.

Figure 1. Percentage distribution for incidence and location of hot-iron brands for 1991 vs 1995

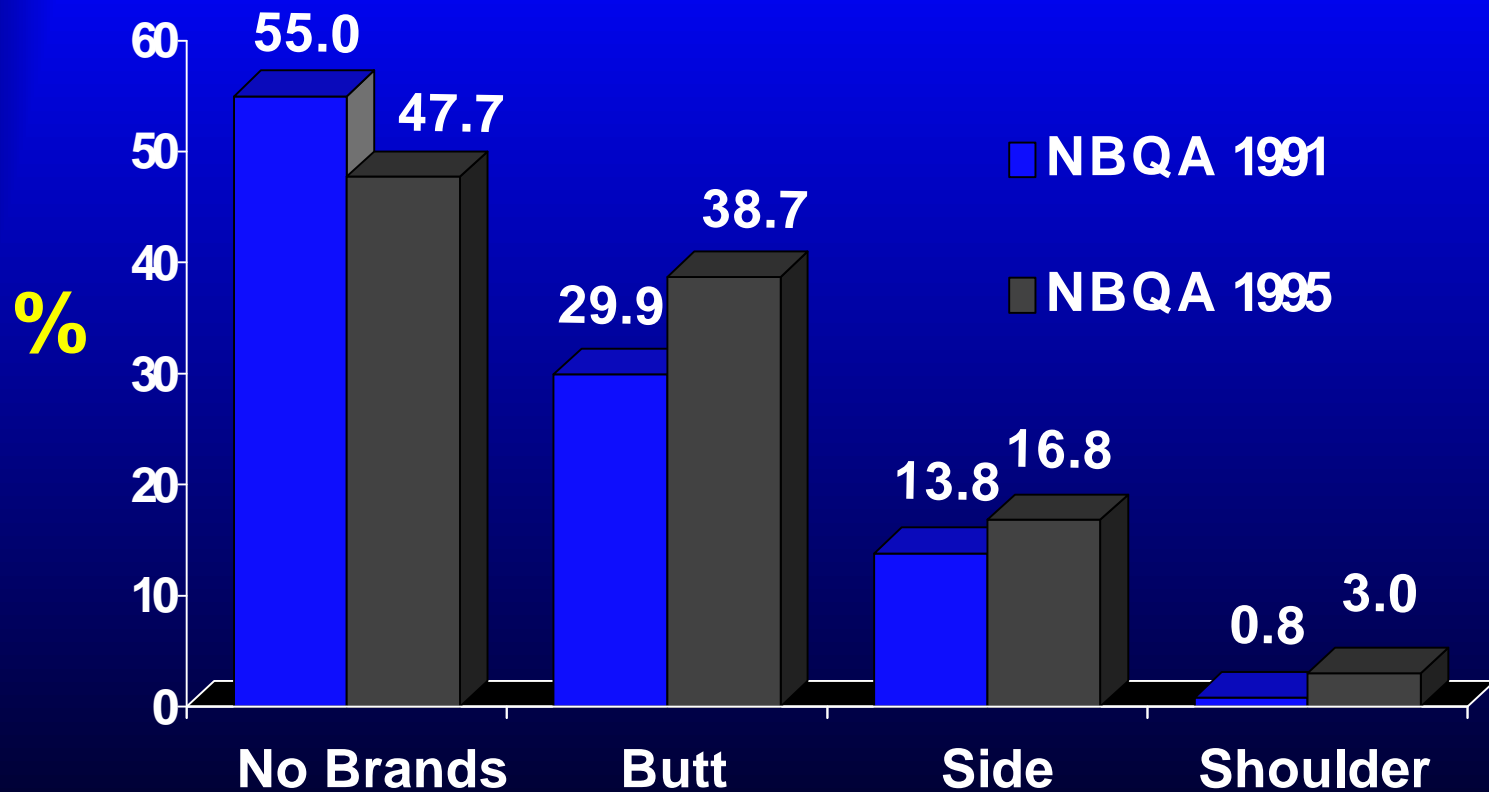


Figure 2. Percentage distribution for incidence and location of mud for 1991 vs 1995

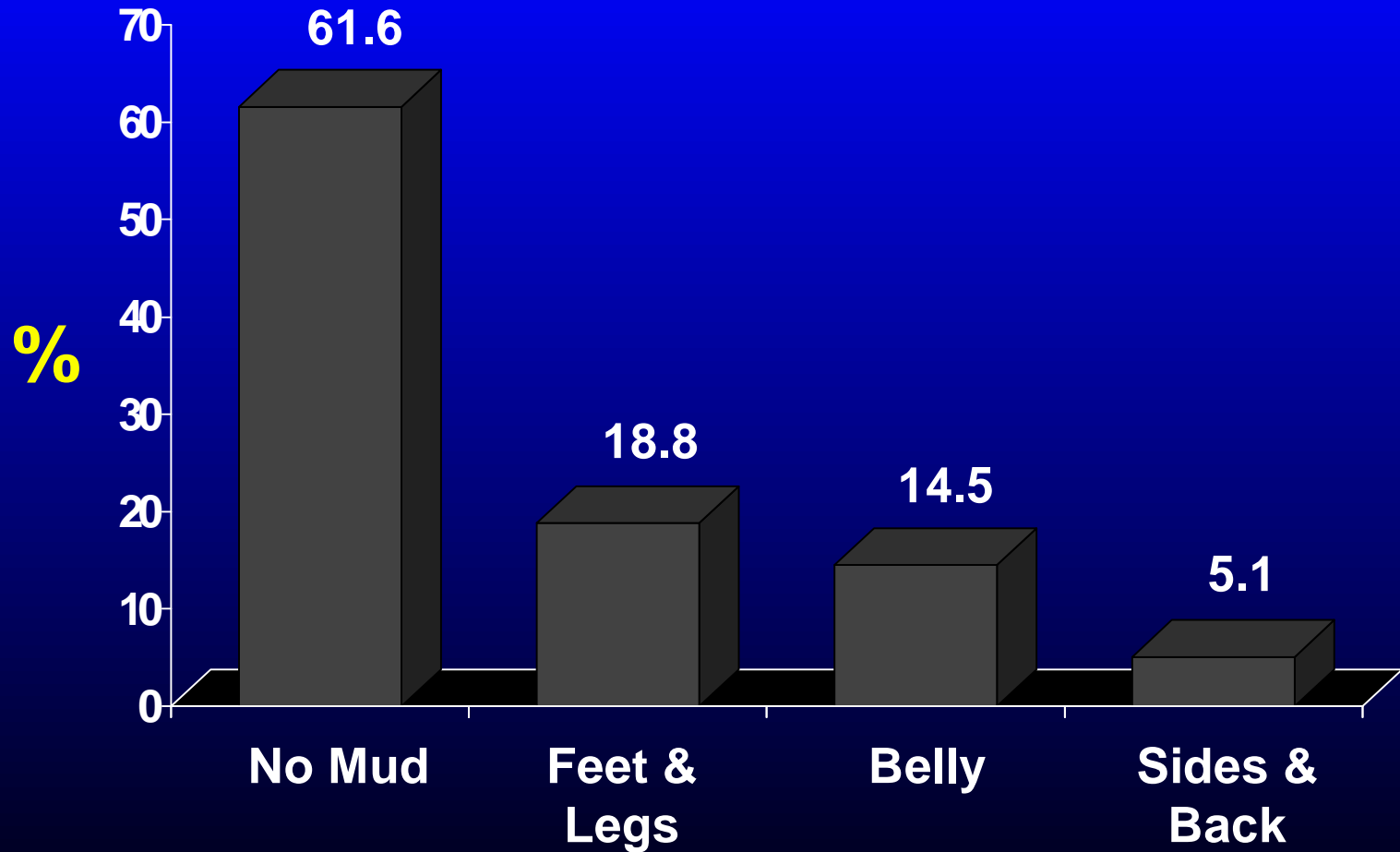


Figure 3. Percentage incidence of cattle with or without horns for 1991 vs 1995

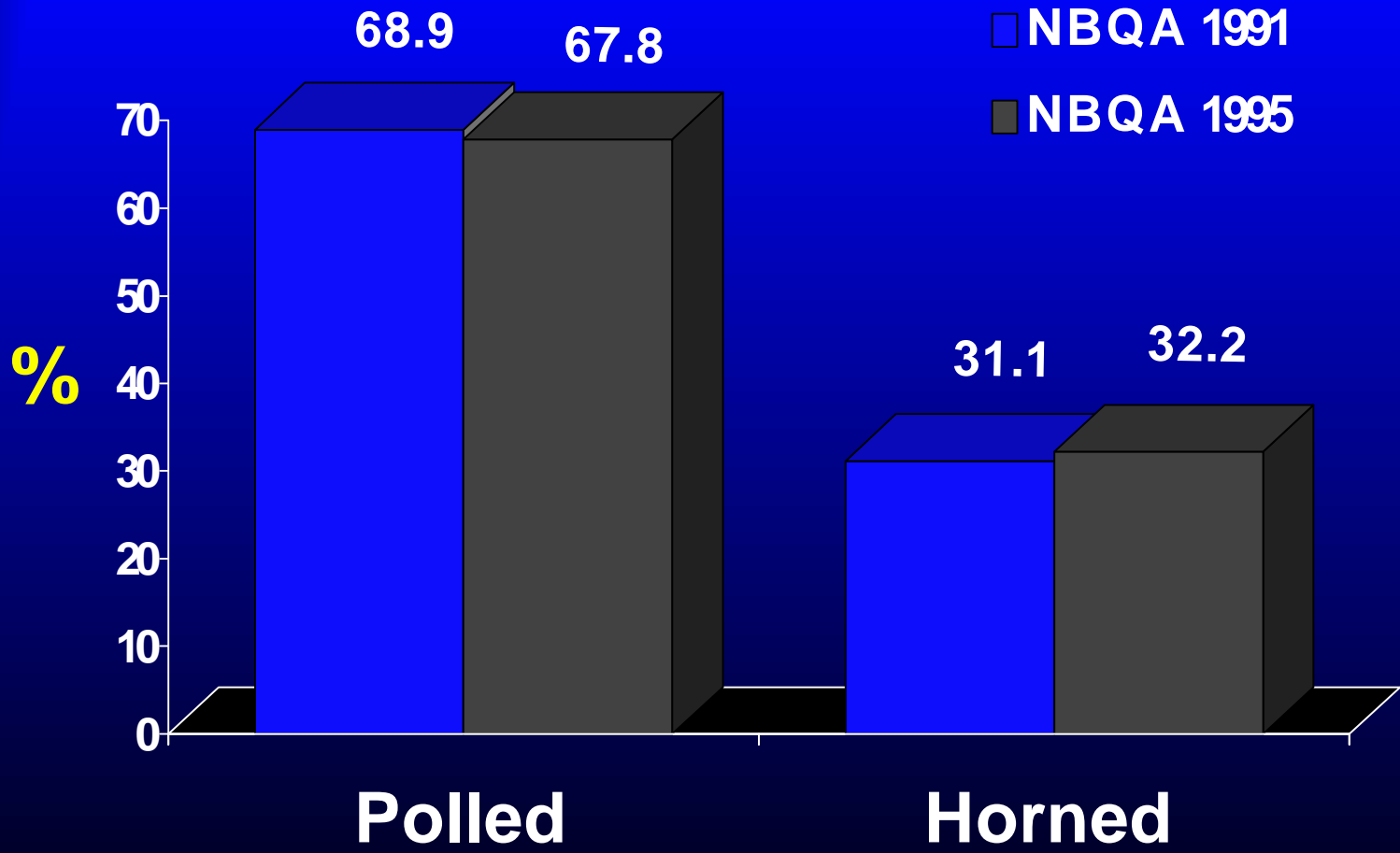


Figure 4. Percentage distribution of bruise incidence by location for 1991 vs 1995

