

Fat content of ground beef: comparison of actual (analytical) to label claim

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INTRODUCTION

Ground beef is the single largest volume beef product consumed in the U.S.

The USDA National Nutrient Database for Standard Reference (www.ars.usda.gov/nutrientdata) provides 103 nutrient values for retail ground beef products varying in lean/fat content from 95% lean/5% fat to 70%lean/30% fat.

For consumers, the label declaration is the primary source of information as to the product's fat content.

Proposed labeling regulation for single ingredient meats will require that the actual content of fat not exceed 20% of label declaration.

OBJECTIVE

To assess the level of difference between analytical fat content and the label claim.

To determine if product fat values fall within label limits (label declaration $\pm 20\%$).

METHODS

Sampling Plan

Retail outlets were identified through a probability sampling plan developed for the National Food and Nutrient Analysis Program (Pehrsson et al., 2000) and consisted of two retail outlets (locations) per Consolidated Metropolitan Statistical Area (CMSA), three (3) CMSAs per Region, and four (4) regions nationwide.

Ground beef products varying in fat content were purchased at each of the 24 retail outlets nationwide; Products were purchased in each of three (3) fat categories, based on label declaration:

Low fat - <12% fat

Medium fat - 12% - 22% fat

High fat - >22%fat

Total number of samples = 72.

Analytical Methods

Total fat was determined by acid hydrolysis [AOAC 960.39 (39.1.05) Fat (Crude) or Ether Extract in Meat]

Quality Control

Duplicate sampling;
Certified Reference Materials;
In-house Control Composites.

Statistics

Percent differences between label and analyzed data were evaluated by regression techniques using SAS. Differences between label and analyzed data were compared to the 20% limit in the proposed labeling regulation (label declaration $\pm 20\%$).

Fat Category	LOW <12% Fat		MEDIUM 12% - 22% Fat		HIGH >22% Fat	
	Label declaration	Analytical value	Label declaration	Analytical value	Label declaration	Analytical value
	7	8.8*	15	11.5	25	23.5
	8	5.5	15	14.5	25	23.3
	7	10	15	13.2	25	22.7
	7	14.9	15	16.2	25	23.1
	10	15.9	20	12.5	27	18.3
	7	8.3	15	12.7	25	17.1
	8	5.5	20	13.2	27	26.8
	10	12.4	20	16.6	27	23.5
	7	7.7	15	15.4	25	22.8
	10	10.1	20	21.7	25	22.9
	10	10.7	15	12.5	29	24.4
	10	10.4	15	15.7	27	26.2
	7	4.7	15	11.1	25	21
	5	6.4	15	11.2	25	19.7
	10	13.1	20	19.6	27	24.9
	10	7.7	20	17.4	30	28.1
	10	11.4	20	21.9	27	26.9
	10	7	20	19.1	27	27.4
	10	9.7	15	15.1	30	21.8
	7	10.9	15	18.1	30	25.6
	7	7.7	20	22.7	25	23.6
	7	7.3	20	20.5	25	22.5
	10	8.2	15	16.9	27	27.2
	7	8.3	15	12.4	27	24.8
Mean	8.4	9.5	17.1	15.9	26.5	23.7
$\pm 20\%$	± 1.69		± 3.42		± 5.30	

* Values shown in red are Out-of-Limit

Label Fat Content (%)	N	% of N Out-of-Limit (Label Declaration $\pm 20\%$)	% of N Exceeding 20% Limit
5	1	100	100
7	10	50	40
8	2	100	0
10	11	45	27
15	14	29	7
20	10	20	0
25	11	18	0
27	9	11	0
29	1	0	0
30	3	33	0

Fat Category	N	% of N Out-of-Limit (Label Declaration $\pm 20\%$)	% of N Exceeding 20% Limit
Low	24	54	33
Medium	24	25	4
High	24	16	0
All Levels	72	32	12

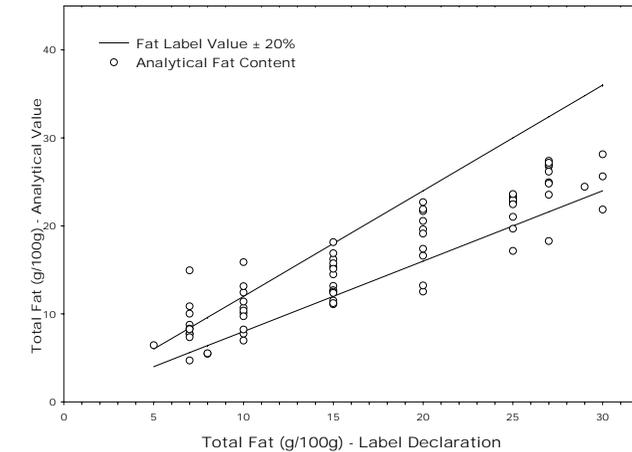


Fig. 1. Total fat content of ground beef products relative to the label declaration. Each circle represents the fat content of the product; the lines represent the $\pm 20\%$ limits around the label values ranging from 5%-30% fat.

RESULTS

On average, total fat levels within each fat category were within the $\pm 20\%$ limit (Table 1).

Products from individual locations were out-of-limit most often in the low fat category (54%), followed by medium (25%) and high (16%) fat categories (Tables 2 and 3).

Thirty-three percent of products in the low fat category exceeded the 'label declaration +20%'.

DISCUSSION

In general, label declarations of fat content were in good agreement with actual values for products in the medium and high fat categories.

The greatest frequency of disagreement between label and actual fat values occurred in the low fat products.

A fat limit based on 'label declaration $\pm 20\%$ ' translates into label claim ± 6 grams for ground beef with 30% fat, but allows only a narrow range of ± 1 gram around the label claim for products containing 5% fat (Fig.1).

CONCLUSION

Meeting the labeling limit of 'label declaration +20%' may be difficult to achieve for very low fat, ground beef products.

REFERENCES

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