

THE FAT CONTENT OF MINCED BEEF

Introduction

Until recently there were no statutory standards for the fat content of minced beef and similarly named foods. It was generally accepted by the courts that a fat content of 25 % was an allowable maximum for minced beef and that when the fat content exceeded this amount the sample was not of the quality demanded. During 1994/1995 the Association of Public Analysts reviewed data on the fat content of routine minced beef samples analysed for enforcement purposes since 1990 and compared the data with previous data. The findings of the review and a proposal of a guidelevel of 20% were published in 1995⁽¹⁾. Subsequently, The Minced Meat and Meat Preparations (Hygiene) Regulations 1995 (the Regulations)⁽²⁾ were issued. Later, Guidance Notes on the Enforcement of the Regulations⁽³⁾ were also published. As a result, the review and its conclusions have been reconsidered. The review also included details of previously published work relating to minced beef which had been misquoted. The details of corrigenda, none of which effect the overall case for a guidelevel, are given.

The Minced Meat and Meat Preparations (Hygiene) Regulations 1995

Schedule 11 of the Regulations lists certain compositional criteria for minced meats. In particular for 'lean minced' used in relation to meat of any permitted species a fat content of not more than 7% is set down and for 'minced pure' used in relation to meat of bovine animals (this includes beef) a fat content of not more than 20% is set down. Regulations 7(1)(0) and 7(2)(e) restrict these standards to the designations specified in the Regulations.

The Guidance Notes

Paragraph 96 of these notes explains that "an occasional sample which exceeds the requirement for either fat content ... should not jeopardise the consignment. These should be regarded as an indication that the production process needs examining. The authorised officer should place emphasis on the overall daily or periodic averages and not individual results".

Paragraph 97 explains that these compositional criteria only apply where the "exact wording (designations)" are used and "that the intention of the Directive was that the word 'pure' should indicate particular quality rather than production from a single species". There is therefore scope for great confusion and misunderstanding in the minds of all, i.e. consumers, producers and enforcement officials concerning the names and standards of fat content to be associated with these names. For example minced pure beef could be a different product from minced beef; lean minced beef could be a different product from lean ground beef.

Definition of Minced Beef

The Regulations define "minced meat" but not "minced beef" except insofar as it is possible to deduce from the Regulations a definition for "minced pure beef". The definition of "minced meat" varies depending on whether the minced meat is for the market in Great Britain or for export to a relevant EEA State. As far as differentiating between "minced meats" and "meat preparations" the amount of added salt is also a factor. "Minced meat" may be prepared from meat "to which not more than 1 per cent salt has been added" whereas "meat preparations" may contain higher levels of added salt. The Food Labelling Regulations 1996 would require minced meat with added salt to be named so as to inform the purchaser of the true nature of the food and to enable the food to be distinguished from similar products with which it could be confused.

The generally accepted meaning of "beef" is meat from the skeletal muscle of an appropriate full-grown bovine animal i.e. it does not include meat such as heart. The Regulation makes this clear for minced beef produced for export to a relevant EEA State. The only general definition relating to minced beef that can be distilled from the Regulations and Guidance Notes is as follows:

Minced pure beef is the striated muscle (other than heart muscle), including the associated fatty tissues, from an appropriate bovine animal which has been minced into fragments or passed through a spiral screw mincer and has, on average, a fat content which does not exceed 20% and a collagen content in meat protein of not more than 15%.

The confusion arising from the interpretation of the word "pure" in paragraph 97 of the Guidance Notes points to the need for a means of controlling standards when the designations are other than "minced/pure beef". The standard dictionary definition of "pure" is "unmixed, unadulterated" and would indicate that the above definition of "minced pure beef" should be the definition for "minced beef" simpliciter. However, while the confusion exists the guidelevel which the Association of Public Analysts proposed is relevant.

APA Guidelevel

The APA proposed a fat content guidelevel of 20% for all other designations of minced beef, other than those qualified as 'lean'. The argument for the guidelevel could not be based on strict statistical analysis of the natural variation of the raw material and normal fat levels in products, because much of the minced beef consumed today is manufactured to particular specifications. However, the review did show that an average fat content of just below 16% was currently provided on the market. A view was also expressed that a maximum positive variation of 25 % of the average was reasonable for a major

constituent, given that there is such a high degree of manufacturing control. This equates to 20% fat and coincidentally equals the regulatory standard for the fat content of minced pure beef.

Analytical Data

The details of the corrigenda in the 1995 APA paper are:-

1. The data in Table II related to partially trimmed beef. There was no indication of this fact.
2. Tables IIIA and IIIB relating to "beef cuts-lean tissue" and "beef cuts - lean and intermuscular tissue" included columns headed "Standard Deviation" but which should have been headed "Standard Error".
3. The figures which followed Tables IV and V were graphical representations of the data in Table V and should have been appropriately referenced. The tables and figures are reproduced below as Table I and Table II and Chart 1 and Chart 2.

TABLE I - The fat content of enforcement samples of minced beef - Statistics

Reproduced from Table IV (J. Assoc. Publ. Analysts 1995, 31, 118)

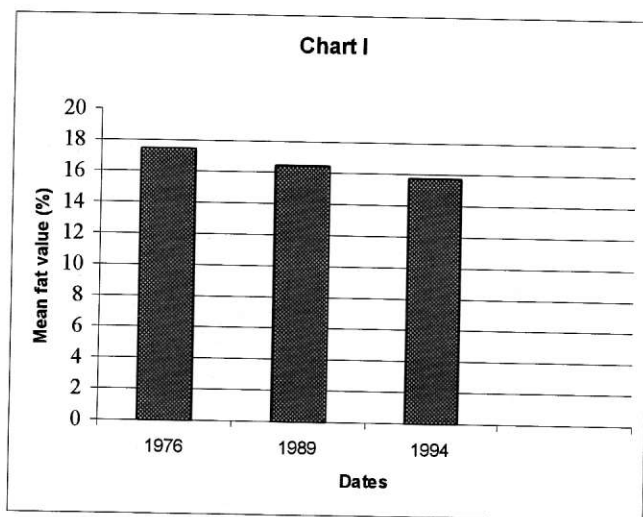
	Up to 1989	1990 - 1994	All
Number of samples	508	1307	1815
Mean	16.47	15.73	15.93
Median	16.2	15.5	15.8
Sample SD	5.97	5.84	5.88
SKEWNESS	0.31	0.29	
Ftest	0.54		
S.E.	0.26	0.16	

TABLE II - The fat content of enforcement samples of minced beef -Rankings

Reproduced from Table V (J. Assoc. Publ. Analysts 1995, 31,119)

Pre 1990			Post 1990		
Range	Frequency	% of total	Range	Frequency	% of total
1	0	0	1	0	0
2	2	0.39	2	0	0
3	1	0.20	3	1	0.08
4	0	0	4	10	0.77
5	4	0.79	5	18	1.38
6	8	1.57	6	22	1.68
7	13	2.56	7	35	2.68
8	11	2.17	8	49	3.75
9	17	3.35	9	42	3.22
10	25	4.92	10	47	3.60
11	20	3.94	11	78	5.97
12	21	4.13	12	70	5.36
13	21	4.13	13	73	5.59
14	32	6.30	14	92	7.04
15	35	6.89	15	75	5.74
16	39	7.68	16	77	5.90
17	35	6.89	17	91	6.97
18	31	6.10	18	81	6.20
19	27	5.31	19	76	5.82
20	35	6.89	20	75	5.74
21	26	5.12	21	59	4.52
22	18	3.54	22	50	3.83
23	16	3.15	23	41	3.14
24	17	3.35	24	39	2.99
25	14	2.76	25	42	3.22
26	12	2.36	26	12	0.92
27	8	1.57	27	11	0.84
28	4	0.79	28	8	0.61
29	4	0.79	29	14	1.07
30	3	0.59	30	8	0.61
31	2	0.39	31	3	0.23
32	2	0.39	32	2	0.15
33	2	0.39	33	1	0.08
34	1	0.20	34	1	0.08
35	1	0.20	35	1	0.08
36	0	0	36	1	0.08
37	0	0	37	1	0.08
38	0	0	38	0	0
39	0	0	39	0	0
40	1	0.20	40	0	0
>40	0		>40	1	
508		100	1306		100

The mean fat content of enforcement samples of minced beef
(Table II)

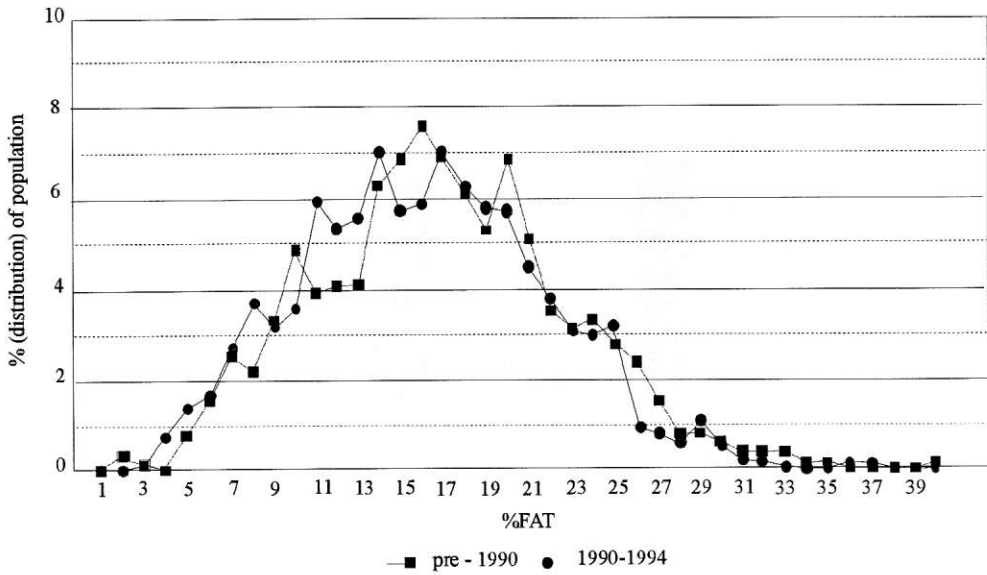


Date	1976	1989	1994
Number of samples	1324	508	1307
Mean Fat Values (%)	17.5	16.47	15.73

Chart 2

Comparative distribution curves (Table II - ranking).

FAT - distribution of minced meat fat contents
Normalised to equivalent populations



Conclusion

Where fat contents in excess of 20% are encountered such findings should trigger further investigation, which may include sampling and analysis, prior to the consideration of enforcement action. The absolute maximum of 25 % fat would remain for minced meats not covered by the Regulations.

References

- (1) Fat in Minced Beef. A Review by the Association of Public Analysts. J. Assoc. Publ. Analysts 1995, 31,113-120.
- (2) The Minced Meat and Meat Preparations (Hygiene) Regulations 1995. Statutory Instrument 1995 No.3205. HMSO.
- (3) Guidance Notes on the Enforcement of the Minced Meat and Meat Preparations (Hygiene) Regulations 1995. Ministry of Agriculture, Fisheries and Food, Department of Health, Scottish Office, Welsh Office.

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