The Connecticut Agricultural Experiment Station, New Haven

Analysis of Sizes in Canned Ripe and Green Olives

BY LESTER HANKIN

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SUMMARY

Fifty-three samples of canned olives, 36 ripe and 17 green, were tested for compliance with USDA standards for size. Fourteen, or 39% of the ripe olives were found to have a size smaller than claimed. Salt content average 1.9%. Green olives did not show a claim for size but ranged from less than sub petite to colossal. Salt content was higher than in ripe olives, averaging 5.9%.

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In the United States 123,000 tons of olives are produced annually, primarily in California (Agricultural Statistics, 1990). Of this amount, 94,000 tons are canned. Olives are also imported from foreign countries. These include over 61 thousand metric tons in brine and 413 metric tons dried (Agricultural Statistics, 1990).

Two types of olives are canned or packed in jars; ripe olives, usually black or brown to black in color and either pitted or whole, and green olives, whole or pitted and stuffed usually with pimento.

Ripe olives are first treated with dilute lye solutions which intensifies the color and removes any bitterness. They are then washed with water to remove the lye. Finally, the olives are cured with salt solution, pitted if desired, and canned. Green olives are also treated with lye and washed before undergoing curing or fermentation and canning (Chemistry and Technology of Food, 1951).

Standards for ripe and green olives are set by the U.S. Dept. of Agriculture (USDA) (Code of Federal Regulations, 1986). Sizes of ripe olives are determined by measuring their diameter and determining number per pound. Table 1 lists USDA size designations, counts per pound, and diameter ranges. Size for green olives is determined only by the number per pound (Table 2).

Table 1. USDA sizes for canned whole and pitted olives.

Designation	Count per pound	Diameter range approx. mm
Small	128-140	16-17
Medium	106-121	17-19
Large	91-105	19-20
Extra Large	65-88	20-22
Jumbo	51-60	22-24
Colossal	41-50	24-26
Super Colossal	40 or less	26 and over

In this report sizes of canned olives are assessed, and salt content and number per pound reported.

Table 2. Size designation for whole and pitted green olives

Designation	Number per pound approx. (range)
< Sub Petite	221 or more
Sub Petite	200 (181-220)
Petite or Midget	160 (141-180)
Small (Select or Standard)	135 (128-140)
Medium	115 (106-127)
Large	98 (91-105)
Extra Large	82 (76-90)
Mammoth	70 (65-75)
Giant	(53-64)
Jumbo	(42-52)
Colossal	(33-41)
Super Colossal	32 or less

METHODS

Thirty-six samples of ripe pitted or whole olives and 17 green, whole or pitted olives were collected at food markets by an inspector of the Food Division of the Connecticut Department of Consumer Protection on March 6, 1992. Sizes, number per pound, and drained weight were determined by USDA methods (Code of Federal Regulations, 1986). Salt was determined by AOAC methods (Official Methods of Analysis, 1990).

RESULTS AND DISCUSSION

Twelve and 13 different brands are represented among the 36 ripe olives and the 17 green olives tested, respectively. Five of the ripe olives and two of the green were whole, i.e. pits not removed. Table 3 lists the brands of ripe olives tested, the size claimed and the size found, the number per pound, and the salt content of the olives.

Fourteen samples or 39% were found to have a size smaller than claimed (Table 3; a minus (-) sign after size found) and one sample was found to have a size larger than claimed (Table 3; a plus (+) sign after size found).

Table 3--Analysis of ripe olives.

Brand/type	Size claimed	Size found	No./lb.	Salt, %
B & G				
pitted	medium	medium	145	1.7
pitted	jumbo	large-	101	1.9
FINAST				
pitted	medium	medium	139	1.8
pitted	small	small	182	1.7
pitted	large	large	101	1.9
pitted	colossal	jumbo-	54	1.8
whole	large	large	95	1.5
FOOD CLUB				
pitted	medium	medium	131	1.7
pitted	jumbo	colossal+	59	2.1
pitted	large	medium-	128	1.8
pitted	small	small	172	1.8
GOYA				
pitted	large	medium-	117	2.1
LINDSAY				
pitted	small	small	177	1.5
pitted	large	large	99	1.5
pitted	extra large	large-	102	2.3
whole	super colossal	colossal-	44	1.7
NO FRILLS				
pitted	medium	medium	149	1.7
OBERTI				
pitted	small	small	158	2.1
pitted	medium	small-	147	1.9
pitted	extra large	medium-	109	2.1
pitted	jumbo	extra large-	58	2.1
PATHMARK				
pitted	small	small	166	2.1
pitted	super colossal	jumbo-	55	2.2
whole	colossal	colossal	43	1.8
SHOP RITE				
pitted	extra large	extra large	90	1.7
pitted	small	small	173	1.9
pitted	colossal	colossal	43	2.0
whole	large	large	99	1.7
whole	small	small	128	1.3
STOP & SHOP				
pitted	large	medium-	134	1.9
pitted	small	small	170	2.2
pitted	medium	medium	121	2.0
pitted	large	medium-	122	2.1
VALENCIA				
pitted	large	medium-	120	1.7

Table 3--Analysis of ripe olives (continued).

Brand/type	Size claimed	Size found	No./lb.	Salt, %
VLASIC				
pitted	large	medium-	118	2.0
pitted	colossal	colossal	46	2.4

minus (-) after size found indicates that size found is smaller than size claimed.
plus (+) after size found indicates that size found is larger than size claimed.

Table 4--Sizes in ripe canned olives.

Size	Number claims	Number Found Under claimed	Over claimed	At size claimed
Small	8	0	0	8
Medium	6	1	0	5
Large	10	6	0	4
Extra Large	3	2	0	1
Jumbo	3	2	1	0
Colossal	4	1	0	3
Super Colossal	2	2	0	0

The range of sizes found is shown in Table 4. Salt content of ripe olives averaged 1.9%, with a range from 1.3 to 2.4% (Table 3). Drained weights were in compliance with standards. Number per pound found ranged from 43 per pound for colossal size to 182 for small (Table 3).

Table 5 lists the results of analysis of the green olives. No sample showed a size designation on the label. Sizes found ranged from less than sub petite to colossal (Table 5). Salt content averaged 5.9%, with a range from 4.4 to 8.1% (Table 5). Green olives contained on the average about three fold more salt than the ripe olives. Number per pound ranged from 58 for a giant size to 231 for the sample found to be less than sub petite size.

ACKNOWLEDGMENTS

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Table 5--Analysis of green olives.

Brand/type	Size found	No./lb.	Salt, %
B & G			
stuffed	colossal	82	4.4
CAMA			
stuffed	sub petite	181	5.1
CASERA			
stuffed	petite or midget	177	5.9
FINAST			
stuffed	petite or midget	158	7.2
stuffed	extra large	83	7.3
FOOD CLUB			
stuffed	sub petite	194	5.1
whole	mammoth	71	6.1
GOYA			
stuffed	small	136	6.3
NO FRILLS			
stuffed	petite or midget	152	5.4
OLD MONK			
garlic stuffed	medium	106	5.9
OXFORD			
stuffed	sub petite or midget	197	6.1
PATHMARK			
stuffed	giant	58	5.4
stuffed	< sub petite	231	8.1
SHOP RITE			
stuffed	sub petite	184	5.7
STOP & SHOP			
stuffed	sub petite	186	4.6
VLASIC			
stuffed	sub petite	189	5.8
whole	mammoth	65	6.2

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