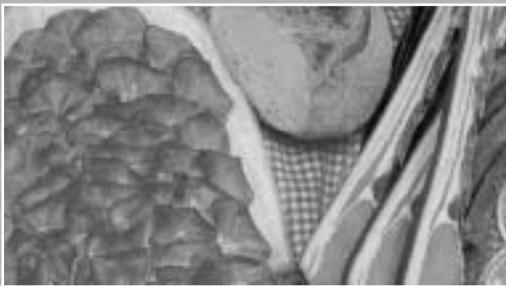


KOREA MEAT INDUSTRIES ASSOCIATION

한국육가공협회 2006 겨울호

CONTENTS



8 - ( ) 가 >

10 - 2007 가 >

14 - 가

26 - Glucono- -Lactone 가 가

40 - 가

48 - Marination

60 - (ZIB)

63 - ,

76 -

78 - ( )

80 -

82 - ( )

84 -

86 - ( )

88 -

90

125

128

(우:137-851)

서울시 서초구 방배3동 1031-1(401호)

전화 : 02-588-1264/5

팩스 : 02-522-8712

홈페이지 : <http://www.kmia.or.kr>



가 . ,  
60  
가 . 가  
가  
가 .  
가 . 20  
가 15 .  
가 .  
가 . 가  
가 .  
가 .



( ) 가



2007

가

“ ” 가  
2006 600 “ ”  
가 가  
가 ,  
가 .

, 가 , 가  
2006 2007 가  
. , 가  
가

, 가  
, 가  
, 가  
. FTA

가 , 2007  
가 .  
'06 가







. 2006  
 2006  
 2 6 1 '06  
 67 5 4 , 70 1  
 5 2  
 5 '06 19 5 21  
 5 5 91  
 7 , '05 1.9% 가  
 가 66 8 5  
 18 4 7 85 3 2  
 1 3  
 85 6 2  
 10 1996 94%  
 16% 78%

2) 2007

가.

2006

가 100

930  
 '05 3% 2007  
 가 .  
 2007  
 , 2007 가  
 가  
 2007 가 2006 1~2%  
 가 2007  
 2006 1% 가 가  
 2007  
 1,305~1,310 , 2007  
 68 ,  
 2006 5~10% 가  
 21~22 2007  
 2006 93 5  
 , ,  
 가



2007

가

가	2007	3,800 ~ 3,850	가	2 ~ 4
가	가	3,500 ~ 3,700	가	가
		5 ~ 6	4,400 ~ 4,700	
	가	3,900 ~ 4,000	가	, 7
		가 2006		10
		2,700 ~ 2,800	가	11
2007	2006		3,200	
가	가		12	3,400
	2007		가	' 05
2006	가		3,730	90
0.5 ~ 1%				3,640
86	1		2007	가
5				가
87 5			가	가
		가	' 06	
		2006	100 ~ 200	
2.	가	3,400 ~ 3,600	가	
		2007	가	
가		가		
가	2006			
2005		가		
	2006	1		



# 식품 첨가제 미함유 그릴 돈육햄의 냉장저장 중 물리화학, 미생물학 및 관능적 품질 특성

이수욱<sup>1</sup>, Sang-Keun Jin<sup>\*</sup>, 김호훈<sup>1</sup>, 김기종<sup>1</sup>, 김동훈<sup>1</sup>, 양미라<sup>2</sup>,  
하형희<sup>1</sup> and 이명<sup>2</sup>

Physicochemical, Microbiological and Sensory Properties of Food Additive-Free Grilled Pork Products during Cold Storage

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<sup>2</sup>Department of Animal Science and Biotechnology, Seoul National University

## Abstract

The objective of this study was to investigate the physicochemical, microbiological and sensory properties of food additive-free grilled pork products manufactured using loin (T1), tender loin (T2) and ham (T3). The samples were heated for 30 min at 60 °C, and then 50 min for 150 °C. After cooling, vacuum packaged grilled pork samples was stored at 4 ± 1 °C for 40 days. The pH values of grilled pork samples ranged from 5.92 (T1) to 6.10 (T3) at the initial storage time, and from 6.28 (T1) to 6.60 (T3) after 40 days. The water holding capacities (%) was 85.99~93.24% for T1, 85.26~93.89% for T2 and 89.11~94.67% for T3, all of which were slightly higher than those of other pork products. The shear force values of T2 were significantly higher ( $p < 0.05$ ) than those of the other pork products throughout the storage period. The TBARS and VBN values of T2 were significantly higher ( $p < 0.05$ ) than those of T1 and T3. With regard to microorganisms, all grilled pork samples was in good condition, showing 1.93~3.48 log<sub>10</sub> CFU/g via total plate counts, and 1.74~3.48 log<sub>10</sub> CFU/g for lactic acid bacteria throughout the storage period. Regarding sensory evaluation, the scores of overall acceptability in all products were above 5.0 points through 40 days of storage.

Key words: physicochemical, microbiological, sensory properties, grilled pork products

가 1970 가  
 '80  
 “ ”  
 . 1990  
 (casing)  
 (retainer)  
 “ ”  
 ,  
 가

(Choi et al., 2003; Ham et al., 2003; Kang, 1979; Lee et al., 1998; Lee et al., 2004)

, 가  
 (griller)  
 ( )

가  
 .  
 가

가  
 .  
 가 가  
 5  
 ,  
 가 가

(Hotchkiss and Parker, 1990; Jimenez-Colmenero et al., 2005),  
 polycyclic aromatic hydrocarbons(PAH)

(Jira, 2004; Slayne, 2003; Stolyhwo and Sikorski, 2005)

, 가

가

가

가 가

---

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가 ( )



x D 24 , 27 (LY ± 1 ) 82 kg , 1.5 kg 20  
 22 ~ 24 mm) , 2

(VTS-41, BIRO MFG Co., USA) (net casing)  
 100 ( 14 (TG 101-E, Fri-Jado, Holland) 60 30 가  
 kg, 4 kg, 3 kg, 2 kg, , 150 50 가 80  
 0.1 kg, 0.05 kg) 23.15 kg (T1; , T2; , T3; )  
 , 15 rpm 20 , 5 PA/PE  
 2 10 4 ± 1  
 , 60

pH 10 g 90 mL  
 Homogenizer (T25B, IKA Sdn. Bhd., Malaysia) 13,500 rpm 10  
 pH-meter(8603, Metrohm, Swiss) 70  
 , 30 가  
 1,000 rpm 10  
 ( ? )/  
 ×100 가  
 Instron 3343(US/MX50, A&D Co., USA) 가 가  
 knife plunger ,  
 table speed 200 mm/min, sample speed 80 m/s, load cell 10 kg, adapter area 30 mm<sup>2</sup>, sample size Ø20×20 mm  
 . VBN 高坂(1975)  
 3 g 27 mL 가  
 (Whatman No. 1)  
 1 mL conway unit  
 0.01 N 1 mL  
 (0.066% methyl red+0.066% bromocresol green) 3 가 .  
 glycerine  
 50% K<sub>2</sub>CO<sub>3</sub> 1 mL  
 37 120 .  
 0.02 N H<sub>2</sub>SO<sub>4</sub>  
 mg% . TBARS  
 Buege Aust(1978) 5

g butylated hydroxyanisole(BHA) 50  
 μL 15 mL 가  
 1 mL 2  
 mL thiobarbituric acid(TBA)/trichloroacetic acid(TCA)  
 , 90 15  
 3,000 rpm 10  
 .  
 531 nm 5.88  
 mg MA(malonaldehyde)/kg  
 . (total plate counts)  
 10 g 1% peptone 90 mL  
 bagmixer 1 mL  
 9 mL peptone ,  
 (plate counter  
 agar, Difco, USA) 32  
 2 , (E. coli)  
 MacConkey agar (Difco, USA)  
 37 1 ,  
 (Lactobacilli spp.)  
 Lactobacilli MRS agar (Difco, USA)  
 30 2  
 colony .  
 10  
 9  
 (Kim and Lee, 1998). 3×3  
 cm 100  
 가 가 74  
 , , , , ,

1 (extremely bad or slight), 4~6 (extremely good or much), 9 SAS(1999) GLM(General linear model) Duncan's multiple range test 5%

pH 5.92(T1) ~ 6.10(T3)  
 pH 6.28(T1) ~ 6.60(T3)  
 Table 1 pH 10 가  
 pH 20  
 pH 가  
 T1 T2 T3  
 pH 30  
 pH T3가

Table 1. Changes of pH and WHC (water holding capacity) of grilled pork ham during storage at 4 ± 1 for 40 days

Treatments <sup>1)</sup>	Storage (days)					
	1	10	20	30	40	
pH	T1	5.92±0.12 <sup>Bc</sup>	6.36±0.02 <sup>a</sup>	5.93±0.05 <sup>Bc</sup>	6.14±0.16 <sup>Bb</sup>	6.28±0.02 <sup>Cab</sup>
	T2	6.08±0.03 <sup>Ac</sup>	6.30±0.09 <sup>b</sup>	6.09±0.02 <sup>Ac</sup>	6.30±0.05 <sup>Bb</sup>	6.51±0.03 <sup>Ba</sup>
	T3	6.10±0.06 <sup>Ac</sup>	6.27±0.03 <sup>b</sup>	6.07±0.10 <sup>Ac</sup>	6.57±0.03 <sup>Aa</sup>	6.60±0.04 <sup>Aa</sup>
WHC (%)	T1	91.87±0.11 <sup>a</sup>	93.17±2.01 <sup>a</sup>	93.24±1.36 <sup>a</sup>	85.99±2.19 <sup>Bc</sup>	88.92±1.36 <sup>b</sup>
	T2	88.95±3.69 <sup>Bb</sup>	93.89±1.97 <sup>a</sup>	92.17±3.50 <sup>b</sup>	85.26±1.12 <sup>cb</sup>	90.73±4.11 <sup>ab</sup>
	T3	89.11±1.54 <sup>Bb</sup>	94.37±0.63 <sup>a</sup>	94.67±1.53 <sup>a</sup>	89.31±2.57 <sup>Ab</sup>	90.96±0.80 <sup>b</sup>

<sup>1)</sup> T1 (Grilled products manufactured from tenderloin), T2 (Grilled products manufactured from loin), T3 (Grilled products manufactured from ham).

<sup>A-C</sup> Means ± SD with different superscripts in the same column significantly differ at p<0.05.

<sup>a-c</sup> Means ± SD with different superscripts in the same row significantly differ at p<0.05.

가

. Ketelaere (1974) pH 5.8 ~ 6.2 , pH  
 , , 6.2 가  
 , pH , pH  
 , Miller (1986) 5.8  
 pH 가 . pH  
 가 , , , .  
 . 가  
 , 가  
 가  
 (Morrison et al., 1971).  
 T1 85.99 ~ 93.24%, T2 (Offer et al., 1989;  
 85.26 ~ 93.89 %, T3 89.11 ~ 94.67% Silva et al., 1993)  
 , 20 (Obuz et al., 2003) 가  
 가 , 30 , 가  
 가 ,  
 30  
 . Kim Lim (1994) 가  
 pH , , T3

Table 2

Table 2. Changes of shear force (kg/cm<sup>2</sup>) of grilled pork ham during storage at 4 ± 1 for 40 days

Treatments <sup>1)</sup>	Storage (days)				
	1	10	20	30	40
T1	7.24 ± 0.26 <sup>Aa</sup>	1.88 ± 0.44 <sup>Bd</sup>	3.76 ± 0.45 <sup>Bc</sup>	5.38 ± 0.70 <sup>Ab</sup>	4.72 ± 0.72 <sup>Bbc</sup>
T2	4.64 ± 0.57 <sup>Ba</sup>	1.94 ± 0.44 <sup>Bc</sup>	2.00 ± 0.22 <sup>Cc</sup>	3.29 ± 0.17 <sup>Bb</sup>	4.29 ± 1.00 <sup>Bab</sup>
T3	8.61 ± 2.19 <sup>Aa</sup>	9.62 ± 0.56 <sup>Aa</sup>	4.44 ± 0.66 <sup>Ab</sup>	4.77 ± 1.18 <sup>ABb</sup>	9.33 ± 1.12 <sup>Aa</sup>

<sup>1)</sup> The same as in Table 1.

<sup>A-C</sup> Means ± SD with different superscripts in the same column significantly differ at p < 0.05.

<sup>a-c</sup> Means ± SD with different superscripts in the same row significantly differ at p < 0.05.

가 (p<0.05), T2 TBARS가

TBARS

, T1, T2 가가 10 , 20 , TBA-

가 30 RS 1 kg mg MA

Kim (2006) (Melton, 1983).

TBARS T1 0.79 ~ 1.22,

T2 0.41 ~ 2.01, T3 0.71 ~ 1.25 mg

MA/kg .

가

(p<0.05), T2가

(p<0.05).

TBARS VBN ,

TBARS VBN 가 30

Table 3 . mg% (高坂, 1975),

가 20 mg%

TBARS Simmhuber Yu(1977) , , , 가

Table 3. Changes of TBARS (mg malonaldehyde/kg) and VBN (mg%) of grilled pork ham during storage at 4±1 for 40 days

Treatments <sup>1)</sup>	Storage (days)					
	1	10	20	30	40	
TBARS	T1	0.79±0.01 <sup>Bb</sup>	0.79±0.06 <sup>Bb</sup>	1.13±0.09 <sup>Ba</sup>	1.22±0.02 <sup>Ba</sup>	1.22±0.04 <sup>Ba</sup>
	T2	0.41±0.07 <sup>Ce</sup>	1.00±0.06 <sup>Ad</sup>	1.44±0.08 <sup>Ac</sup>	2.01±0.12 <sup>Aa</sup>	1.64±0.04 <sup>Ab</sup>
	T3	1.06±0.10 <sup>Aa</sup>	0.71±0.05 <sup>Bb</sup>	1.01±0.09 <sup>Bab</sup>	1.07±0.33 <sup>Ba</sup>	1.25±0.05 <sup>Ba</sup>
VBN	T1	70.51±4.92 <sup>ABc</sup>	81.45±1.09 <sup>Bd</sup>	81.90±0.18 <sup>Cb</sup>	90.57±1.01 <sup>Ca</sup>	94.52±5.28 <sup>Ba</sup>
	T2	81.17±9.22 <sup>Ac</sup>	98.99±0.24 <sup>Ab</sup>	106.99±4.92 <sup>Ab</sup>	124.08±5.34 <sup>Ba</sup>	106.35±5.00 <sup>Ab</sup>
	T3	67.06±5.36 <sup>Bc</sup>	72.87±0.30 <sup>Cc</sup>	90.00±0.91 <sup>Bb</sup>	107.30±3.95 <sup>Ba</sup>	105.57±4.62 <sup>Aa</sup>

<sup>1)</sup> The same as in Table 1.

<sup>A-C</sup> Means ± SD with different superscripts in the same column significantly differ at p<0.05.

<sup>a-d</sup> Means ± SD with different superscripts in the same row significantly differ at p<0.05.

Table 4. Changes of microbes (log<sub>10</sub> CFU/g) of grilled pork ham during storage at 4 ± 1 for 40 days

Treatments <sup>1)</sup>	Storage (days)					
	1	10	20	30	40	
Total plate counts	T1	NG <sup>2)</sup>	1.59±0.11	2.29±0.03	2.85±0.02	2.44±0.01
	T2	3.48±0.06	1.49±0.20	2.48±0.06	1.79±0.08	2.33±0.11
	T3	NG	NG	NG	1.56±0.07	1.93±0.08
Escherichia coli	T1	NG	NG	NG	2.07±0.11	NG
	T2	NG	NG	NG	1.20±0.17	NG
	T3	NG	NG	NG	1.67±0.06	NG
Lactobacilli spp.	T1	NG	NG	NG	2.27±0.14	NG
	T2	3.48±0.05	NG	3.48±0.05	1.46±0.15	1.87±0.03
	T3	NG	NG	NG	NG	1.74±0.13

<sup>1)</sup> The same as in Table 1.

<sup>2)</sup> NG : Indicates no growth on plates.

30 가 T1  
40  
TBARS 가  
T2 VBN  
(p<0.05), T1 가

Table 4

, 40  
1.93 ~ 3.48, 1.74 ~ 3.48  
log<sub>10</sub> CFU/g



Table 5. Changes of sensory score<sup>2)</sup> of grilled pork ham during storage at 4 ± 1 for 40 days

Treatments <sup>1)</sup>		Storage (days)				
		1	10	20	30	40
Appearance	T1	6.25±0.50	6.50±0.58	6.75±0.50	6.50±0.58 <sup>A</sup>	6.50±0.58 <sup>A</sup>
	T2	6.00±0.82	6.00±1.15	5.75±0.96	5.50±1.91 <sup>B</sup>	5.00±0.82 <sup>B</sup>
	T3	6.25±0.96	6.50±0.58	6.00±0.00	5.50±0.58 <sup>B</sup>	5.25±1.26 <sup>AB</sup>
Color	T1	5.50±1.29	6.00±0.00	6.50±0.58	6.25±0.96 <sup>A</sup>	6.00±0.82
	T2	5.50±1.29	5.75±0.96	5.50±0.58	5.00±1.63 <sup>B</sup>	4.75±1.26
	T3	6.00±1.15	5.75±0.50	6.25±0.50	5.50±0.58 <sup>B</sup>	5.25±1.26
Aroma	T1	6.00±0.00	5.50±1.00	6.50±0.58	6.25±0.50	5.75±0.96
	T2	6.00±0.82	6.00±0.82	6.50±1.00	6.50±0.58	6.50±1.00
	T3	5.75±0.50	6.00±1.41	6.50±0.58	6.25±0.96	6.25±0.50
Flavor	T1	5.75±0.96	6.00±0.82	6.50±0.58	6.25±0.96	5.50±1.29
	T2	7.50±0.58	6.75±0.50	6.50±0.58	6.75±1.26	6.50±1.73
	T3	6.25±1.26	6.50±1.29	6.25±0.50	6.50±1.00	5.50±0.58
Off-flavor	T1	2.50±1.29	2.75±0.50	2.00±0.00	2.50±0.58	2.75±0.50
	T2	1.75±0.96	2.25±0.50	2.00±0.00	2.50±1.00	2.25±0.96
	T3	2.00±1.15	2.25±0.96	2.00±0.00	2.75±0.50	2.50±0.58
Juiciness	T1	5.50±1.29 <sup>Bb</sup>	7.00±0.82 <sup>Aa</sup>	5.00±0.82 <sup>Bb</sup>	5.75±0.50 <sup>CaB</sup>	5.75±0.50 <sup>Bab</sup>
	T2	7.50±0.58 <sup>Aa</sup>	6.50±0.58 <sup>Bb</sup>	6.50±0.58 <sup>Ab</sup>	7.00±0.00 <sup>Aab</sup>	7.00±0.00 <sup>Aab</sup>
	T3	5.00±0.00 <sup>Bb</sup>	6.00±0.82 <sup>Bab</sup>	5.25±0.96 <sup>ABab</sup>	6.25±0.50 <sup>BCa</sup>	5.50±0.58 <sup>Bab</sup>
Tenderness	T1	6.25±0.96 <sup>B</sup>	6.75±0.96 <sup>A</sup>	6.00±1.15 <sup>B</sup>	6.00±0.82 <sup>B</sup>	6.00±0.82 <sup>AB</sup>
	T2	8.00±1.15 <sup>A</sup>	7.00±0.82 <sup>A</sup>	7.75±0.50 <sup>A</sup>	7.25±0.50 <sup>A</sup>	7.25±0.50 <sup>A</sup>
	T3	5.75±0.50 <sup>Bab</sup>	5.25±1.26 <sup>Bab</sup>	6.75±0.96 <sup>Ba</sup>	6.25±0.96 <sup>ABab</sup>	5.00±0.82 <sup>Bb</sup>
Overall acceptability	T1	5.75±1.26 <sup>AB</sup>	6.25±0.96	6.25±0.96	6.50±0.58	5.75±0.50
	T2	7.25±1.26 <sup>A</sup>	7.00±0.82	6.50±0.58	6.50±1.29	6.50±1.29
	T3	5.25±0.50 <sup>B</sup>	6.00±1.15	6.50±0.58	6.25±0.50	5.25±0.96

<sup>1)</sup> The same as in Table 1.

<sup>2)</sup> Sensory scores were assessed on 9 point scale base on 1=extremely bad or slight, 9=extremely good or much.

<sup>A-C</sup> Means ± SD with different superscripts in the same column significantly differ at p<0.05.

<sup>a,b</sup> Means ± SD with different superscripts in the same row significantly differ at p<0.05.



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# 소금과 Glucono- $\delta$ -Lactone의 첨가 및 초고압 처리가 재구성 돈육의 이화학적 특성에 미치는 효과

Effects of Salt, Glucono- $\delta$ -Lactone and High Pressure Treatment on Physico-Chemical  
Properties of Restructured Pork

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## Abstract

This study investigated the effect of salt and glucono- $\delta$ -lactone (GdL) on the cold-set binding of restructured pork washed and pressurized at 200 MPa. Binding strength, pH, water holding capacity (WHC) and color were determined. NaCl improved pH, WHC and binding strength. GdL also increased binding strength while decreased WHC and pH significantly ( $p < 0.05$ ). However, low GdL level combined with NaCl showed high pH and WHC, compared to control. In color, NaCl decreased L\*-value with increasing a\*-value significantly ( $p < 0.05$ ). In contrast to NaCl, GdL increased L\*-value and decreased a\*-value. GdL tended to decrease b\*-value and significant differences were found when GdL was added above 1%. Pearson's correlation coefficients presented that NaCl had a significant effect on binding strength (0.6632) and lightness (0.7330) while GdL had a significant correlation with all parameters barring binding strength. The results indicated that under washing and pressure treatments, GdL had a potential effect on cold-set binding with reducing NaCl concentration, especially when low GdL concentration combined with NaCl was added.

Key words : glucono- $\delta$ -lactone, salt, cold-set, restructured meat, binding

(hot-set) (cold-set) (Chen and Trout, 1991).  
 cold-set 가  
 가  
 hot-set binding cold-set binding  
 (Boles and Shand, 1998). transglutaminase(TGase) 가  
 가 hot-set 가  
 myofibrillar 가 가  
 myosin hot-set (Nielsen et al., 1995).  
 가 TGase 가  
 가 , 가  
 가 가  
 (Means and Schmidt, 1986). hot- (Kuraishi et al., 1997). TGase  
 set 가 algin/calcium 가  
 (Hunt and cold- set (Boles  
 Kropf, 1987), 가 , 가 and Shand, 1988; Clarke et al., 1988).  
 (Gray and Pearson, 가 가  
 1987) 가 .  
 가 (Sheard, 2002).  
 가  
 , 가  
 2% 가 . 가 cold-set  
 가 carrageenan  
 가 .

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carrageenan 가 가  
(Perez-Mateos and Montero, 2000),

가 (Montero et al., 2000).

, 가 (Montero et al., 2002).

Lullien-Pellerin Balny(2002) 가 .

가 . Macfarlane (1984) 가

가 .  
가  
, Hong (2006) 200 MPa

가 가 ,  
50 ℃ 가

surimi (washing) sarcoplasmic myofibrillar  
(Park and Morrissey, 2000).

Glucono- -lactone(GdL) 가  
가 pH (Ngapo et al., 1996). cold-set

가 .

Lee(1984) Song (1987) 가  
(Lee et al., 1987),

PSE (Mueller and Chin, 2003) (Hur et al., 2004)  
cold-set binding Lee Chin(2004)  
TGase 가가

. GdL 가

(*M. longissimus dorsi*)  
 24 가 2 15 30 18 °C  
 Table 1 5  
 50 °C 24 , 4 ° 4.5 cm fibrous  
 C 48 polyethylene bag  
 pH 4 °C  
 1 cm 30  
 Mackie(1992) 3  
 (washing process) 가  
 0.5% NaHCO<sub>3</sub> , 0.5% 가  
 NaCl 4 °C 10 가 pressure vessel,  
 pressure intensifier controller  
 3:1(v/w) , 가 ethanol  
 (compression) 가 200 MPa 30

Table 1. Experimental design and formulation ingredients used

Treatments <sup>1)</sup>	Additives (%)			
	NaCl	Glucono- -lactone	Carrageenan	Phosphate
C	0	0	0.5	0.3
S	1	0	0.5	0.3
G	0	1	0.5	0.3
LSLG	0.5	0.5	0.5	0.3
LSHG	0.5	1.5	0.5	0.3
HSLG	1.5	0.5	0.5	0.3
HSHG	1.5	1.5	0.5	0.3

<sup>1)</sup> C; control, S; salt, G; GdL, LSLG; low salt low GdL, LSHG, low salt high GdL, HSLG; high salt low GdL, HSHG; high salt high GdL.

2.7 20 MPa/s 가

Homogenizer(SMT Process Homogenizer, SMT Co. Ltd., Japan) 13,000 rpm 1 pH-meter(pH Meter 440, Corning, U.K)

Gornall (1949)  
 biuret . Biuret  
 1.5 g CuSO<sub>4</sub> · 5H<sub>2</sub>O 6 g  
 NaKC4O6?4H2O 500 mL  
 , 300 mL 10% NaOH  
 가 1 L mass  
 up 1 mL  
 4 mL biuret 가 30  
 540 nm  
 , standard curve bovine  
 serum albumin

AOAC(1990)  
 102 ° C  
 Pietrasik Shand(2004)  
 3 1 g  
 , 4 ° C Automatic refrigerated  
 centrifuge (RC-3, SORVALL Co., USA)  
 3,000 rpm 10

(2×1×4.5 cm)  
 1  
 cm 2 holder  
 , Digital force gauge(DPS-20,  
 IMADA Co., Japan)  
 table 60 mm/min  
 head speed 가  
 (N)  
 12

(Color)  
 Color meter(JC801S,  
 Color Techno System Co. Ltd., Japan)  
 L\*, a\* b\* 5  
 L\* 97.83, a\* -0.43,  
 b\* +1.98 calibration plate

pH  
 5 g 20 mL

GdL  
 가

SAS(Statistics Analytical System, USA, 1989 ~ 1996) (Ver. 9.1) Duncan multiple range test  
 GdL Pearson's correlation coefficients

Fig. 1 , 3 85.82 mg/mL  
 74.72% , 1  
 77.05% 가  
 가 Park(1996)  
 78.27%

Table 2. Effects of NaCl and glucono- -lactone level on color<sup>1)</sup> of restructured pork washed and pressurized at 200 MPa

Treatments <sup>1)</sup>	Additives (%)		
	L*-value	a*-value	b*-value
C	63.25±0.86 <sup>c</sup>	7.08±0.40 <sup>a</sup>	10.18±0.61 <sup>ab</sup>
S	60.10±1.09 <sup>d</sup>	6.88±0.81 <sup>a</sup>	10.83±0.58 <sup>a</sup>
G	68.70±0.10 <sup>a</sup>	5.18±0.81 <sup>c</sup>	9.48±0.60 <sup>b</sup>
LSLG	66.44±2.08 <sup>b</sup>	7.44±0.21 <sup>a</sup>	11.03±0.15 <sup>a</sup>
LSHG	66.90±0.73 <sup>ab</sup>	5.75±0.49 <sup>bc</sup>	10.26±0.67 <sup>ab</sup>
HSLG	60.14±1.26 <sup>d</sup>	6.54±1.17 <sup>ab</sup>	10.10±0.17 <sup>ab</sup>
HSHG	64.12±1.60 <sup>c</sup>	4.73±0.12 <sup>c</sup>	8.10±1.01 <sup>c</sup>

<sup>1)</sup> Mean ± S.D. of three replicates.

<sup>2)</sup> C; control, S; salt, G; GdL, LSLG; low salt low GdL, LSHG, low salt high GdL, HSLG; high salt low GdL, HSHG; high salt high GdL.

<sup>a-d</sup> Means with different superscripts in the same column are significantly different (p<0.05).

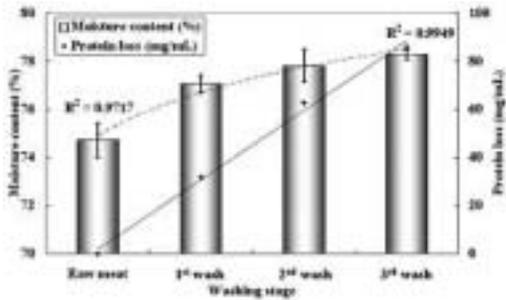


Fig. 1. Changes in moisture content and protein loss during washing process of raw meat.

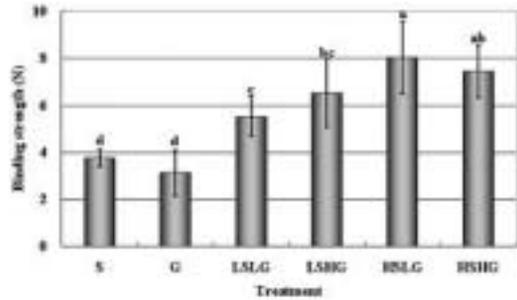


Fig. 2. Effects of NaCl and glucono- -lactone level on binding strength of restructured pork washed and pressurized at 200 MPa.

<sup>a-d</sup> Means with different superscripts in the same column are significantly different ( $p < 0.05$ ).

myofibrillar

myofibrillar  
sarcoplasmic

GdL 가가

Fig. 2

carrageenan 가 ,  
GdL 가 (C) 200  
MPa 가 가

NaCl GdL 가

가

GdL 가 (G) 가

G

3.13 N(159.69 g/ cm<sup>2</sup>)

Kuraishi

(1997)

가

80 g/cm<sup>2</sup>

0.5% , 0.5% GdL 1%  
carrageenan 가 200  
MPa 30 ,

1.72 N ,

4.22 N 가

가 , washing

myofibrillar

GdL

가

acid-induced

GdL

가

가가 GdL

1.5%

GdL 가

, HSHG HSLG

( $p > 0.05$ ).

Medynski (2000)

lactic acid 가 cold-  
 가 0.5% 가 set binding  
 lactic acid 가 pH 가 (Hong et al., 2006),  
 , pH TGase(Kuraishi et al., 1997)  
 , myofibrillar hydrocolloid(Boles and Shand, 1998)  
 가 가 가  
 carrageenan cold-set binding  
 가 (Gray carrageenan 가  
 and Crackel, 1992). , 가 가  
 Macfarlane (1984) myofibrillar  
 가 patty 가  
 가 myofibrillar , GdL 가  
 peak force pH 가  
 work done 가  
 가 (Ngapo et al., 1996).

Table 3. Correlation coefficients between treated and measured variables<sup>1)</sup> of restructured pork

	NaCl	GdL	pH	BS	WHC	L*	a*
GdL	-0.0909						
pH	0.1981	-0.9648***					
BS	0.6632***	0.2583	-0.2353				
WHC	0.3529	0.8682*	0.9221**	0.0747			
L*	-0.7330***	0.5259**	-0.6969	-0.3203	-0.6998		
a*	-0.0923	-0.6403***	0.8424*	-0.0987	0.9107*	-0.3677	
b*	-0.3069	-0.5823**	0.7453	-0.3123	0.7049	-0.1510	0.9081*

<sup>1)</sup> GdL, Glucono- -lactone; BS, Binding strength; WHC, Water holding capacity.

\* Significant at 0.05 level.

\*\* Significant at 0.01 level.

\*\*\* Significant at 0.001 level.

GdL 2 가  
 가 , GdL 가(HSHG)  
 가  
 GdL  
 (Table  
 3). 가  
 0.6632  
 ( $p < 0.001$ ), GdL  
 가 ( $p >$   
 0.05).  
 가 가  
 , GdL 가  
 가  
 가  
 pH , 가  
 GdL 가  
 가  
 pH  
 HSHG 70.26% ( $p < 0.05$ ). Fig.  
 71.23%  
 가  
 3 GdL 가  
 가  
 가  
 ( $p < 0.05$ ), 1% GdL 가  
 가  
 가  
 ( $p < 0.05$ ).  
 GdL 가

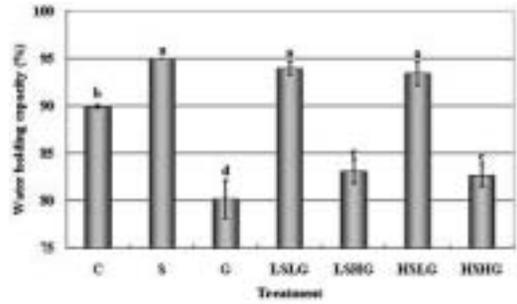


Fig. 3. Effects of NaCl and glucono- -lactone level on water holding capacity of restructured pork washed and pressurized at 200 MPa.  
<sup>a-d</sup> Means with different superscripts in the same column are significantly different ( $p < 0.05$ ).

가 GdL  
 (G)  
 ( $p < 0.05$ ).  
 가  
 ( $p > 0.05$ ), GdL 가  
 ( $p < 0.05$ ).  
 pH  
 ( $p < 0.01$ ).  
 가 (S) pH 5.91 가  
 , GdL 가 가 pH  
 HSHG 4.91  
 가 pH (Fig. 4).  
 가 pH  
 (Puolanne et al., 2001),  
 가 (S) pH  
 가  
 pH 가

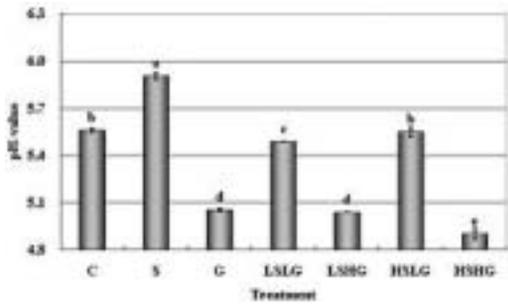


Fig. 4. Effects of NaCl and glucono- -lactone level on pH value of restructured pork washed and pressurized at 200 MPa.

<sup>a-e</sup> Means with different superscripts in the same column are significantly different ( $p < 0.05$ ).

myofibrillar pH  
(Pearson and Gillett, 1996).  
1% GdL  
pH  
carrageenan  
80%  
0.5% GdL

GdL (p<0.001)  
GdL 가  
pH  
가

GdL 가가  
Table 2  
가 S  
L\* (p<0.05), a\* b\*

pH myofibrillar  
가 CI?  
screen  
(King and Macfarlane, 1987).  
가  
GdL 가  
pH  
pH



가  
 (p>0.05). GdL(G) L\*  
 가 , a\*  
 (p<0.05). GdL  
 , 가  
 (LSHG HSLG) 가 (S  
 G)  
 (p>0.05), 가  
 (HSHG), a\*  
 b\* (p<0.05). Baublits  
 (2006) 가 가  
 가 가 retention 가  
 , Faustman  
 Cassens(1990) retention GdL 가가 가  
 .  
 Ngapo (1996) GdL 가  
 , GdL

가 가  
 . GdL 가  
 L a\*  
 b\* GdL  
 가 GdL 가가  
 (Table 3). GdL  
 가(HSHG)  
 ,  
 가 (LSLG)  
 .  
 GdL 가가 가  
 . GdL  
 가 , 가  
 GdL 가  
 . GdL 가  
 가 ,  
 GdL 가  
 .  
 가  
 GdL  
 , 가  
 carrageenan



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# 유산균을 첨가한 발효육의 이화학적 특성 및 산화억제 효과

Physico-chemical Characteristics and Antioxidative Effect of Fermented Meat by Addition of  
Lactobacillus casei

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## Abstract

This study was conducted to determine the effect of *L. casei* KCTC 3109 on physico-chemical characteristics and TBARS values of fermented pork meat. Each pork meat were allotted to two treatments ; Control (0%), T1 (supplemented with *L. casei* KCTC 3109 10%). The pH tenderness and water holding capacity (WHC) of T1 were higher than those of control ( $p < 0.05$ ), cooking loss of control was higher than T1. Water content, crude fat and ash were not significantly different, crude protein was higher in T1 compared with control ( $p < 0.05$ ).  $L^*$ ,  $a^*$  and  $b^*$  values of control were higher than those of T1 ( $p < 0.05$ ). TBARS values was higher in T1 (0.02 MA mg/1,000 g) than control (0.19 MA mg/1,000 g) ( $p < 0.05$ ).

Key words: *Lactobacillus casei*, fermented pork, physico-chemical characteristics, TBARS

(Bacus and Brown, 1981).

1961 ,  
starter culture 20  
(Park et al., 1995).

(Houle et al., 1989).

Micrococcus spp., , 가  
,  
starter culture 가  
(Bacus and  
Brown, 1981).

, ,  
가  
(Park et  
al., 1995).  
(Shin  
et al., 1988) (Kim et al.,  
1989)

가  
가  
Sausage ,  
(Bacus, 1984; 1986). 가 가  
가  
가

(Lee, 1990).

가

1940

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(L. casei KCTC 3109)  
 (KCTC)  
 (L. casei KCTC 3109) MRS  
 broth (Difo, USA) 2  
 37 5

2)  
 AOAC (1998)  
 5 g  
 105~110 30  
 g Soxhlet  
 1 g Kjeldahl  
 7 g 550

, 4  
 10 g 1 mL  
 가 0, 1, 2, 3, 4  
 5 5  
 500 mL 25

3) pH  
 10 g 90 mL 가  
 Homogenizer (NS-50. Japan) 10,000  
 rpm 1 pH meter (8603,  
 Metrohm, Switzerland)

1)  
 5 (T1)  
 , pH, , 가  
 . TBA 0~5

4)  
 10 g  
 (fritted glass  
 disk)  
 70 water bath 30 가  
 , 1,000 rpm 10  
 (%)

$$(\%) = \frac{(\text{mL}) \times 0.951}{(\text{g})} \times 100$$

$$0.951 = 70$$

5) 가

50 g 2cm  
 , 70 water bath 30 가  
 , 가  
 (%) .

6)

30  
 (Color difference meter, CR-300,  
 Minolta, Japan) Hunter  
 (L\* = , a\* = , b\* = )

L\* = 96.18, a\* = 0.10, b\* = 1.90  
 calibration plate 5

7) Thiobarbituric Acid (TBA)가

Witte (1970) 10 g  
 homogenizer 20% trichloroacetic  
 acid(T.C.A) 25 mL 가 2  
 14,000 rpm .  
 measuring flask 100 mL  
 가 , Whatman  
 No.1 filter paper .  
 5 mL 2-TBA (0.005 M,  
 in water) 5 mL  
 15 , UV-VIS Spectro  
 photometer (UV 1650, Shimadzu,  
 Tokyo, Japan) 530 nm

$$\text{TBA(MA mg/1,000 g)} = \times 5.2$$

8)

10

Table 1. Effect of L. casei KCTC 3109 on chemical composition in pork meat

Treatments	Moisture (%)	Protein (%)	Fat (%)	Ash (%)
Control	73.58±0.46	22.32±0.39a	3.09±0.11	1.04±0.01
T1 <sup>1)</sup>	73.34±0.42	21.52±0.19b	3.08±0.13	1.03±0.02

<sup>1)</sup> T1 : Supplemented with 10% L. casei KCTC 3109.

Means ± S.D.

<sup>a,b</sup> Means with the different superscripts in the same cloumn are significantly different (p<0.05).

9) SAS program(1998)  
 Duncan(1995)  
 5  
 (5= , 4= , 3= , 2= , 1= ).

Table 1  
 가 73.58% T1 73.34%  
 가 22.32% T1  
 21.52%  
 (p<0.05).  
 T1 3.08 ~ 3.09% 1.03 ~  
 1.04% 가  
 pH, WHC( ), 가  
 가 pH, T1 31.27%  
 Table 2  
 . pH 5.53  
 가 가 5.61  
 (p<0.05). Deymer  
 Vanderkhove(1979) pH가  
 가 52.68% 51.45%  
 (p<0.05). Wu  
 Smith(1987)  
 가  
 가 32.37

Table 2. Effect of *L. casei* KCTC 3109 on pH, WHC and cooking loss evaluation in pork meat

Items	pH	WHC (%)	Cooking loss (%)
Control	5.53±0.05b	51.45±0.76b	32.37±0.59
T1 <sup>1)</sup>	5.61±0.07a	52.68±0.57a	31.27±1.03

<sup>1)</sup> T1 : Supplemented with 10% *L. casei* KCTC 3109.

Means ± S.D.

<sup>a,b</sup> Means with the different superscripts in the same cloumn are significantly different (p<0.05).

가

가가

가 가

Palanska Nosal(1991)

pH 가

Thiobarbituric Acid (TBA)가

pH가 가

Winger Fennema (1976) 가

가

가

TBA

가

Table 3

L 가

Fig. 1

53.89 T1 51.63

0

3

TBARS

(p<0.05),

a

가

4

b T1 가 6.79,

TBARS 가

2.82

가

0

2

(p<0.05). Warner (1993)

TBARS

가

3 가

, Lawrie (1985)

4

TBARS 가

가

가

3

TBARS 가 0.19 MA mg/1,000 g

L. casei KCTC 3109

, 가 3

Table 3. Effect of L. casei KCTC 3109 on meat color in pork meat

Items	L	a	b
Control	53.89±1.67 <sup>b</sup>	7.83±1.36 <sup>b</sup>	3.87±1.23 <sup>b</sup>
T1 <sup>1)</sup>	51.63±1.49 <sup>a</sup>	6.79±1.51 <sup>a</sup>	2.83±1.04 <sup>a</sup>

<sup>1)</sup> T1 : Supplemented with 10% L. casei KCTC 3109.

Means ± S.D.

<sup>a,b</sup> Means with the different superscripts in the same cloumn are significantly different (p<0.05).

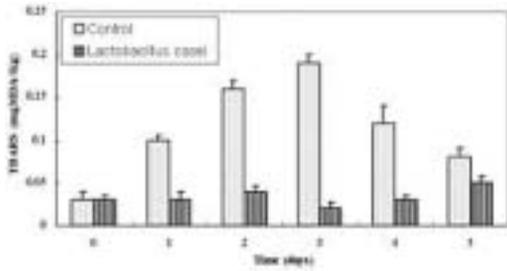


Fig. 1. Comparative of TBARS values of control and L. casei KCTC 3109 treated meat samples during storage period at 37 .

( $p < 0.05$ ),

가 T1 가

L. casei KCTC 3109

가 T1 가 10%  
L. casei KCTC 3109 가 T1  
TBARS 0.02 MA  
mg/1,000 g 8  
가  
TBARS 가 L.  
casei KCTC 3109 가  
가  
가 T1  
pH T1 가  
( $p < 0.05$ ) 가  
가 T1  
( $p < 0.05$ ). TBARS  
T1 가 0.02 MA  
mg/1,000 g 0.19MA  
mg/1,000 g  
( $p < 0.05$ ).

Table 4. Effect of L. casei KCTC 3109 on sensory properties in pork meat

Items	Juiciness	Tenderness	Flavor
Control	4.63±0.09	4.64±0.17	4.46±0.16b
T1 <sup>1)</sup>	4.59±0.08	4.66±0.23	4.62±0.07a

<sup>1)</sup> T1 : Supplemented with 10% L. casei KCTC 3109.

Means ± S.D.

<sup>a,b</sup> Means with the different superscripts in the same cloumn are significantly different ( $p < 0.05$ ).

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# Marination 조건이 돈육 육포 제조용 양념육의 품질 및 최종 제품의 관능적 특성에 미치는 영향

1 . 2 . 1 . 1 . 1 . 1 . 3 . 1 . 1\*  
1 , 2

<sup>3</sup>Department of Applied Microbiology and Food Science, University of Saskatchewan  
The Effects of Marination Condition on Quality Characteristics of Cured Pork Meat and  
Sensory Properties of Pork Jerky

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Mi-Ae Lee<sup>1</sup>, Eui-Soo Lee<sup>3</sup>, Hyun-dong Paik<sup>1</sup> and Cheon-Jei Kim<sup>1\*</sup>

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<sup>3</sup>Department of Applied Microbiology and Food Science, University of Saskatchewan

## Abstract

The purpose of this study was to investigate the effect of marination condition (immersion and tumbling) on quality characteristics of cured pork meat and sensory properties of pork jerky. Pork meat was immersed for 1, 6, 12, 24, and 48 hours or tumbled for 10, 20, 30, and 60 minutes with curing solution. The jerky was made from cured pork meat, immersed for 6, 12, 24, and 48 hours or tumbled for 10, 20, 30, and 60 minutes. The curing yields and water holding capacity in immersion and tumbling treatments were increased as marination time increased, and the curing yields of tumbling treatments were higher than those of immersion treatments, but water holding capacity was not. The pH value of all treatments were not significantly different. CIE L\* and b\*-value of immersion treatments were significantly decreased as marination time increased, but CIE a\*-value were increased. Objective color of tumbling treatments showed a similar tendency with those of immersion treatment. The sensory properties of pork jerky were not significantly different between immersion and tumbling treatments.

Key words : pork jerky, tumbling, immersion, sensory evaluation

(Bocksch, 1965; Pegg et al., 2000),

가 drum

paddle

(Goutefongea, 1992).

(Bowen, 1974),

(Watts, 1954)

,

가

가

,

(Lawlis et al., 1992),

(Ghavimi et al.,

1987),

(Pietrasik and Shand, 2004), 가

가(Bedinghaus et al., 1992)

(Kim et al., 2003)

가 가

가

, 가

(Yang et al.,

1998),

(Ponting et

가

(Lee and

al., 1966),

Park, 2004; Park and Lee, 2005; Pegg

et al., 2006).

Farouk

Swan(1999)

(Choi et al.,

1997),

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marination

1  
 (M. biceps femoris, M. semitendinosus,  
 M. semimembranosus) 4  
 - 1 ~ - 2 가  
 slice(6~8 mm)  
 S  
 H sodium chloride  
 O , C S  
 D  
 ginger, garlic, onion powder, sodium  
 citrate, potassium sorbate, sodium  
 erythorbate O black pepper  
 , D sodium nitrate  
 C soup stock powder

Marination  
 (1997)  
 recipe

Marination  
 가 3  
 1  
 1, 2, 3, 6, 9, 12, 24, 48  
 (Kim  
 et al., 2003) 가 1  
 (Type MGH-20, Vackona,  
 Spain) 0.75 bar,  
 25 rpm  
 10, 20, 30, 60

Fig. 1  
 6, 12, 24, 48  
 10, 20, 30, 60  
 (Enex-CO-600,  
 Enex, Korea)

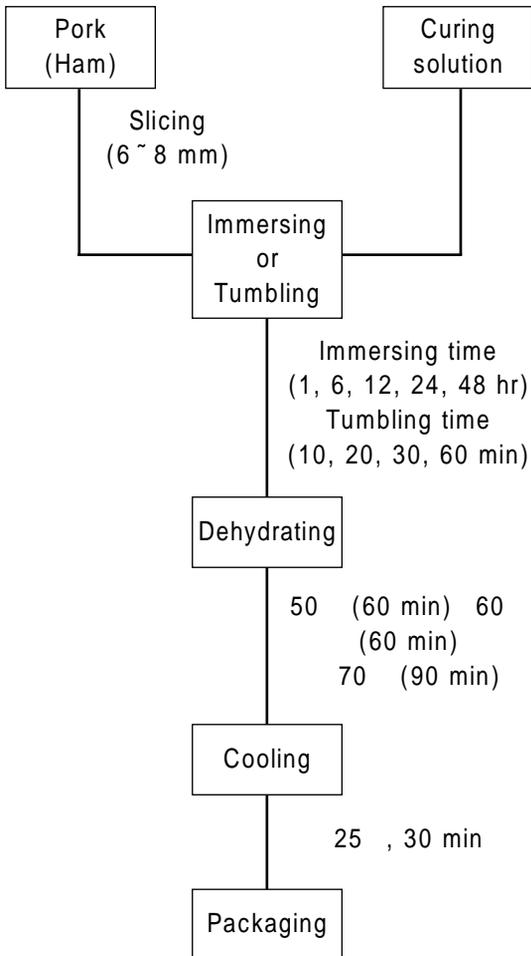
Marination

, 50 (60 ) 60 (60 )  
 ) 70 (90 ) 3 30  
 . 25 30  
 polyethylene bag

1)  
 (1, 2, 3, 6, 9, 12, 24, 48 )  
 (10, 20, 30, 60 )

가

(%)



2) pH

pH 5 g 20 mL

Ultra Turrax (Model No. T 25, Janken and Kunkel, Germany)

8,000 rpm 1

pH meter(340, Mettler Toledo GmbH, Switzerland)

3) (Water-Holding Capacity)

Grau Hamm(1953) filter paper press

plate (Whatman No. 2)

300 mg

plexiglass plate 1

3

planimeter(Type KP-21, Japan)

(%)

Fig. 1. The diagram of pork jerky manufacturing.

4) Color

Colorimeter(Chromameter  
 , CR210, Minolta, Japan)  
 (lightness) CIE L\* - ,  
 (redness) CIE a\* -  
 (yellowness) CIE b\* -  
 L\* -  
 +97.83, a\* - - 0.43 b\* - + 1.98

Table 1. Properties of raw pork meat

Traits	Raw pork meat
pH	5.62±0.061)
CE	L* 53.32±2.69
	a* 13.62±1.66
	b* 4.78±0.94
Water holding capacity (%)	42.82±2.24

<sup>1)</sup> All data is mean±SD.

5)

marination  
 (3×3 cm)

10 (1 = , ,  
 ; 10 = , ,  
 )

6)

SAS program(Statistics  
 Analytical System, USA, 1999)  
 GLM(General Linear Model) procedure  
 Duncan  
 (p<0.05)

Table 1

pH 5.62 , color CIE L\*,  
 a\*, b\*- 53.32, 13.62, 4.78  
 , 43%

Fig. 2

가

22% 가  
 (p<0.05). 10  
 19% 가 30  
 25% 가  
 , 30 60  
 . 30  
 48  
 3% ,  
 (Ockerman and  
 Organisciak, 1978; Rust and Olson,  
 1973), 가(Kim et al.,  
 2003; Plimpton et al., 1991)  
 가  
 가 Kim (2003)

Fig. 3

1  
 49.6% 6  
 (51.6%)  
 12  
 가  
 48 가 57.7% 가  
 (p<0.05).  
 10 20  
 가  
 pH  
 (Wierbicki, 1957), Kim (1994)

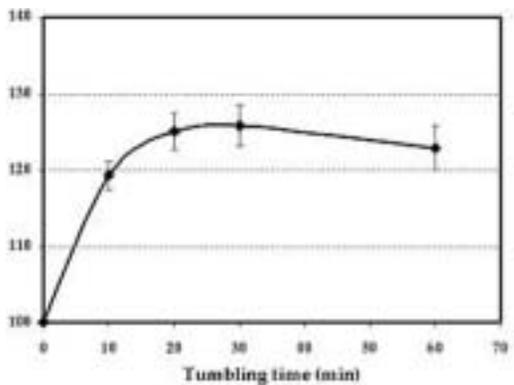
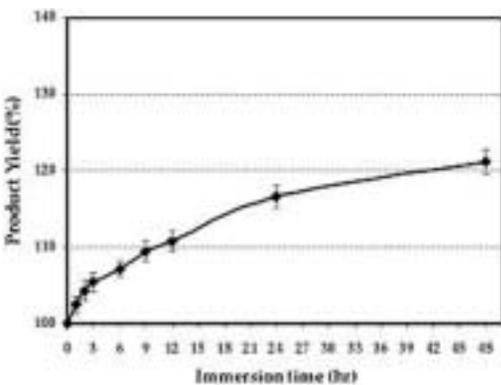


Fig. 2. Effect of curing condition1) on curing yield of pork meat with curing solution.

1) Immersion condition : Each treatments were individually immersed for 1, 2, 3, 6, 9, 12, 24, 48 hr after marinated for 3 min by hand.

Tumbling condition : Each treatments were individually tumbled for 10, 20, 30, 60 min continuously at a rate of 25 rpm, 1 .

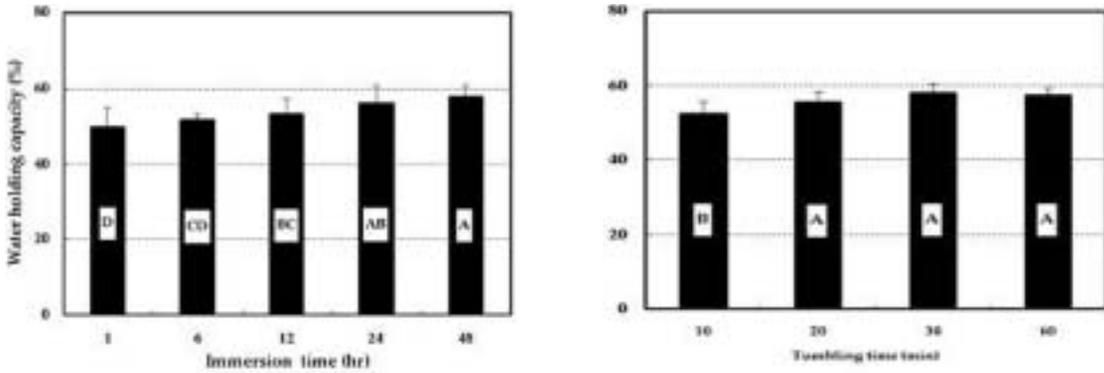


Fig. 3. Effect of curing condition1) on water holding capacity of cured pork meat with curing solution.

1) Immersion condition : Each treatments were individually immersed for 1, 6, 12, 24, 48 hr after marinated for 3 min by hand.

Tumbling condition : Each treatments were individually tumbled for 10, 20, 30, 60 min continuously at a rate of 25 rpm, 1 .

A~D Means with different superscripts within the same curing condition are significantly different (p<0.05).

drumstick  
가

pH  
Kim (2003)

pH가

pH color  
, Choi Lee(2002)

Table 2

pH color

pH L\* b\*  
가

(p>0.05), 48 L\* 24 48 가 가  
(p<0.05), b\*- 48

가 가

가 60 (p<0.05). a\*-  
가 48

## Marination

Table 2. Effects of curing condition1) on pH and color of cured pork meat with curing condition

Traits	Immersion time (hr)					Tumbling time (min)			
	1	6	12	24	48	10	20	30	60
pH	5.68±0.05 <sup>B</sup>	5.69±0.04 <sup>B</sup>	5.70±0.04 <sup>B</sup>	5.71±0.02 <sup>AB</sup>	5.75±0.07 <sup>A</sup>	5.68±0.06	5.69±0.06	5.68±0.08	5.71±0.04
CE	L* 43.57±3.01 <sup>A</sup>	43.11±1.51 <sup>A</sup>	40.30±2.94 <sup>B</sup>	38.53±3.02 <sup>C</sup>	38.00±1.83 <sup>C</sup>	44.45±1.98 <sup>A</sup>	42.72±1.98 <sup>B</sup>	42.19±2.19 <sup>B</sup>	41.88±1.72 <sup>B</sup>
	a* 10.41±1.01 <sup>E</sup>	11.90±0.55 <sup>D</sup>	12.62±1.02 <sup>C</sup>	13.36±0.67 <sup>B</sup>	14.10±0.60 <sup>A</sup>	13.01±0.76 <sup>B</sup>	13.17±0.90 <sup>AB</sup>	13.56±0.98 <sup>A</sup>	13.66±0.85 <sup>A</sup>
	b* 11.32±1.86 <sup>A</sup>	11.21±1.44 <sup>AB</sup>	10.25±1.23 <sup>B</sup>	9.72±1.41 <sup>C</sup>	8.09±1.60 <sup>D</sup>	14.53±1.45 <sup>A</sup>	13.88±0.85 <sup>AB</sup>	13.80±1.74 <sup>B</sup>	13.65±1.74 <sup>B</sup>

<sup>1)</sup> Immersion condition : Each treatments were individually immersed for 1, 6, 12, 24, 48 hr after marinated for 3 min by hand.

Tumbling condition : Each treatments were individually tumbled for 10, 20, 30, 60 min continuously at a rate of 25 rpm, 1 .

<sup>A-E</sup> Means with different superscripts within the same curing condition are significantly different (p<0.05).

가 (2003) 가  
 L\* - b\* - 30  
 가  
 , a\* -  
 가

(Jin et al., 2005), Kim

Table 3

Table 3. Effects of curing condition1) on sensory evaluation of pork jerky

Traits	Immersion time (hr) <sup>1)</sup>				Tumbling time (min)			
	6	12	24	48	10	20	30	60
Color	6.86±0.53 <sup>B</sup>	7.29±0.61 <sup>AB</sup>	7.43±0.65 <sup>A</sup>	7.43±0.65 <sup>A</sup>	7.14±0.66	7.29±0.73	7.36±0.50	7.29±0.61
Flavor	7.43±0.51	7.14±0.36	7.43±0.76	7.43±0.76	7.29±0.47	7.29±0.61	7.57±0.65	7.57±0.51
Texture	6.71±0.47	6.71±0.73	7.14±0.66	7.21±0.70	7.14±0.66	7.21±0.70	7.64±0.74	7.57±0.76
Juiciness	6.64±0.63 <sup>B</sup>	6.86±0.53 <sup>B</sup>	7.43±0.51 <sup>A</sup>	7.43±0.65 <sup>A</sup>	7.50±0.52	7.57±0.65	7.71±0.61	7.86±0.53
Overall acceptability	7.14±0.66	7.07±0.62	7.43±0.65	7.50±0.76	7.86±0.77	7.93±0.83	8.00±0.68	7.93±0.73

<sup>1)</sup> Each jerky were dried using cured pork meat immersed for 6, 12, 24, 48 hr, individually.

<sup>2)</sup> Each jerky were dried using cured pork meat tumbled for 10, 20, 30, 60 min, individually.

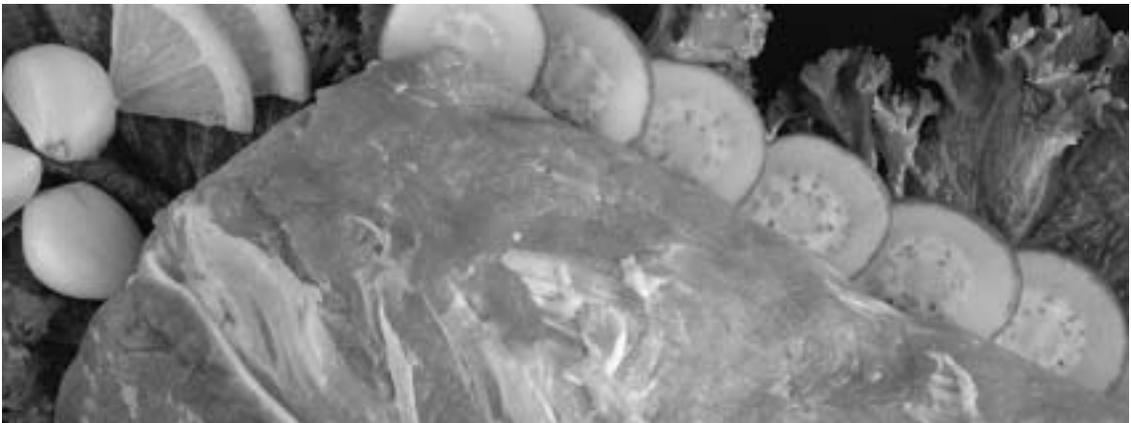
All treatment's jerky drying condition : 50 (60 min) 60 (60 min) 70 (90 min)

<sup>A-B</sup> Means with different superscripts within the same curing condition are significantly different (p<0.05).



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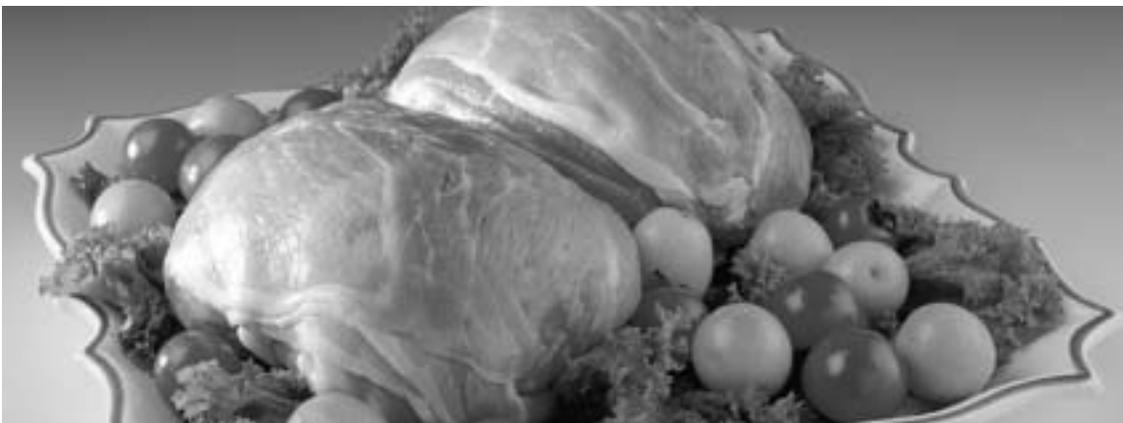
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# (ZIB)

가 1, ' (ZIB) ' . Zur Imbiss & Bier ' (ZIB) ' T.P.O(Time, Place & Occasion) (Needs) ' , 가 .

- imbiss . - ' 가 - ' , 가 - ' , 가 - ' 1 1 ~ 2kg , ! ' (ZIB) . 가가 6,000 ~ 7,500 가 1. ZIB , 가 (ZIB) , 1 1 ~ 2 . 10 , , 23 ' , ' , 가 .

70 ~ 80 , ' , ' , 가 .



2. (ZIB)

(ZIB) . 23

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- 7 30
- 9 30
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C.K. 가 . 30  
 가 ( 70~80 가 가)

Ready to Heat, Ready to Eat

Menu Coordinating Program  
 (ZIB) ,

가 가 .

3. (ZIB)

POP Menu

Book Shop master (ZIB) 가  
가

5. (ZIB)

(ZIB) 가  
가  
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- ZIB  
- ZIB 가 가  
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3가 59-12 1

4. (ZIB) 3

TEL : 02-2277-0218

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“ (HYPORK) ”

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(PORK)

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가 (CLEAN), (NATURAL),  
(FRESH)

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가, 가, 3 가



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KS, HACCP, ISO

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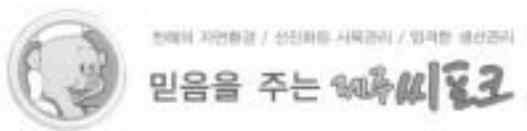
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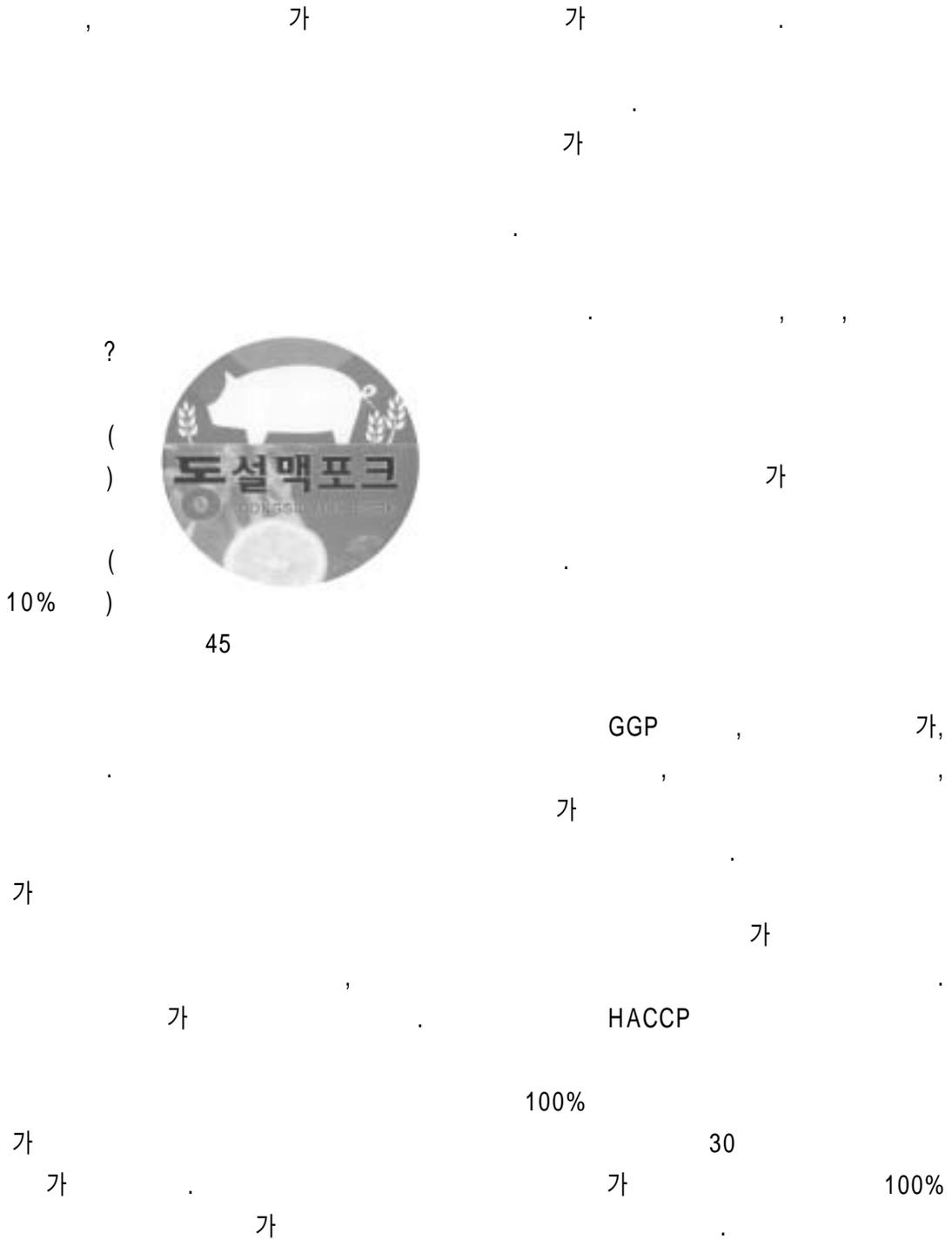
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JSR

HACCP



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ISO 9001, 14001, OHSAS

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100g 44.07mg

28

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, HB, - (Sony Green Partner),

212-35

TEL : 02-713-4600 / FAX : 02-715-5573

<http://www.chokwang-paint.co.kr>

가가



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# HACCP

(DAE-SAN ENTERPRISE)

2001

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HACCP  
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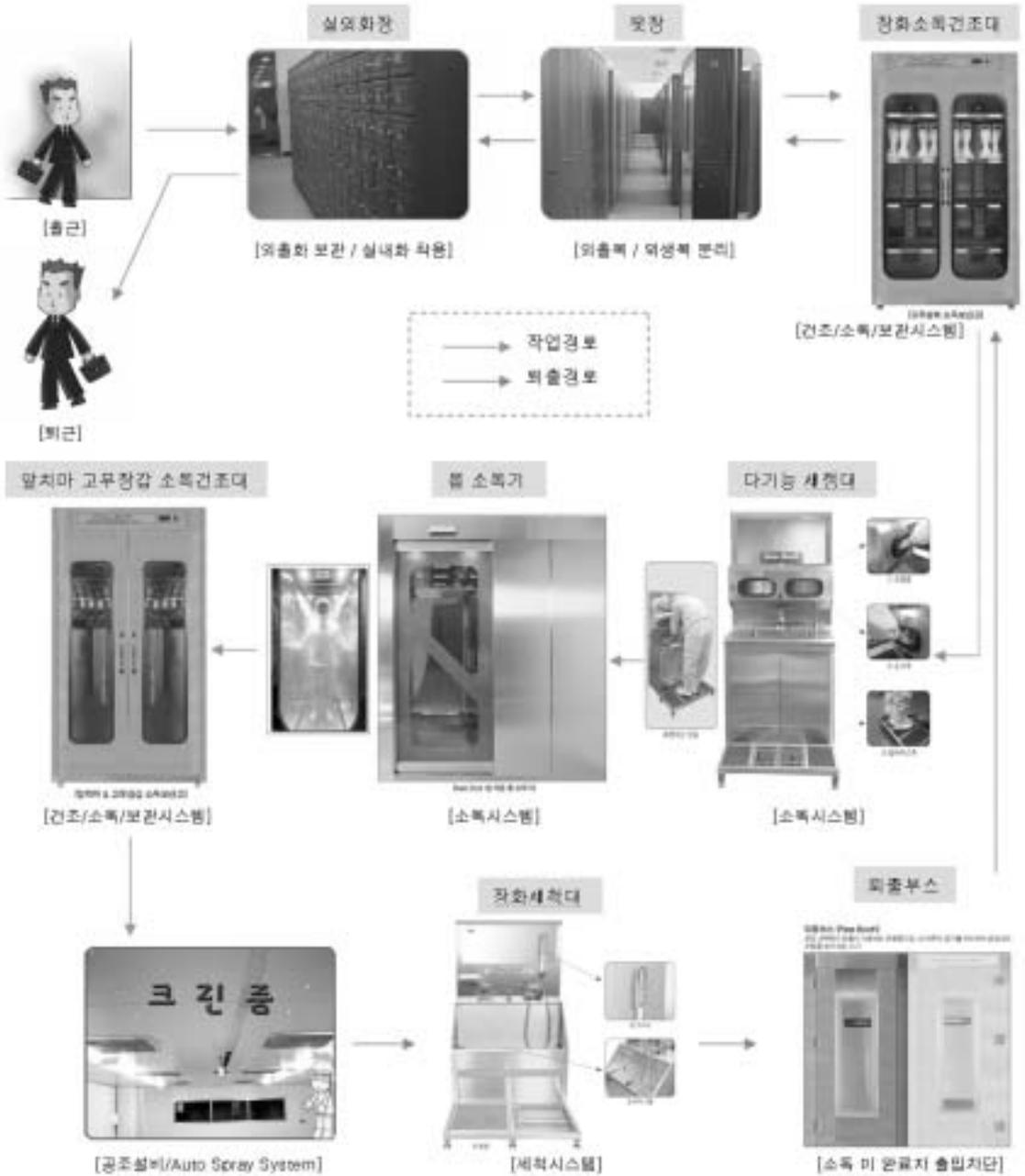
731-4

627

TEL : 031-508-9119 / FAX : 0031-508-9123

<http://www.dstec.co.kr>





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正道

原則



1984  
(製菓)

1988

食品 , 가  
가

CSP, TVP ), ( ),  
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(ISOLATED SOY PROTEIN)  
(CONCENTRATED SOY PROTEIN)  
(TEXTURED VEGETABLE PROTEIN)

ADM, DEWIED INTERNATIONAL, NORPAC  
FOODS, WIBERG, MASTERTASTE

가  
가

가

(ISP, 가

가

ADM社 ( 18~20mm 20~22mm )  
 FLAVOR 가  
 가 \* (Mastertaste社, Wiberg社)  
 - Meat Flavor, BBQ Flavor, Smoke Flavor, Grill Flavor, Frankfurter Intensor, Merguez Flavor Flavor Hotdog Seasoning 가  
 가 Fiber (Pea Fiber, Potato Fiber)  
 Premultex, VG860  
 curd (emulsion)  
 가 curd 가  
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 - ( , , )  
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 - Dewied International社 Agent ( 가 99-5 3 )  
 26~28mm #1, #2, #3 TEL : 02-430-6853 / FAX : 02-430-6855  
 28~30mm #4 .) http://www.samahasia.com





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(株)世宇

739-5 8

TEL: 02-5088-301 / FAX : 02-5577-850

http:// www.sewoinc.co.kr



1999  
LOCK INSPECTION SYSTEM  
가

1979

가 ANRITSU A/S

ANRITSU X-RAY

[X-RAY ]

4000 가

Anritsu

A/S (Fe),  
SPARE (SUS)



PARTS

Up  
 (HACCP )  
 \* 가  
 \* 가

Series Fe SUS  
 DRY · WET ·

2~4

HACCP  
 ALL STAINLESS ,  
 OPEN FRAME

[ ]

IP66 防塵( )

가

) · 防水( )

400 /  
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 ANRITSU  
 Clean Multi Scale  
 Pipeline

mg



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 가 HACCP

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 ”( dual  
 wave )”

VM , Simple  
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Fe SUS

5442-1



911

TEL : 031-732-3939 / FAX : 031-733-7878

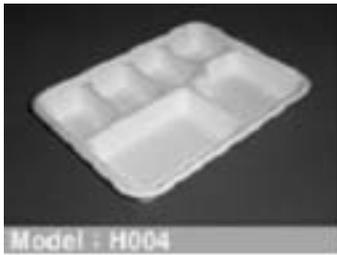
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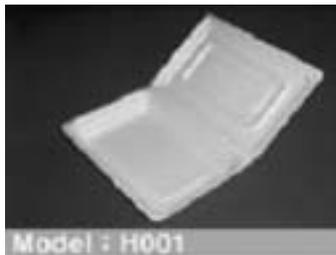
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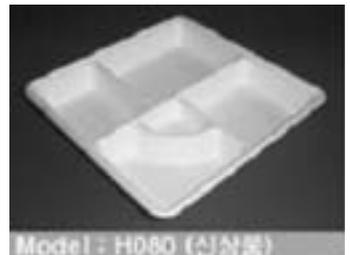
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Model : H004

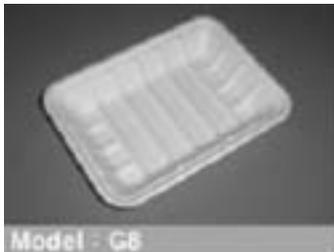


Model : H001



Model : H080 (신상목)

- (G-18 15 )



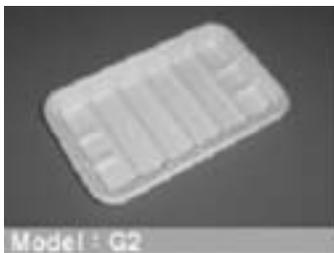
Model : G6



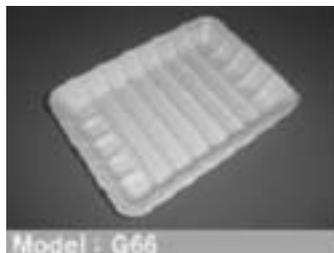
Model : G18



Model : G25



Model : G2



Model : G66



Model : H011 (신상품)

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(EKOSTECH CO., LTD.)

: 51-11 3

TEL : 02- 424-0160 / FAX : 02-414-5164

http://www.ekostech.co.kr

# testo 105

testo 105

- 3가
- 가 가
- High/Low
- 2
- IP 65
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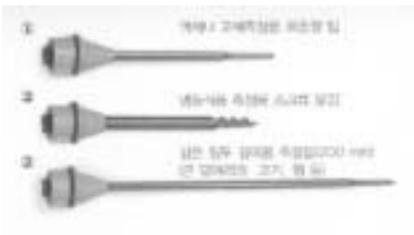
02)2672-7200 / FAX : 2679-9853

2-21 1

<http://www.testo.co.kr/>



기술데이터	testo 105
패러미터	°C / °F
센서	NTC
측정 채널	1 채널
측정 범위	-50... +275 °C
분해능	0.1°C
정확도	±0.5 °C(-20 ~ 100 °C) ±1 %(100.1 ...275 °C) 1 °C (-50... -20.1 °C)
디스플레이	LCD, 1라인
센서	NTC 헤드 (플러그인 타입)
스탠다드(t99 < 15초)	length 120 mm
냉동 식품용(t99 < 60초)	length 90 mm
Long (t99 < 15초)	length 200 mm
측정주기	2 measurements per second
작동온도	-20... +50°C
보관온도	-40... +70°C
бат데리 타입	4x리튬 бат데리(LR44)
бат데리 수명	80시간(자동 on/off 10분)
하우징(외관)	ABS(손잡이부분은 소프트코팅), IP65
크기	145x38x195mm
무게	139 g
보증	본체 2년, 프로브 1년



# 통 계 지 료

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가.



2. 가  
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4. 가  
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가.



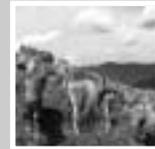
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12.



# 1. 가

## 가. 생산량

(단위: 톤 %)

	(1)		(2)		(3)		(4)		(A) (1+2+3+4)		(B)		(A+B)	
1965	111	-	374	-	37	-	42	-	564				564	-
1970	129	16.2	1,336	257.2	2	-94.6	429	921.4	1,896	236.2			1,896	236.2
1975	293	127.1	3,598	169.3	47	2250.0	18	-95.8	3,956	108.6			3,956	108.6
1979	773	163.8	1,473	-59.1	72	53.2	331	1,738.9	2,649	-33.0			2,649	-33.0
1980	728	-5.8	1,895	28.6	80	11.1	3,075	829.0	5,778	118.1			5,778	118.1
1981	1,101	51.2	3,083	62.7	155	93.8	248	-91.9	4,587	-20.6			4,587	-20.6
1982	1,480	34.4	2,335	-24.3	183	18.1	885	256.9	4,883	6.5			4,883	6.5
1983	2,499	68.9	2,620	12.2	505	176.0	1,541	74.1	7,165	46.7			7,165	46.7
1984	2,661	6.5	3,295	25.8	307	-39.2	2,667	73.1	8,930	24.6			8,930	24.6
1985	4,396	65.2	5,385	63.4	280	-8.8	2,661	-0.2	12,722	42.5	32,430		45,152	405.6
1986	4,849	10.3	5,904	9.6	288	2.9	2,618	-1.6	13,659	7.4	34,500	6.4	48,159	6.7
1987	7,203	48.5	7,748	31.2	417	44.8	3,301	26.1	18,669	36.7	35,100	1.7	53,769	11.6
1988	11,977	66.3	15,068	94.5	516	23.7	4,171	26.4	31,732	70.0	35,400	0.9	67,132	24.9
1989	16,375	36.7	21,133	40.3	522	1.2	4,300	3.1	42,330	33.4	40,050	13.1	82,380	22.7
1990	23,013	40.5	27,698	31.1	601	15.1	7,179	67.0	58,491	38.2	37,589	-6.1	96,080	16.6
1991	32,024	39.2	33,506	21.0	696	15.8	8,975	25.0	75,201	28.6	32,346	-13.9	107,547	11.9
1992	39,687	23.9	35,222	5.1	767	10.2	10,806	20.4	86,482	15.0	24,390	-24.6	110,872	3.1
1993	47,337	19.3	34,422	-2.3	893	16.4	8,910	-17.5	91,562	5.9	22,612	-7.3	114,174	3.0
1994	49,211	4.0	35,944	4.4	1,053	17.9	11,923	33.8	98,131	7.2	21,787	-3.6	119,918	5.0
1995	48,962	-0.5	36,267	0.9	1,268	20.4	10,987	-7.9	97,484	-0.7	18,325	-15.9	115,809	-3.4
1996	50,581	3.3	37,453	3.3	1,428	12.6	11,478	4.5	100,940	3.5	18,084	-1.3	119,024	2.8
1997	48,230	-4.6	39,055	4.3	1,462	2.4	14,265	24.3	103,012	2.1	18,406	1.8	121,418	2.0
1998	44,123	-8.5	33,990	-13.0	1,048	-28.3	9,366	-34.3	88,527	-14.1	18,787	2.1	107,314	-11.6
1999	50,697	14.9	31,341	-7.8	1,213	15.7	12,620	34.7	95,871	8.3	18,832	0.2	114,703	6.9
2000	55,855	10.2	34,562	10.3	1,483	22.3	18,393	45.7	110,293	15.0	20,009	6.3	130,302	13.6
2001	58,158	4.1	38,509	11.4	1,799	21.3	21,369	16.2	119,835	8.7	23,397	16.9	143,232	9.9
2002	60,159	3.4	40,431	5.0	1,925	7.0	26,682	24.9	129,197	7.8	28,033	19.8	157,230	9.8
2003	59,255	-1.5	41,491	2.6	1,865	-3.1	28,223	5.8	130,834	1.3	28,821	2.8	159,655	1.5
2004	56,138	-5.3	44,068	6.2	2,065	10.7	26,788	-5.1	129,060	-1.4	30,748	6.7	159,808	0.1
2005	54,242	-3.4	42,988	-2.4	2,352	13.9	28,260	5.5	127,842	-0.9	31,909	3.8	159,751	0.0
2006. 9 ( )	45,773	10.3	33,149	4.5	1,943	15.6	18,724	-16.2	99,589	2.4	24,646	3.2	124,235	2.5
2006. 1	6,042		3,217		173		3,720		13,152		2,452		15,604	
2	3,379		3,074		197		1,328		7,978		2,348		10,326	
3	4,894		3,890		238		1,368		10,389		2,633		13,022	
4	4,838		3,561		228		1,324		9,951		2,762		12,713	
5	4,720		3,600		217		1,354		9,891		2,718		12,609	
6	4,714		3,765		222		1,497		10,199		2,825		13,024	
7	4,787		3,744		200		1,958		10,689		2,625		13,314	
8	5,300		3,921		233		2,482		11,936		2,745		14,681	
9	7,098		4,378		235		3,693		15,403		3,538		18,941	

1) 1  
 2) 2006. 9 : 2005 9  
 3) ( ) 가

## 나. 판매량

(단위: 톤, %)

	(1)		(2)		(3)		(4)		(A) (1+2+3+4)		(B)		(A+B)	
1989	15,627		20,170		504		4,588		40,890		39,302		80,192	
1990	10,963	-29.8	27,505	36.4	595	18.0	6,582	43.4	45,644	11.6	37,518	-4.5	83,162	3.7
1991	31,630	188.5	32,549	18.3	680	14.3	8,447	28.3	73,306	60.6	32,051	-14.6	105,357	26.7
1992	39,079	23.6	34,906	7.2	756	11.2	9,810	16.1	84,551	15.3	24,254	-24.3	108,805	3.3
1993	47,197	20.8	34,205	-2.0	878	16.1	9,047	-7.8	91,327	8.0	22,612	-6.8	113,939	4.7
1994	47,983	1.7	34,458	0.7	1,060	20.7	13,176	45.6	96,677	5.9	21,655	-4.2	118,332	3.9
1995	48,886	1.9	35,739	3.7	1,247	17.6	11,023	-16.3	96,895	0.2	18,141	-16.2	115,036	-2.8
1996	50,708	3.7	37,458	4.8	1,423	14.1	12,439	12.8	102,028	5.3	18,201	0.3	120,229	4.5
1997	48,091	-5.2	38,896	3.8	1,442	1.3	14,265	14.7	102,694	0.7	18,406	1.1	121,100	0.7
1998	44,426	-7.6	33,877	-12.9	1,040	-27.9	10,405	-27.1	89,748	-12.6	18,912	2.7	108,660	-10.3
1999	49,860	12.2	31,420	-7.3	1,183	13.8	12,217	17.4	94,680	5.5	18,443	-2.5	113,123	4.1
2000	54,862	10.0	33,944	8.0	1,445	22.1	17,883	46.4	108,134	14.2	19,463	5.5	127,597	12.8
2001	56,972	3.8	37,753	11.2	1,730	19.7	20,884	16.8	117,339	8.5	23,147	18.9	140,486	10.1
2002	58,463	2.6	39,788	5.4	1,836	6.1	21,925	5.0	122,012	4.0	26,964	16.5	148,976	6.0
2003	56,804	-2.8	40,538	1.9	1,853	1.0	23,341	6.5	122,536	0.4	27,183	0.8	149,718	0.5
2004	56,138	-4.1	44,068	3.8	2,065	10.1	26,788	4.7	129,060	0.4	30,748	2.1	159,808	0.7
2005	51,869	-4.8	40,744	-3.2	2,279	11.7	23,705	-3.0	118,597	-3.6	27,812	0.2	146,409	-2.9
2006. 9 ( )	41,679	5.0	32,544	7.6	1,933	17.8	18,516	-7.0	94,672	3.4	21,703	4.3	116,375	3.6
2006. 1	5,512		3,244		185		4,851		13,793		2,079		15,872	
2	3,130		2,966		191		942		7,230		2,059		9,289	
3	4,416		3,834		232		1,180		9,662		2,335		11,997	
4	4,595		3,589		219		1,178		9,582		2,435		12,017	
5	4,431		3,572		221		1,018		9,243		2,441		11,684	
6	4,211		3,693		222		1,118		9,244		2,441		11,686	
7	4,499		3,762		214		1,486		9,961		2,284		12,246	
8	4,787		3,744		226		1,737		10,494		2,495		12,989	
9	6,098		4,139		221		5,006		15,463		2,132		17,595	

1) 1

2) 2006. 9 : 2005. 9

3) : ( ) 가

다. 매출액

(단위: 백만원, %)

	(1)		(2)		(3)		(4)		(A) (1+2+3+4)		(B)		(A+B)	
2002	249,249		175,318		22,378		132,046		578,991		96,600		675,591	
2003	249,288	0.0	179,786	2.5	22,885	2.3	147,560	11.7	599,519	3.5	99,744	3.3	699,263	3.5
2004	233,268	-6.4	185,594	3.2	24,250	6.0	145,553	-1.4	588,665	-1.8	102,276	2.5	690,941	-1.2
2005	252,305	8.2	196,108	5.7	28,877	19.1	164,132	12.8	641,422	9.0	109,579	7.1	751,001	8.7
2006.9 ( )	202,703	4.3	158,013	8.3	24,240	15.5	139,583	-0.5	524,540	4.6	79,604	-3.1	604,144	3.5
2006.1	29,243		15,993		2,361		35,525		83,121		8,438		91,560	
2	15,411		15,507		2,290		5,311		38,518		7,910		46,429	
3	20,580		17,969		2,891		8,476		49,915		8,807		58,722	
4	21,301		16,944		2,728		8,444		49,416		9,365		58,781	
5	21,104		17,276		2,783		6,910		48,073		8,905		56,978	
6	20,305		17,463		2,756		7,501		48,024		8,677		56,700	
7	21,078		18,099		2,728		10,016		51,921		8,841		60,762	
8	21,961		19,351		2,868		12,373		56,554		9,391		65,944	
9	31,721		19,413		2,836		45,028		98,998		9,270		108,268	

1) 1 .  
 2) 2002  
 2) 2006. 9 : 2005 9  
 4) : ( ) 가

## 2. 가

### 가. 품목별

#### 1) 수출

(단위: 천불, 천, %)

	(1)			(2)			(1+2)		
1977	15	-	-	0	-	-	15	-	-
1978	189	-	-	21	-	-	210	-	-
1979	59	-	-	7	-	-	66	-	-
1980	165	-	-	11	-	-	176	-	-
1981	113	-	-	3	-	-	240	-	-
1982	1	-	-	4	-	-	5	-	-
1983	207	-	-	7	-	-	214	-	-
1984	126	-	-	28	-	-	455	-	-
1985	152	-	-	25	-	-	177	-	-
1986	49	-	-	27	-	-	76	-	-
1987	69	-	-	18	-	-	87	-	-
1988	47	20.5	-	7	3.8	-	54	24.3	-
1989	37	8.4	-59.2	0	0.0	-100.0	37	8.4	-65.4
1990	121	69.5	731.0	0	0.0	-	121	69.5	727.4
1991	16	4.5	-93.5	0	0.2	-	16	4.7	-93.3
1992	15	7.1	58.4	0	0.0	-83.6	15	7.2	53.8
1993	52	20.9	193.8	97	31.6	126,316.0	149	52.5	634.6
1994	282	70.8	238.2	44	12.4	-60.8	326	83.2	58.3
1995	202	42.2	-40.3	3	0.4	-96.4	205	42.7	-48.7
1996	2,210	408.9	867.9	669	184.5	41,080.4	2,879	593.4	1,289.9
1997	747	127.4	-68.8	801	285.4	54.7	1,548	412.8	-30.4
1998	639	174.4	36.9	41	17.7	-93.8	680	192.1	-53.5
1999	1,102	307.0	76.0	34	15.6	-11.7	1,136	322.6	67.9
2000	849	878.9	186.3	36	19.2	22.9	885	898.1	178.4
2001	397	144.4	-83.6	184	41.8	117.5	581	186.2	-79.3
2002	345	208.2	44.1	382	176.3	322.4	727	384.5	106.5
2003	672	391.6	88.1	167	47	-73.6	839	438.2	14
2004	991	638.0	62.9	148	20	-56.8	1,139	658.1	50
2005	687	1,313.4		777	175		1,464	1,488.6	126
2006.(6)	123	10.8		256	8		379	19.8	
1	11	2.0		19	1		30	3.0	
2	22	2.8		13	1		35	3.6	
3	63	3.2		35	1		98	4.1	
4	10	0.6		57	2		67	2.2	
5	0	0.0		69	2		69	2.1	
6	17	2.2		60	2		77	3.8	

- 1) : HSK No(1601-00-1000 + 1601-00-9000)  
: HSK No(1602-41-1000 + 1602-42-1000 + 1602-49-1000)
- 2) 1987 가 :
- 3) :
- 4) : KOTIS
- 5) HSK No(1601-00-1000) : /
- 6) HSK No(1601-00-9000) : /
- 7) HSK No(1602-41-1000) : / /
- 8) HSK No(1602-42-1000) : / /
- 9) HSK No(1602-49-1000) : / ( )/

2) 수입

(단위: 천불, 톤, %)

	(1)			(2)			(1+2)		
1977	150	-	-	34	-	-	184	-	-
1978	116	-	-	152	-	-	268	-	-
1979	4,397	-	-	102	-	-	4,499	-	-
1980	32	-	-	135	-	-	167	-	-
1981	-	-	-	240	-	-	240	-	-
1982	53	-	-	226	-	-	279	-	-
1983	14	-	-	371	-	-	385	-	-
1984	-	-	-	455	-	-	455	-	-
1985	56	-	-	460	-	-	516	-	-
1986	4	-	-	667	-	-	671	-	-
1987	21	-	-	1,136	-	-	1,157	-	-
1988	47	25.1	-	3,085	1,660.0	-	3,132	1,685.2	-
1989	87	19.3	-23.4	7,107	2,958.8	78.2	7,194	2,978.1	76.7
1990	2,480	958.0	4,871.3	5,477	2,559.7	-13.5	7,957	3,517.7	18.1
1991	5,854	2,389.9	149.5	4,788	1,783.3	-30.3	10,642	4,173.2	18.6
1992	6,176	3,024.5	26.6	5,405	2,239.8	25.6	11,581	5,264.3	26.1
1993	7,691	3,821.4	26.3	5,013	2,185.0	-2.4	12,704	6,006.4	14.1
1994	4,325	1,950.8	-48.9	6,029	2,302.5	5.4	10,354	4,253.4	-29.2
1995	6,448	2,985.6	53.0	8,877	3,267.3	41.9	15,325	6,252.9	47.0
1996	8,740	3,884.3	30.1	7,196	3,002.4	-8.1	15,936	6,886.7	10.1
1997	9,321	4,207.8	8.3	7,147	2,987.6	-0.5	16,468	7,195.4	4.5
1998	4,840	2,498.8	-40.6	2,291	1,211.4	-59.5	7,131	3,710.2	-48.4
1999	4,908	2,897.7	16.0	3,386	1,659.7	37.0	8,294	4,557.4	22.8
2000	6,926	3,765.4	29.9	4,513	2,166.7	30.5	11,439	5,932.1	30.2
2001	8,958	4,572.6	21.4	6,084	2,807.3	29.6	15,042	7,379.9	24.4
2002	10,468	5,048.2	10.4	5,185	2,416.0	-13.9	15,653	7,464.2	1.1
2003	11,651	5,468.9	8.3	7,285	3,047.6	26.1	18,936	8,516.5	0
2004	7,767	4,068.0	-25.6	9,184	3,487.6	14.4	16,951	7,555.7	-11.3
2005	11,004	5,025.0		8,926	3,135.6		19,930	8,160.6	8.0
2006.(6)	6,237	2,818.4		4,848	1,637.8		11,085	4,456.2	
1	910	406.2		1,446	444.3		2,356	850.5	
2	947	444.0		596	213.8		1,543	657.8	
3	1,316	585.1		759	261.1		2,075	846.2	
4	679	325.3		705	242.9		1,384	568.2	
5	1,069	490.8		920	329.8		1,989	820.6	
6	1,316	567.0		422	145.9		1,738	712.9	

- 1) : HSK No(1601-00-1000 + 1601-00-9000)
- 2) 1987 : HSK No(1602-41-1000 + 1602-42-1000 + 1602-49-1000)
- 가 :
- 3) :
- 4) : KOTIS
- 5) HSK No(1601-00-1000) : /
- 6) HSK No(1601-00-9000) : /
- 7) HSK No(1602-41-1000) : / /
- 8) HSK No(1602-42-1000) : / /
- 9) HSK No(1602-49-1000) : / ( )/

나. 국가별

1) 수출

(가) 소시지

(단위: 천불, 톤)

1977	-	-	-	-	-	-	-	-	-	-	15	-
1978	-	-	-	-	-	-	-	-	-	-	189	-
1979	-	-	-	-	-	-	-	-	-	-	59	-
1980	-	-	-	-	-	-	-	-	-	-	165	-
1981	-	-	-	-	-	-	-	-	-	-	113	-
1982	-	-	-	-	-	-	-	-	-	-	1	-
1983	-	-	-	-	-	-	-	-	-	-	207	-
1984	-	-	-	-	-	-	-	-	-	-	126	-
1985	-	-	-	-	-	-	-	-	-	-	152	-
1986	-	-	-	-	-	-	-	-	-	-	49	-
1987	-	-	-	-	-	-	-	-	-	-	69	-
1988	11	5.2	0	0.0	2	1.0	0	0.0	34	14.2	47	20.5
1989	14	3.7	0	0.0	1	0.0	0	0.0	22	4.6	37	8.4
1990	20	5.8	0	0.0	0	0.0	0	0.0	101	63.7	121	69.5
1991	12	3.3	0	0.0	0	0.0	0	0.0	4	1.2	16	4.5
1992	0	0.0	0	0.0	0	0.0	0	0.0	15	7.1	15	7.1
1993	0	0.2	45	18.2	5	1.8	0	0.0	2	0.8	52	20.9
1994	1	0.1	84	49.8	70	7.0	0	0.0	127	13.8	282	70.8
1995	21	11.6	73	15.6	83	7.6	0	0.1	25	7.3	202	42.2
1996	61	19.4	69	27.3	0	0.0	2,053	348.8	27	13.4	2,210	408.9
1997	0	0.0	367	56.1	0	0.0	330	60.2	50	11.0	747	127.4
1998	5	2.9	7	0.9	0	0.0	606	156.3	21	14.3	639	174.4
1999	0	0.0	32	15.5	27	3.3	1,013	269.4	30	18.8	1,102	307.0
2000	52	24.0	780	849.9	0	0.0	11	3.0	6	2.1	849	878.9
2001	134	32.2	0	0.0	14	1.6	50	12.1	199	98.6	397	144.4
2002	13	10.8	91	102.8	73	7.9	43	8.3	125	78.4	345	208.2
2003	33	14.0	592	365.3	24	2.5	7	1.0	16	8.8	672	391.6
2004	18	3.3	776	597.5	68	7.0	69	9.4	60	20.8	991	638.0
2005	10	2.3	490	1,274.2	0	0.0	94	13.5	93	23.3	687	1,313.4
2006.(6)	0	0.0	0	0.0	7	0.7	15	2.2	101	7.7	123	10.8
1	0	0.0	0	0.0	0	0.0	10	1.6	1	0.3	11	1.9
2	0	0.0	0	0.0	7	0.7	5	0.6	10	1.5	22	2.8
3	0	0.0	0	0.0	0	0.0	0	0.0	63	3.2	63	3.2
4	0	0.0	0	0.0	0	0.0	0	0.0	10	0.6	10	0.6
5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	0	0.0	0	0.0	0	0.0	0	0.0	17	2.2	17	2.2

1) : HSK No(1601-00-1000 + 1601-00-9000)

2) 1987 가 :

3) : KOTIS

(나) 캔햄

(단위: 천불, 톤)

1977	-	-	-	-	-	-	-	-	-	-	0	-
1978	-	-	-	-	-	-	-	-	-	-	21	-
1979	-	-	-	-	-	-	-	-	-	-	7	-
1980	-	-	-	-	-	-	-	-	-	-	11	-
1981	-	-	-	-	-	-	-	-	-	-	3	-
1982	-	-	-	-	-	-	-	-	-	-	4	-
1983	-	-	-	-	-	-	-	-	-	-	7	-
1984	-	-	-	-	-	-	-	-	-	-	28	-
1985	-	-	-	-	-	-	-	-	-	-	25	-
1986	-	-	-	-	-	-	-	-	-	-	27	-
1987	-	-	-	-	-	-	-	-	-	-	18	-
1988	0	0.0	0	0.0	0	0.0	0	0.0	7	3.8	7	3.8
1989	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1990	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1991	0	0.0	0	0.0	0	0.0	0	0.0	0	0.2	0	0.2
1992	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1993	0	0.0	97	31.6	0	0.0	0	0.0	0	0.0	97	31.6
1994	1	0.4	24	5.8	4	1.5	0	0.0	15	4.7	44	12.4
1995	0	0.0	0	0.0	0	0.0	0	0.0	3	0.4	3	0.4
1996	520	143.6	29	5.0	17	3.4	0	0.0	103	32.4	669	184.5
1997	0	0.0	483	171.5	35	12.7	0	0.0	283	101.3	801	285.4
1998	0	0.0	0	0.0	39	16.3	0	0.0	2	1.4	41	17.7
1999	0	0.0	0	0.0	30	10.4	0	0.0	4	5.2	34	15.6
2000	0	0.0	23	16.7	10	1.2	0	0.0	3	1.2	36	19.2
2001	0	0.0	0	0.0	46	6.6	70	10.0	68	25.2	184	41.8
2002	0	0.0	256	154.9	62	8.8	64	12.6	0	0.0	382	176.3
2003	0	0.0	0	0.0	19	1.7	23	2.9	125	41.9	167	46.5
2004	0	0.0	10	0.9	25	3.7	0	0.0	113	15.4	148	20.1
2005	0	0.0	0	0.0	53	5.6	0	0.0	721	169.0	774	174.6
2006.(6)	0	0.0	0	0.0	114	4.1	0	0.0	140	2.9	254	7.0
1	0	0.0	0	0.0	19	1.0	0	0.0	0	0.0	19	1.0
2	0	0.0	0	0.0	10	0.5	0	0.0	2	0.3	12	0.8
3	0	0.0	0	0.0	35	0.9	0	0.0	0	0.0	35	0.9
4	0	0.0	0	0.0	13	0.5	0	0.0	45	0.1	58	0.6
5	0	0.0	0	0.0	16	0.5	0	0.0	54	1.6	70	2.1
6	0	0.0	0	0.0	21	0.7	0	0.0	39	0.9	60	1.6

1) : HSK No(1602-41-1000 + 1602-42-1000 + 1602-49-1000)

2) 1987 가 :

3) : KOTIS

## 2) 수입

### (가) 소시지

(단위: 천불, 톤)

1977	-	-	-	-	-	-	-	-	-	-	150	-
1978	-	-	-	-	-	-	-	-	-	-	116	-
1979	-	-	-	-	-	-	-	-	-	-	4,397	-
1980	-	-	-	-	-	-	-	-	-	-	32	-
1981	-	-	-	-	-	-	-	-	-	-	0	-
1982	-	-	-	-	-	-	-	-	-	-	53	-
1983	-	-	-	-	-	-	-	-	-	-	14	-
1984	-	-	-	-	-	-	-	-	-	-	0	-
1985	-	-	-	-	-	-	-	-	-	-	56	-
1986	-	-	-	-	-	-	-	-	-	-	4	-
1987	-	-	-	-	-	-	-	-	-	-	21	-
1988	32	22.4	12	2.3	0	0.0	0	0.0	3	0.4	47	25.1
1989	67	15.2	11	1.5	0	0.1	0	0.0	9	2.5	87	19.3
1990	2,429	922.4	7	2.1	23	28.7	0	0.0	21	4.8	2,480	958.0
1991	5,809	2,383.1	5	0.4	33	5.7	0	0.0	7	0.7	5,854	2,389.9
1992	5,995	2,988.2	151	33.3	9	0.6	0	0.0	21	2.4	6,176	3,024.5
1993	7,405	3,788.1	233	16.8	46	12.5	8	4.0	0	0.0	7,691	3,821.4
1994	4,047	1,934.1	279	16.7	0	0.0	0	0.0	0	0.0	4,325	1,950.8
1995	6,123	2,955.4	296	16.5	1	0.0	18	13.0	11	0.8	6,448	2,985.6
1996	8,264	3,855.3	405	19.7	0	0.0	0	0.1	71	9.2	8,740	3,884.3
1997	9,069	4,190.6	200	10.1	0	0.0	0	0.0	52	7.1	9,321	4,207.8
1998	4,790	2,487.9	16	2.5	0	0.0	0	0.0	34	8.4	4,840	2,498.8
1999	4,747	2,788.9	1	0.1	19	3.7	98	95.4	44	9.5	4,908	2,897.7
2000	6,755	3,716.6	30	2.7	63	19.3	47	21.9	31	4.9	6,926	3,765.4
2001	8,702	4,529.0	60	5.7	79	20.8	115	17.1	2	0.2	8,958	4,572.6
2002	9,153	4,587.3	90	7.5	1,161	409.0	63	44.2	2	0.2	10,468	5,048.2
2003	10,244	5,076.5	70	6.0	1,283	379.4	45	4.2	9	2.8	11,651	5,468.9
2004	6,544	3,698.2	88	6.7	748	216.4	120	10.5	267	136.2	7,767	4,068.0
2005	9,339	4,676.9	226	19.5	660	155.2	420	40.4	363	133.0	11,008	5,025.0
2006.(6)	5,312	2,612.8	125	9.6	333	82.8	210	19.3	257	93.9	6,237	2,818.4
1	714	362.2	20	1.9	122	30.1	37	3.2	18	8.8	911	406.2
2	860	427.8	30	2.0	0	0.0	28	2.6	27	11.6	945	444.0
3	1,176	555.4	36	2.7	33	9.1	29	2.7	41	15.3	1,315	585.1
4	602	301.4	5	0.5	0	0.0	0	0.0	73	23.4	680	325.3
5	922	451.8	19	1.4	0	0.0	35	3.3	94	34.3	1,070	490.8
6	1,038	514.1	15	1.2	178	43.6	81	7.5	4	0.5	1,316	567.0

1) : HSK No(1601-00-1000 + 1601-00-9000)

2) 1987 가 :

3) : KOTIS

(나) 캔햄

(단위: 천톤, 천)

1977	-	-	-	-	-	-	-	-	-	-	34	-
1978	-	-	-	-	-	-	-	-	-	-	152	-
1979	-	-	-	-	-	-	-	-	-	-	102	-
1980	-	-	-	-	-	-	-	-	-	-	135	-
1981	-	-	-	-	-	-	-	-	-	-	240	-
1982	-	-	-	-	-	-	-	-	-	-	226	-
1983	-	-	-	-	-	-	-	-	-	-	371	-
1984	-	-	-	-	-	-	-	-	-	-	455	-
1985	-	-	-	-	-	-	-	-	-	-	460	-
1986	-	-	-	-	-	-	-	-	-	-	667	-
1987	-	-	-	-	-	-	-	-	-	-	1,136	-
1988	529	141.0	299	175.8	149	103.4	2,009	1,186.6	99	53.3	3,085	1,660.0
1989	3,848	919.1	644	343.4	58	37.8	1,962	1,210.9	595	447.6	7,107	2,958.8
1990	1,931	423.3	74	45.2	132	67.2	2,674	1,512.7	667	511.3	5,477	2,559.7
1991	2,343	511.8	198	121.9	212	118.2	1,808	929.4	227	102.0	4,788	1,783.3
1992	2,457	618.9	814	462.9	217	123.9	1,716	935.1	201	98.9	5,405	2,239.8
1993	2,395	589.4	709	433.9	171	135.9	1,697	1,003.1	41	22.8	5,013	2,185.0
1994	3,623	852.8	491	277.3	215	185.1	1,699	987.3	1	0.0	6,029	2,302.5
1995	4,995	1,228.8	513	269.8	310	219.4	3,057	1,549.2	2	0.2	8,877	3,267.3
1996	1,960	660.5	1,498	584.2	157	121.7	3,581	1,636.0	0	0.0	7,196	3,002.4
1997	1,833	563.2	244	126.2	167	122.0	4,774	2,119.7	129	56.5	7,147	2,987.6
1998	342	133.6	68	36.4	131	95.9	1,750	945.5	0	0.0	2,291	1,211.4
1999	622	232.4	20	18.1	183	135.2	2,549	1,271.1	12	2.9	3,386	1,659.7
2000	772	264.6	47	18.5	238	180.0	3,456	1,703.6	0	0.0	4,513	2,166.7
2001	1,059	360.2	0	0.0	354	295.6	4,671	2,151.4	0	0.0	6,084	2,807.3
2002	913	312.6	100	54.7	326	282.8	3,846	1,766.0	0	0.0	5,185	2,416.0
2003	1,419	458.5	0	0.0	267	236.5	5,583	2,348.2	16	4.4	7,285	3,047.6
2004	1,180	73.7	0	0.0	383	292.4	7,595	2,816.2	26	5.3	9,184	3,187.6
2005	807	234.1	0	0.0	359	282.7	7,533	2,540.4	228	78.4	8,927	3,135.6
2006.(6)	695	183.0	0	0.0	119	87.6	4,006	1,360.0	26	6.9	4,846	1,637.5
1	296	77.6	0	0.0	6	3.8	1,144	362.6	0	0.4	1,446	444.3
2	3	0.8	0	0.0	0	0.0	587	211.7	4	0.9	594	213.5
3	116	27.3	0	0.0	54	33.7	589	200.2	0	0.0	759	261.1
4	134	38.8	0	0.0	33	28.4	536	173.7	2	2.0	705	242.9
5	91	29.7	0	0.0	18	16.0	811	284.1	0	0.0	920	329.8
6	55	8.8	0	0.0	8	5.7	339	127.8	20	3.6	422	145.9

1) : HSK No(1602-41-1000 + 1602-42-1000 + 1602-49-1000)

2) 1987 가 :

3) : KOTIS

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2002	47,162.1	510.7	16,041.1	31,658.5	14,859.0	1,154.3
2003	47,079.7	495.5	16,445.0	29,568.8	13,286.6	924.4
2004	48,691.7	583.5	13,634.4	28,963.3	15,573.3	1,205.4
2005	71,187.2	416.8	10,876.2	29,881.3	15,069.7	1,277.4
2006 (9)	50,990.3	345.3	7,753.8	25,258.7	12,134.5	964.6
2006. 1	7,318.7	35.4	662.0	3,996.2	1,798.9	69.1
2	5,514.9	30.8	691.1	1,892.8	942.1	75.6
3	5,633.3	37.6	1,000.9	2,481.6	1,353.5	111.5
4	5,537.3	42.8	931.0	2,391.0	1,242.7	133.6
5	5,062.8	43.0	940.4	2,453.5	1,335.4	120.0
6	5,325.5	37.1	945.4	2,495.5	1,337.5	129.1
7	5,114.7	40.2	809.2	2,403.7	1,299.8	97.1
8	5,369.0	42.4	836.6	2,821.2	1,337.2	96.1
9	6,115.1	36.0	937.2	4,323.2	1,487.4	132.5



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2002	115,901.7	4,019.2	58,653.2	137,151.0	63,621.5	2,443.9
2003	133,113.2	3,702.0	53,591.6	127,285.2	59,172.2	1,881.3
2004	145,509.3	4,934.8	38,782.4	125,338.2	72,031.9	2,525.5
2005	223,196.9	3,769.2	31,357.4	136,962.1	75,011.7	2,708.2
2006 (9)	158,285.2	3,131.2	23,399.5	116,226.6	57,432.7	2,019.6
2006. 1	22,806.3	325.2	2,012.3	17,791.0	5,354.4	138.8
2	17,101.7	264.4	2,014.3	8,961.0	4,899.7	153.2
3	17,768.2	333.3	3,013.0	11,384.8	6,676.1	248.3
4	17,071.3	387.6	2,787.7	10,913.3	6,184.4	283.1
5	15,946.6	395.9	2,817.4	11,379.5	6,596.8	248.1
6	16,558.5	336.4	2,895.7	11,361.0	6,802.2	265.6
7	15,935.6	374.6	2,468.1	11,408.7	6,538.0	204.8
8	16,883.4	394.2	2,502.2	13,157.1	6,901.5	198.6
9	18,601.2	319.6	2,888.8	19,870.2	7,479.6	279.1

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						(%)
2002	6,387.2	2,505.5	8,815.1	16,705.4	416,203.7	
2003	6,720.5	1,880.6	8,634.6	19,711.3	415,692.5	-0.1
2004	6,882.1	2,561.3	11,194.8	23,230.3	432,990.6	-4.1
2005	7,134.7	5,676.0	15,733.2	26,567.0	528,116.4	17.2
2006 (9)	5,962.4	4,973.5	11,915.5	28,575.5	411,921.7	7.8
2006. 1	531.8	629.3	1,646.2	2,785.3	54,020.6	
2	549.0	472.7	1,282.8	2,091.0	37,789.8	
3	799.2	664.5	1,260.2	2,751.4	44,899.0	
4	711.2	655.6	1,145.3	2,872.4	43,011.9	
5	721.4	749.6	1,341.9	3,288.1	43,485.3	
6	723.7	829.1	1,375.7	3,301.0	44,448.9	
7	640.1	371.1	1,117.7	4,674.2	43,732.9	
8	594.7	327.8	1,335.4	3,114.8	45,409.7	
9	691.3	273.8	1,410.3	3,697.3	55,511.2	

## 4. 가

### 가. 산지가격

	(Hanwoo) 500Kg		(Dairy cattle) 500Kg	(Pig)		Broiler (kg)	Eggs( ) Egg(won/10 Eggs extra large size
	(Female)	(Male)	(Male)	Piglet	Pig		
					(100Kg)		
1989	1,975,000	2,168,000	1,965,000	24,000	104,200	1,009	554
1990	2,147,000	2,406,000	2,095,000	41,000	164,400	1,018	576
1991	2,525,500	2,740,000	2,310,000	55,000	176,100	958	482
1992	2,691,000	3,004,000	2,483,000	37,000	133,330	890	584
1993	2,429,000	2,693,000	2,036,000	38,000	141,200	971	486
1994	2,619,000	2,918,000	2,114,000	44,000	158,700	1,287	581
1995	3,087,000	3,173,000	2,281,000	49,000	155,000	1,242	681
1996	2,853,000	2,848,000	1,865,000	48,000	171,000	1,174	679
1997	2,159,000	2,426,000	1,305,000	53,000	171,000	1,138	729
1998	1,887,000	2,007,000	1,262,000	50,000	179,000	1,331	859
1999	2,401,000	2,488,000	1,606,000	59,000	199,000	1,209	778
2000	2,872,000	2,752,000	1,601,000	54,000	166,000	1,187	698
2001	3,514,000	3,245,000	1,720,000	55,000	174,000	1,397	860
2002	4,236,000	3,927,000	1,899,000	59,000	178,000	1,155	749
2003	4,849,000	3,907,000	1,637,000	53,000	164,000	939	762
2004	4,349,000	3,547,000	1,721,000	64,000	235,000	1,415	1,068
2005	4,450,000	3,876,000	2,144,000	92,000	253,000	1,440	1,054
2006. 1	5,538,000	4,198,000	2,520,000	94,000	254,000	1,340	829
2	5,628,000	4,241,000	2,461,000	94,000	246,000	1,301	699
3	5,645,000	4,175,000	2,450,000	95,000	238,000	1,580	773
4	5,686,000	4,138,000	2,525,000	95,000	244,000	1,204	789
5	5,444,000	3,941,000	2,555,000	97,000	291,000	945	781
6	5,149,000	3,998,000	2,532,000	100,000	316,000	1,151	816
7	5,087,000	4,111,000	2,594,000	99,000	275,000	1,339	820
8	5,131,000	4,403,000	2,698,000	96,000	249,000	1,478	859
9	4,974,000	4,302,000	2,657,000	94,000	233,000	1,084	949
10	5,057,000	4,466,000	2,806,000	87,000	185,000	994	860
11	5,058,000	4,439,000	2,849,000	86,000	205,000	1,120	787
12	5,214,000	4,552,000	2,881,000	89,000	233,000	769	716

1) 가 : 가 가

2) 2000 가

: (2006)

## 나. 도매가격

	( /Kg ) Beef(won/Kg,carcass)		( /Kg ) Pork(won/Kg,carcass)		( /Kg) Chicken meat (won/Kg, Hi-broiler)		( /10 ) Egg(won/10 eggs, extra large size)	
1991	7,328	7,328	2,697	2,697	1,795	1,795	548	548
1992	7,634	8,046	2,048	2,033	1,771	1,653	649	628
1993	6,811	7,153	2,148	2,151	1,683	1,698	530	523
1994	7,244	7,423	2,381	2,373	2,189	2,140	640	647
1995	7,914	8,245	2,310	2,298	2,090	2,088	732	740
1996	6,971	7,524	2,485	2,490	2,174	2,154	709	731
1997	5,618	6,078	2,431	2,422	2,250	2,205	777	789
1998	5,438	5,642	2,539	2,514	2,544	2,602	913	926
1999	7,028	7,274	2,982	3,017	2,340	2,453	865	859
2000	7,414	7,687	2,474	2,499	2,391	2,356	811	774
2001	8,284	8,842	2,572	2,599	2,506	2,528	1,031	981
2002	9,127	9,510	2,604	2,645	2,117	2,149	773	858
2003	9,418	9,446	2,378	2,444	1,979	1,850	883	865
2004	8,744	8,703	3,406	3,479	2,537	2,475	1,245	1,176
2005	10,894	10,898	3,635	3,730	2,381	2,469	1,272	1,204
2006. 1	11,926	11,067	3,730	3,834	2,305	2,382	1,051	1,003
2	11,597	10,835	3,439	3,599	2,325	2,318	899	867
3	11,017	10,720	3,329	3,508	2,536	2,697	1,024	942
4	11,400	10,931	3,521	3,667	2,210	2,180	1,026	962
5	10,855	10,525	3,990	4,426	2,130	1,822	1,033	957
6	11,330	10,492	4,542	4,695	2,202	2,091	1,067	991
7	11,351	10,643	3,767	3,960	2,355	2,378	1,101	1,008
8	11,714	11,035	3,592	3,687	2,526	2,513	1,150	1,071
9	11,332	10,914	3,202	3,310	2,095	2,018	1,270	1,152
10	11,244	10,941	2,630	2,765	2,045	1,916	1,132	1,022
11	11,491	11,110	3,140	3,186	2,116	2,023	1,086	976
12	12,151	11,627	3,305	3,424	1,742	1,520	994	916

- 1) 가 ( ) 가  
 2) '99 ( ) 가  
 3) 2000 가  
 : (2006)

## 다. 소매가격

	( /500g ) Beef(won/500g,boneless)		( /500g ) Pork(won/500g,boneless)		( /Kg) Chicken meat (won/Kg, Hi-broiler)		( /10 ) Egg(won/10 eggs, extra large size)	
1991	6,351	6,351	2,642	2,642	2,219	2,219	706	706
1992	7,049	7,085	2,197	2,192	2,026	2,052	802	762
1993	7,202	7,395	2,556	2,269	2,244	2,307	707	692
1994	7,374	7,719	2,415	2,368	2,659	2,713	849	776
1995	7,271	8,093	2,248	2,454	2,778	2,934	951	878
1996	8,121	8,118	2,189	2,447	2,782	2,916	959	917
1997	7,837	7,537	2,361	2,554	2,367	2,851	955	928
1998	7,121	6,911	2,887	2,805	2,946	3,274	1,057	1,080
1999	7,366	7,235	3,740	3,723	2,831	2,963	921	975
2000	8,388	8,709	3,945	3,883	3,029	3,007	836	871
2001	9,589	9,617	4,181	4,224	3,238	3,227	1,046	1,046
2002	15,967	14,739	4,723	4,769	2,551	2,706	976	968
2003	16,000	15,650	4,800	4,849	2,453	2,490	916	909
2004	15,269	15,196	5,423	5,731	3,144	3,094	1,221	1,236
2005	10,879	18,637	7,443	7,244	3,564	3,765	1,433	1,469
2006. 1	18,646	18,482	7,463	7,248	3,500	3,604	1,140	1,257
2	18,775	18,637	7,068	7,228	3,500	3,406	1,188	1,254
3	18,039	18,640	7,416	7,400	3,500	3,669	1,113	1,233
4	15,688	16,926	7,084	7,236	3,462	3,432	1,162	1,243
5	14,345	16,740	7,842	7,372	3,679	3,532	1,207	1,247
6	13,844	16,671	8,345	8,389	4,345	3,756	1,257	1,274
7	14,928	16,727	8,398	8,421	4,417	3,996	1,254	1,267
8	15,656	17,410	8,282	8,403	4,348	4,061	1,249	1,274
9	14,869	17,133	8,002	8,084	4,111	3,919	1,247	1,284
10	15,549	17,130	7,092	7,722	3,847	3,638	1,293	1,293
11	14,479	16,878	6,789	7,335	3,820	3,599	1,297	1,281
12	14,686	16,772	7,164	7,428	3,809	3,627	1,310	1,277

1) 2000 가

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		Supply						
		Imported			Domestic production			Supply total
		Beginning stocks	Import in the year	Subtotal	Beginning stocks	production in the year	Subtotal	
	96	5,732	147,236	152,968	-	173,666	173,666	320,634
	97	3,764	168,293	172,057	-	236,527	236,527	408,584
	98	37,832	76,967	114,799	8,799	264,074	272,873	387,672
	99	29,383	162,598	191,981	12,803	226,918	239,721	431,702
	2000	38,988	222,768	261,756	-	214,108	214,108	475,864
	2001	71,741	165,978	237,719	1,742	162,640	164,382	402,101
	2002	18,047	292,039	310,086	-	147,402	147,402	457,488
	2003	54,805	293,653	348,458	-	141,641	141,641	490,099
	2004	99,852	132,874	232,726	-	144,902	144,902	377,628
	2005	49,852	142,593	192,445	-	152,424	152,424	344,869
	96	4,423	41,397	45,820	-	691,815	691,815	737,635
	97	4,000	64,805	68,805	-	698,729	698,729	767,534
	98	1,195	55,722	56,917	16,454	732,698	749,152	806,069
	99	7,000	142,256	142,256	10,000	701,365	711,365	860,621
	2000	10,000	95,891	105,891	15,000	714,445	729,445	835,336
	2001	-	102,170	102,170	39,272	733,403	772,675	874,845
	2002	9,596	71,045	80,645	20,241	785,328	805,569	886,210
	2003	9,641	60,790	70,431	48,032	782,572	830,604	901,035
	2004	12,436	108,829	121,265	27,396	748,558	775,953	897,218
	2005	8,821	173,598	182,419	15,925	701,526	717,451	899,870
	96	-	9,800	9,800	2,161	276,629	278,790	288,590
	97	-	18,000	18,000	5,040	259,898	264,938	282,938
	98	-	13,000	13,000	3,485	244,737	248,222	261,222
	99	-	45,976	45,976	-	238,016	238,016	283,992
	2000	-	67,508	67,508	-	261,500	261,500	329,008
	2001	-	84,900	84,900	-	266,700	266,700	351,600
	2002	-	93,842	93,842	-	291,147	291,147	384,989
	2003	-	88,837	88,837	-	286,482	286,482	375,319
	2004	-	31,849	31,849	-	287,735	287,735	319,584
	2005	-	58,503	58,503	-	300,718	300,718	359,221
	96	-	-	-	153	469,720	469,873	469,873
	97	-	-	-	-	477,967	477,967	477,967
	98	-	-	-	830	455,352	456,182	456,182
	99	-	214	214	-	461,667	461,667	461,881
	2000	-	-	-	-	478,800	478,800	478,800
	2001	-	-	-	-	490,400	490,400	490,400
	2002	-	-	-	-	536,635	536,635	536,635
	2003	-	-	-	-	502,975	502,975	502,975
	2004	-	-	-	-	508,000	508,000	508,000
	2005	-	3,457	3,457	-	514,862	514,862	518,319
	96	-	474,635	474,635	65,650	2,033,738	2,099,388	2,574,023
	97	-	444,495	444,495	108,660	1,984,023	2,092,683	2,537,178
	98	-	281,680	281,680	85,941	2,027,210	2,113,151	2,394,831
	99	-	455,900	455,900	95,909	2,243,938	2,339,847	2,795,747
	2000	-	639,617	639,617	43,571	2,252,804	2,296,375	2,935,992
	2001	-	652,584	652,584	124,480	2,338,874	2,463,354	3,115,938
	2002	-	646,461	646,461	70,206	2,536,648	2,606,854	3,253,315
	2003	-	603,646	603,646	161,037	2,366,214	2,527,251	3,130,897
	2004	-	842,106	842,106	93,980	2,255,450	2,349,430	3,191,536
	2005	-	898,160	898,160	68,008	2,228,821	2,296,829	3,194,989

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		Demand					Ending stocks		
		Domestic consumption			Export	Consumption total	Import	Domestic production	Total
		Import	Domestic production	Subtotal					
	96	149,204	173,666	322,870	-	322,870	3,764	-	3,764
	97	134,225	227,728	361,953	-	361,953	37,832	8,799	46,631
	98	85,416	260,070	345,486	-	345,486	29,383	12,803	42,196
	99	152,993	239,721	392,714	-	392,714	38,988	-	38,988
	2000	190,015	212,366	402,381	-	402,381	71,741	1,742	73,483
	2001	219,672	164,382	384,054	-	384,054	18,047	-	18,047
	2002	255,281	147,402	402,683	-	402,683	54,805	-	54,805
	2003	248,606	141,641	390,247	-	390,247	99,852	-	99,852
	2004	182,874	144,902	327,776	-	327,776	49,852	-	49,852
	2005	164,429	152,424	316,853	-	316,853	28,016	-	28,016
	96	41,978	654,953	696,931	36,862	733,793	3,842	-	3,842
	97	67,610	630,651	698,261	51,624	749,885	1,195	16,454	17,649
	98	49,917	650,846	700,763	88,306	789,069	7,000	10,000	17,000
	99	139,256	616,100	755,356	80,265	835,621	10,000	15,000	25,000
	2000	105,891	674,017	779,908	16,156	796,064	-	39,272	39,272
	2001	92,574	714,847	807,421	37,587	845,008	9,596	20,241	29,837
	2002	71,000	739,447	810,447	18,090	828,537	9,641	48,032	57,673
	2003	57,995	776,064	834,059	27,144	861,203	12,436	27,396	39,832
	2004	112,444	744,238	856,682	15,790	872,472	8,821	15,925	24,746
	2005	161,915	671,564	838,479	14,738	853,217	20,504	26,149	46,633
	96	9,800	273,523	283,323	227	283,550	-	5,040	5,040
	97	18,000	261,036	279,036	417	279,453	-	3,485	3,485
	98	13,000	247,375	260,375	847	261,222	-	-	-
	99	45,976	236,999	282,975	1,017	283,992	-	-	-
	2000	67,508	259,790	327,298	1,710	329,008	-	-	-
	2001	84,900	265,400	350,300	1,300	351,600	-	-	-
	2002	93,842	289,294	383,136	1,853	384,989	-	-	-
	2003	88,837	284,561	373,398	1,921	375,319	-	-	-
	2004	31,849	287,000	318,849	735	319,584	-	-	-
	2005	58,503	298,240	356,743	2,478	359,221	-	-	-
	96	-	469,873	469,873	-	469,873	-	-	-
	97	-	477,137	477,137	-	477,137	-	830	830
	98	-	456,182	456,182	-	456,182	-	-	-
	99	214	461,667	461,881	-	461,881	-	-	-
	2000	-	478,800	478,800	-	478,800	-	-	-
	2001	-	490,400	490,400	-	490,400	-	-	-
	2002	-	536,635	536,635	-	536,635	-	-	-
	2003	-	502,975	502,975	-	502,975	-	-	-
	2004	-	508,000	508,000	-	508,000	-	-	-
	2005	3,457	514,855	518,312	7	518,319	-	-	-
	96	474,635	1,990,728	2,465,363	-	2,465,363	-	108,660	108,660
	97	444,495	1,995,424	2,439,919	11,318	2,451,237	-	85,941	85,941
	98	281,680	2,004,660	2,286,340	12,582	2,298,922	-	95,909	95,909
	99	455,900	2,291,537	2,747,437	4,726	2,752,163	-	43,584	43,584
	2000	639,617	2,158,717	2,798,333	8,265	2,806,598	-	129,394	129,394
	2001	652,584	2,373,632	3,026,216	19,516	3,045,732	-	70,206	70,206
	2002	646,461	2,413,797	3,060,258	32,021	3,092,279	-	161,036	161,036
	2003	603,646	2,386,696	2,990,342	46,575	3,036,917	-	93,980	93,980
	2004	842,106	2,231,931	3,074,037	49,491	3,123,528	-	68,008	68,008
	2005	898,160	2,130,127	3,028,287	50,223	3,078,510	-	116,479	116,479

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	All kind of meat		Beef		Pork		Chicken meat	
	Total	1	Total	1	Total	1	Total	1
		Per capita		Per capita		Per capita		Per capita
1983	530,280	13,273	115,497	2,891	294,912	7,382	119,871	3,003
1984	563,992	13,906	106,581	2,627	339,503	8,374	117,908	2,906
1985	592,862	14,398	120,342	2,923	346,274	8,410	126,246	3,066
1986	597,711	14,379	147,934	3,559	320,389	7,707	129,388	3,113
1987	665,246	15,804	151,926	3,600	372,630	8,864	140,690	3,340
1988	715,972	17,048	141,536	3,372	425,444	10,136	148,992	3,540
1989	769,973	18,168	143,312	3,382	471,732	11,131	154,929	3,656
1990	853,485	19,909	176,988	4,129	504,799	11,775	171,698	4,005
1991	940,638	21,740	223,270	5,160	510,848	11,807	206,520	4,773
1992	1,043,314	23,896	226,891	5,196	584,953	13,400	231,470	5,300
1993	1,086,979	24,691	232,998	5,293	613,215	13,929	240,766	5,469
1994	1,146,654	25,800	269,811	6,100	632,244	14,200	244,599	5,500
1995	1,231,003	27,447	301,217	6,720	661,710	14,750	268,076	5,977
1996	1,303,124	28,800	322,870	7,136	696,931	15,402	283,323	6,262
1997	1,339,250	29,297	361,953	7,930	698,261	15,300	279,036	6,067
1998	1,306,624	28,149	345,486	7,441	700,763	15,100	260,375	5,608
1999	1,431,045	30,540	392,714	8,381	755,356	16,120	282,975	6,039
2000	1,509,587	31,935	402,381	8,512	779,908	16,500	327,298	6,923
2001	1,541,778	32,150	384,054	8,112	807,421	16,800	350,300	7,300
2002	1,598,133	33,500	402,683	8,453	810,447	17,000	384,989	8,000
2003	1,599,563	33,446	390,247	8,143	834,059	17,400	375,319	7,900
2004	1,503,307	31,300	327,776	6,800	856,682	17,900	318,849	6,600
2005	1,512,075	32,144	316,853	6,736	838,479	17,824	356,743	7,584

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	Egg		( ) Milk	
	Total	1	Total	1
		Per capita		Per capita
1983	271,480	6,795	728,575	18,255
1984	271,654	6,675	833,504	22,528
1985	296,476	7,200	972,279	23,827
1986	331,608	7,977	1,162,400	28,225
1987	361,539	8,590	1,424,765	34,270
1988	397,124	9,460	1,652,255	39,370
1989	380,543	8,979	1,641,548	38,734
1990	393,305	9,175	1,879,044	43,832
1991	421,872	9,750	1,869,205	43,201
1992	424,010	9,710	1,920,443	43,983
1993	445,494	10,119	1,983,673	45,059
1994	442,056	9,900	2,078,347	46,800
1995	454,354	10,130	2,143,841	47,800
1996	469,873	10,384	2,465,363	54,500
1997	477,137	10,375	2,439,919	53,300
1998	456,182	9,825	2,286,340	49,200
1999	461,881	9,852	2,747,437	58,633
2000	478,800	10,258	2,798,333	59,199
2001	529,239	11,100	3,026,216	63,900
2002	536,635	11,300	3,060,258	64,200
2003	502,975	10,500	2,990,342	62,400
2004	508,000	10,600	3,074,037	63,900
2005	566,851	12,050	3,028,287	62,700

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단위 : 마리

	Cattle							
	Hanwoo			Dairy cattle	Beef cattle			total (1)+(2)+(3)
	(1) Subtotal	Female	Male	(2) Female	(3) Subtotal	Female	Male	
1987	802,955	383,138	419,817	67,341	134,802	16,585	118,217	1,005,098
1988	649,796	325,478	324,318	78,571	123,185	11,903	111,282	851,552
1989	396,630	167,128	229,502	69,511	100,855	4,928	95,927	566,996
1990	310,660	131,140	179,520	115,428	128,084	3,231	124,853	554,172
1991	302,141	109,729	192,412	108,073	134,504	2,323	132,181	544,718
1992	345,020	130,029	214,991	84,600	107,731	2,781	104,950	537,351
1993	487,871	194,400	293,471	76,318	122,591	6,236	116,355	686,780
1994	575,717	268,710	307,007	91,156	110,745	6,226	104,519	777,618
1995	579,773	234,385	345,388	83,799	116,215	4,050	112,165	779,787
1996	639,948	254,470	385,478	94,508	115,252	5,508	109,744	849,708
1997	887,399	471,019	416,380	92,146	145,870	10,791	135,079	1,125,415
1998	1,023,150	506,900	516,250	121,570	137,570	14,796	122,774	1,282,290
1999	911,507	524,852	386,655	82,983	100,435	5,472	94,963	1,094,925
2000	816,895	464,771	352,124	76,552	103,884	6,422	97,462	997,331
2001	550,499	290,702	259,797	74,504	104,242	3,833	100,409	729,245
2002	448,594	216,715	231,879	93,083	91,347	3,668	87,679	633,024
2003	361,935	154,797	207,138	90,618	131,246	23,571	107,675	583,799
2004	324,442	124,285	200,157	91,028	158,956	39,448	119,058	574,426
2005	391,302	144,777	246,525	82,609	137,823	30,722	107,101	611,734
2006. 1	55,688	19,206	36,482	9,450	18,760	4,262	14,498	83,898
2	22,277	8,570	13,707	6,114	7,691	1,429	6,262	36,082
3	31,032	11,910	19,122	6,655	9,499	1,824	7,675	47,186
4	29,598	11,297	18,301	6,226	9,125	1,961	7,164	44,949
5	32,586	12,478	20,108	6,089	9,575	2,061	7,514	48,250
6	31,289	12,154	19,135	5,820	8,989	2,025	6,964	46,098

단위 : 마리

	Pig			Chicken
	Subtotal	Female	Male	
1987	6,475,044	3,214,072	3,260,972	80,404,609
1988	7,707,417	3,764,999	3,942,418	91,053,113
1989	9,426,345	4,562,973	4,863,372	109,908,689
1990	8,604,509	4,239,843	4,364,666	147,540,360
1991	8,454,222	4,076,770	4,377,452	180,253,286
1992	9,489,513	4,623,642	4,865,871	196,521,653
1993	9,678,544	4,683,393	4,995,151	227,411,613
1994	9,838,736	4,902,150	4,936,586	248,151,792
1995	10,178,072	5,070,289	5,107,783	312,555,141
1996	10,793,502	5,104,811	5,688,691	388,073,692
1997	10,917,659	5,150,266	5,767,393	346,449,419
1998	12,630,829	5,921,137	6,709,692	312,345,077
1999	12,564,571	6,040,216	6,524,355	372,801,650
2000	13,293,052	6,583,194	6,709,858	394,906,170
2001	14,324,271	7,339,192	6,985,079	442,870,253
2002	15,338,432	7,634,394	7,704,038	497,311,910
2003	15,286,616	7,677,813	7,608,803	493,324,791
2004	14,620,246	7,401,497	7,218,749	499,768,692
2005	13,464,995	6,792,148	6,672,847	576,898,920
2006. 1	1,097,161	562,247	534,914	38,763,868
2	1,028,827	521,409	507,418	38,116,994
3	1,168,568	590,769	577,799	42,968,064
4	1,048,886	533,791	515,095	47,683,321
5	1,053,980	536,103	517,877	58,555,063
6	965,178	492,816	472,362	61,698,130

8. 가

(단위 : 천두(수), 천가구, %)

	2004.12	2005		2006					
		9	12	3	6	9	12		
	2,163	2,310	2,298	2,318	2,430	2,489	2,484	5 0.2	186 8.1
- .	1,666	1,825	1,819	1,836	1,959	2,021	2,020	1 0.0	201 11.1
. 가	705	769	777	801	840	863	871	8 1.0	94 12.1
-	497	485	479	482	471	468	464	4 0.9	15 3.1
. 가	342	335	328	330	324	322	319	3 0.9	9 2.7
가	199	202	201	201	201	200	198	2 1.0	3 1.5
- .	189	193	192	192	192	191	190	1 0.5	2 1.0
-	10	9	9	9	9	9	8	0.2 2.4	0.6 6.7
	8,908	8,993	8,962	9,010	9,032	9,639	9,382	13 0.1	420 4.7
-	935	965	966	990	999	1,006	1,012	6 0.6	46 4.8
가	13	12	12	12	11	11	11	0.1 0.9	1.0 8.1
	106,736	127,491	109,628	123,048	145,279	119,164	119,181	17 0.0	9553 837
-	51,419	55,017	53,392	53,517	55,200	55,388	57,238	1850 3.3	3846 7.2
-	50,122	65,829	50,422	63,935	84,279	57,713	55,375	2388 .1	4953 9.8
가	131	141	136	4	4	4	4	0.13 3.5	- -

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		1	2	3	4	5	6	7	8	9	10	11	12	
98		9,457	2,539	4,271	5,444	3,896	3,366	4,682	5,996	6,888	10,714	13,449	16,376	87,078
		28,385	10,355	16,991	20,773	11,683	9,230	11,117	12,731	16,794	24,591	29,566	38,378	230,594
99		14,479	10,345	18,537	16,399	15,073	17,071	18,870	22,760	17,274	15,000	14,197	17,484	197,489
		32,645	23,914	43,492	39,814	37,665	41,245	45,658	61,115	49,524	44,626	45,672	55,162	520,532
00		15,869	16,536	21,996	18,384	19,097	18,825	20,061	27,701	23,520	20,513	18,518	16,821	237,841
		48,936	57,452	74,371	57,681	59,924	56,093	62,375	83,830	72,300	61,327	54,000	48,404	736,693
01		16,966	11,448	12,330	8,451	7,510	7,926	12,091	12,537	13,222	19,410	21,690	22,422	166,273
		50,114	33,890	34,071	22,690	21,638	22,092	33,150	33,790	37,052	55,387	63,637	65,436	472,947
02		28,597	19,915	25,063	23,818	24,505	21,399	24,277	27,857	24,614	25,978	19,835	26,388	292,246
		85,079	65,129	71,526	68,254	70,105	61,737	70,423	79,633	69,858	72,562	57,840	100,305	872,451
03		28,565	20,379	26,729	24,723	22,907	24,144	30,842	22,097	31,162	22,087	21,110	18,861	233,606
		91,189	68,529	90,219	89,734	86,693	94,149	141,904	89,583	119,445	92,874	86,815	75,653	126,787
04		8,157	7,353	12,457	13,305	17,439	17,176	12,283	8,116	7,937	7,535	8,483	12,628	132,869
		25,770	23,879	40,887	43,995	60,475	59,330	45,462	30,221	30,848	31,012	35,191	48,993	476,063
05		15,717	10,079	14,753	12,892	9,959	9,135	9,123	13,336	12,051	12,595	11,041	11,910	142,591
		65,872	45,378	65,114	57,823	45,804	40,875	40,193	56,780	51,339	54,400	51,792	55,752	631,122
06		9,160	11,260	15,102	11,083	14,466	16,664	16,511	18,736	16,450	15,545	16,393		161,370
		42,627	46,122	61,588										150,337

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98		48,955	30,166	3,995	3,939	23	87,077
		155,581	54,368	11,760	8,839	46	230,594
99		97,703	79,625	11,616	8,535	10	197,489
		320,142	145,305	37,297	17,732	56	520,532
00		131,505	70,271	18,615	11,170	6,280	237,841
		493,847	140,788	63,238	27,600	11,220	736,693
01		95,671	54,410	5,665	10,171	356	166,273
		307,007	126,786	16,531	21,907	716	472,947
02		186,630	76,758	11,595	17,248	15	292,246
		617,099	183,382	30,980	40,942	48	872,451
03		199,409	64,127	4,756	25,314	-	293,606
		846,942	195,885	16,940	67,021	-	1,126,787
04		-	86,012	-	46,197	660	132,869
		-	330,883	-	142,719	2,461	476,063
05		-	101,363	-	39,001	2,227	142,591
		-	466,720	-	154,773	9,629	631,122
06		-	122,237	-	36,333	2,660	161,370
	(11)	-	-	-	-	-	-

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		1	2	3	4	5	6	7	8	9	10	11	12	
97		3,836	5,737	7,730	7,671	7,414	5,277	6,952	7,247	3,966	3,370	2,004	1,831	63,035
		13,658	20,216	27,734	27,619	27,051	19,570	25,805	26,028	14,429	12,709	7,078	6,159	228,056
98		663	407	1,623	6,182	8,441	5,242	9,258	6,541	5,572	3,403	4,379	3,962	55,673
		2,385	1,235	4,557	16,551	23,007	14,006	25,392	17,288	14,276	8,869	10,389	8,509	146,464
99		5,054	5,997	12,588	11,335	13,919	17,662	19,284	20,153	16,383	8,880	5,979	4,720	141,954
		8,535	11,889	24,124	23,433	26,800	30,846	34,178	36,916	30,283	16,047	12,431	9,511	264,994
00		5,721	7,764	12,153	11,591	10,491	9,068	10,422	7,581	6,483	5,503	4,359	4,756	95,892
		11,641	15,038	22,803	22,491	20,041	19,300	23,548	18,422	15,294	13,577	11,409	12,786	206,350
01		4,722	3,960	1,700	4,845	9,044	2,571	3,910	3,885	2,874	3,572	5,478	4,955	51,516
		13,076	10,510	4,005	12,971	22,713	6,962	11,599	11,813	8,179	10,091	15,333	14,371	141,623
02		5,869	2,855	7,102	7,524	8,673	6,698	7,414	6,850	4,753	5,204	4,273	3,860	71,045
		16,677	8,323	19,942	19,548	21,900	17,208	18,768	19,978	12,287	13,103	10,427	8,801	184,962
03		5,841	3,839	5,043	6,573	6,027	6,474	4,775	4,472	5,091	4,239	3,506	4,933	60,813
		12,726	8,529	11,778	15,557	14,581	15,689	11,795	10,811	11,798	9,592	8,329	11,569	142,754
04		5,061	4,931	8,585	12,213	12,684	11,755	8,680	9,238	7,737	8,513	8,324	11,111	108,832
		11,548	11,646	20,041	26,557	29,568	31,234	26,430	29,126	24,662	26,833	25,889	32,829	296,363
05		16,584	15,337	24,160	20,626	16,496	12,719	10,243	12,663	10,524	10,137	10,120	12,947	173,556
		50,370	47,706	75,568	64,090	51,260	38,841	31,362	88,067	31,273	29,818	33,145	37,021	578,521
06		13,185	15,835	19,830	18,282	19,184	17,216	15,625	16,152	14,225	15,957	22,713		188,204
		37,921	4,559	57,779										141,299

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		가									
98		26,999	6,048	2,902	4,074	5,535	2,401	-	7,714	55,673	
		71,543	16,469	7,254	10,000	13,447	6,358	-	21,393	146,464	
99		56,255	5,888	11,839	17,441	19,838	10,585	-	20,108	141,954	
		106,222	13,670	22,153	24,260	28,185	25,136	-	45,367	264,994	
00		17,687	1,497	18,071	8,830	7,230	16,329	-	26,248	95,892	
		34,273	3,245	36,972	13,543	13,691	41,194	-	63,432	206,350	
01		10,776	10,582	8,366	2,531	1,854	3,886	-	13,521	51,516	
		28,861	31,706	21,370	6,135	4,099	10,636	-	38,816	141,623	
02		11,775	19,570	12,720	6,284	4,697	3,906	2,456	12,093	71,045	
		30,203	56,461	33,077	12,328	9,077	10,638	6,460	33,178	184,962	
03		3,451	13,199	6,632	3,375	5,150	4,609	12,073	24,397	60,813	
		9,029	31,735	13,879	5,959	9,306	11,499	29,110	61,347	142,754	
04		9,792	16,768	5,428	8,692	12,884	9,440	17,365	28,463	108,832	
		21,590	48,333	13,962	20,203	33,135	26,396	52,126	80,618	296,363	
05		8,597	16,889	6,866	20,182	43,155	9,483	25,334	43,050	173,556	
		25,866	55,578	21,272	50,949	125,240	33,015	77,374	189,227	578,521	
06		9,287	16,856	8,306	23,712	53,264	9,669	20,621	46,489	188,204	
	(11)	-	-	-	-	-	-	-	-	-	

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		1	2	3	4	5	6	7	8	9	10	11	12	
98		1,171	752	795	158	629	678	755	930	900	1,226	1,476	2,263	11,752
		1,842	1,126	1,134	177	708	868	948	1,127	1,088	1,524	1,865	2,595	15,003
99		2,344	1,906	3,544	3,920	5,966	5,742	4,443	2,976	2,559	3,824	3,997	4,755	45,976
		2,528	2,117	3,334	3,630	4,965	5,045	3,734	2,624	2,471	3,700	3,370	4,296	41,814
00		5,900	5,855	7,221	5,052	6,088	5,140	4,913	4,562	5,192	4,766	5,579	6,066	66,334
		4,855	4,821	5,854	4,171	5,202	4,403	4,165	4,220	4,990	4,887	6,190	6,468	60,226
01		6,587	9,053	8,916	5,941	5,394	8,280	6,338	7,671	5,959	6,668	7,951	6,106	84,864
		6,643	8,688	8,830	6,132	7,490	8,435	6,918	9,074	7,217	7,782	9,817	7,508	94,534
02		7,541	7,676	10,879	8,954	10,753	8,461	9,509	7,727	5,108	8,414	6,304	5,998	97,324
		8,298	8,420	11,897	9,837	11,159	8,671	8,987	6,769	5,101	8,033	6,553	5,384	99,109
03		6,927	7,076	5,691	6,628	6,322	7,684	7,985	6,988	6,718	7,885	6,813	5,183	81,901
		6,097	6,225	5,849	6,587	6,293	7,684	7,782	7,032	6,819	10,130	10,023	7,550	88,073
04		3,233	784	69	640	1,586	2,339	2,271	1,654	1,395	2,917	2,763	3,905	23,556
		4,569	928	110	1,014	2,595	4,045	4,454	3,362	2,661	5,518	5,496	7,346	42,098
05		4,681	2,307	4,786	2,883	2,827	3,734	9,307	8,684	5,952	4,376	2,248	980	52,765
		9,153	4,676	10,203	5,830	5,659	6,852	14,813	13,895	9,508	7,115	4,861	1,713	94,278
06		1,559	3,017	5,111	5,838	7,883	7,837	4,452	4,094	4,762	5,868	4,245		54,666
		2,082	3,658	4,868										10,608

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98		8,617	2,512	-	600	-	23	11,752						
		9,238	4,655	-	1,087	-	23	15,003						
99		40,438	5,445	93	-	-	-	45,976						
		31,930	9,824	60	-	-	-	41,814						
00		53,668	10,534	167	1,965	-	-	66,334						
		40,848	16,027	120	3,231	-	-	60,226						
01		51,830	27,697	273	4,680	334	50	84,864						
		48,923	38,235	228	6,695	393	60	94,534						
02		63,712	32,182	617	335	477	1	97,324						
		52,348	45,175	501	495	589	1	99,109						
03		40,108	41,243	0	387	163	0	81,901						
		30,918	56,394	0	556	205	0	88,073						
04		1,704	2,272	-	-	15,765	3,815	23,556						
		1,771	3,666	-	-	30,619	6,042	42,098						
05		26,968	-	-	-	19,634	6,163	52,765						
		40,674	-	-	-	41,431	12,173	94,278						
06		36,702	-	-	-	1,960	16,004	54,666						
	(11)	-	-	-	-	-	-	-						

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1991	0	0	3,649	0	0	21,299
1992	828	7,655	8,483	5,278	38,263	43,541
1993	1,451	9,949	11,400	8,760	53,758	62,518
1994	2,185	8,953	11,138	13,220	51,992	65,212
1995	3,104	11,242	14,346	20,214	68,922	89,136
1996	4,567	32,295	36,863	28,599	171,120	199,719
1997	10,646	40,991	51,637	57,182	191,048	248,230
1998	18,559	69,757	88,317	80,099	232,415	312,515
1999	21,669	58,564	80,233	106,578	226,232	332,809
2000	4,830	11,326	16,156	25,518	41,073	66,590
2001	0	9,554	9,554	0	13,663	13,663
2002	8	2,486	2,494	38	3,908	3,946
2003	0	6,295	6,295	0	8,116	8,116
2004	72	1,865	1,937	365	4,968	5,333
2005	0	83	83	0	353	353
2006. (11)	0	1,417	1,417	0	5,218	5,218
1	0	14	14	0	11	11
2	0	12	12	0	4	4
3	0	15	15	0	18	18
4	0	388	388	0	1,386	1,386
5	0	14	14	0	20	20
6	0	587	587	0	2,170	2,170
7	0	349	349	0	1,385	1,385
8	0	8	8	0	47	47
9	0	11	11	0	68	68
10	0	15	15	0	91	91
11	0	4	4	0	18	18

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1997	241	1,115	23	49
1998	164	665	365	523
1999	278	1,183	739	1,005
2000	241	1,069	1,321	1,733
2001	274	1,093	1,043	1,307
2002	334	1,333	1,081	1,277
2003	349	1,505	1,374	1,869
2004	358	1,525	189	265
2005	700	3,392	1,529	2,089
2006. (11)	693	3,038	1,741	2,726
1	70	308	103	124
2	59	251	135	205
3	41	191	129	218
4	60	273	153	244
5	59	252	209	339
6	59	271	200	294
7	39	171	158	233
8	74	297	157	353
9	67	289	191	288
10	90	403	154	191
11	75	332	152	237

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	(A)												
								(A)			(B)	(A+B)	
1989	90,917	20,952	222	899	163	2,296	12,887	128,336	13,390	42,294	55,684	184,020	-
1990	85,392	22,153	183	1,293	115	2,548	12,139	123,823	11,988	41,708	53,696	177,519	-3.5
1991	83,024	24,536	257	1,435	121	2,233	11,955	123,602	10,739	39,871	50,610	174,212	-1.9
1992	82,728	28,301	250	1,233	102	2,104	9,469	124,185	9,130	37,334	46,464	170,649	-2.0
1993	83,090	27,616	233	1,378	151	2,052	8,159	122,679	8,314	33,584	41,898	164,577	-3.6
1994	87,957	26,473	228	1,550	158	2,425	8,895	127,685	8,408	31,294	39,702	167,387	1.7
1995	91,563	23,978	233	2,261	123	2,723	10,578	131,462	8,062	27,464	35,526	166,988	-0.2
1996	88,654	21,077	322	2,685	94	2,590	10,225	125,646	7,337	24,938	32,275	157,921	-5.4
1997	85,188	21,231	477	2,851	80	2,718	8,995	121,539	7,617	23,006	30,623	152,162	-3.6
1998	86,851	20,417	558	4,460	142	2,540	8,640	123,607	7,182	21,697	28,879	152,486	0.2
1999	87,044	19,977	556	5,175	42	2,394	9,182	124,371	7,722	20,604	28,326	152,697	0.1
2000	87,066	19,107	546	6,165	58	2,490	8,251	124,222	6,716	19,068	25,784	150,006	-1.8
2001	86,857	17,062	533	6,030	36	2,521	7,133	120,174	6,656	19,453	26,109	146,283	-2.5
2002	81,859	14,900	395	5,277	25	2,417	5,694	110,566	7,510	20,909	28,419	138,985	-5.0
2003	78,625	14,193	312	5,739	39	2,874	6,894	108,676	8,408	20,523	28,931	137,607	-1.0
2004	81,405	13,762	302	6,416	22	3,076	6,115	111,101	9,603	19,586	29,189	140,290	1.9
2005	80,568	13,027	365	6,212	28	3,217	6,222	109,938	10,580	18,468	29,048	138,986	-0.9
2006.1	4,479.2	694.3	12.8	365.9	1.2	116.8	347.4	6,017.6	635.9	1,221.0	1,856.9	7,875	
2	5,168.2	778.0	18.2	395.2	1.1	145.3	397.3	6,903.3	681.5	1,282.0	1,963.5	8,867	
3	6,032.0	868.8	18.4	458.5	2.3	171.3	546.2	8,097.5	932.1	1,535.2	2,467.3	10,565	
4	6,518.2	916.2	21.9	475.3	3.4	173.5	530.5	8,639.0	1,017.8	1,580.5	2,598.3	11,237	
5	6,776.9	988.5	25.2	410.0	22.3	156.0	535.6	8,914.5	958.6	1,493.7	2,452.3	11,367	
6	7,710.1	1,093.1	24.1	446.2	32.1	263.8	642.7	10,212.1	1,064.5	1,610.5	2,675.0	12,887	
7	8,232.9	1,148.7	27.7	467.2	5.0	381.3	635.8	10,898.6	1,152.9	1,676.6	2,829.5	13,728	
8	7,187.9	947.9	18.4	430.3	2.6	181.6	566.6	9,335.3	1,045.9	1,797.4	2,843.3	12,179	

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	(B)												
									가	가			
1989	182,841	40,854	476	19,934	7,814	2,965	54	25	1,511	8,619	15,289	280,383	-
1990	176,866	43,795	547	18,613	7,406	2,837	53	25	1,084	8,579	14,620	274,422	-2.1
1991	183,677	45,914	561	19,791	7,839	2,530	63	16	646	8,727	17,382	287,146	4.6
1992	187,649	48,663	1,063	21,647	7,719	2,592	59	17	493	9,531	17,438	296,872	3.4
1993	186,482	54,878	3,425	21,264	7,719	2,547	53	14	680	9,901	14,460	301,199	1.5
1994	192,233	52,660	3,880	21,309	7,475	2,134	49	10	668	9,850	12,507	302,775	0.5
1995	201,427	49,757	4,051	20,271	7,033	1,762	39	9	677	11,228	12,803	309,057	2.1
1996	198,165	48,232	3,726	20,051	6,101	1,609	20	14	797	15,076	13,340	307,131	-0.6
1997	189,428	45,359	3,500	21,068	6,046	1,756	21	11	962	17,004	14,538	300,482	-2.2
1998	191,037	42,797	3,327	22,277	6,063	1,563	26	9	764	15,612	13,163	297,327	-1.0
1999	194,177	38,256	3,718	21,968	5,804	1,289	55	10	712	14,149	12,124	292,878	-1.5
2000	196,059	37,764	4,380	20,377	5,664	1,035	43	9	787	14,456	11,464	292,606	-0.1
2001	200,208	37,759	3,742	20,426	5,325	916	48	7	652	15,405	11,867	296,929	1.5
2002	201,135	35,973	3,849	18,068	5,098	1,001	44	10	767	13,592	9,229	289,185	-2.6
2003	197,222	33,353	3,683	18,272	5,865	752	70	13	971	13,165	8,729	282,095	-2.5
2004	201,991	34,765	4,239	17,537	6,034	954	35	12	819	12,095	9,085	287,803	2.0
2005	197,405	33,060	4,793	16,276	5,628	878	18	10	771	11,522	7,981	278,497	-3.2
2006. 1	14,269.7	1,775.2	280.1	908.9	290.9	43.4	0.3	1.1	60.5	922.6	508.7	19,070.2	
2	15,166.9	1,865.0	384.4	893.8	341.2	44.4	0.5	1.5	76.1	1,029.2	546.3	20,359.7	
3	16,856.3	2,512.4	527.2	1,128.4	433.8	57.9	0.7	1.3	86.3	957.3	633.6	23,212.7	
4	18,282.3	3,299.4	364.4	1,161.4	470.2	60.0	0.5	0.5	75.5	1,029.7	695.0	25,454.1	
5	17,021.3	2,531.4	341.4	1,188.9	390.3	69.5	0.6	0.9	73.2	1,082.6	666.2	23,377.9	
6	17,243.0	2,491.4	304.0	1,454.6	441.7	48.9	0.7	0.7	68.4	1,040.3	652.4	23,756.6	
7	15,680.8	3,437.0	347.8	1,758.4	467.1	51.5	0.6	0.8	68.7	974.3	669.3	23,469.7	
8	16,587.0	3,162.9	330.2	1,186.4	424.0	111.8	0.6	0.9	66.0	907.4	642.5	23,433.4	

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	(C)						(D)						(A+B+C+D)	
									가	가				
1989	58,799	816	6,928	4,834	71,378	-	1,733	1,904	593	4,230	-	540,053	-	
1990	56,914	627	6,628	5,345	69,513	-2.6	1,527	1,865	460	3,852	-9.8	525,306	-2.7	
1991	59,586	503	6,546	6,098	72,733	4.6	1,352	1,630	355	3,337	-13.4	537,428	2.3	
1992	62,608	422	6,338	5,616	74,984	3.1	1,208	1,327	314	2,849	-14.6	545,354	1.5	
1993	64,883	441	7,961	4,113	77,408	3.2	1,098	967	499	2,564	-10.0	545,748	0.1	
1994	62,451	403	9,212	4,532	76,598	-1.0	142	713	476	1,331	-48.1	548,091	0.4	
1995	61,716	459	9,750	4,723	76,649	0.1	76	549	453	1,078	-19.0	553,771	1.0	
1996	63,972	420	9,569	4,351	78,313	2.2	61	439	392	892	-17.3	544,258	-1.7	
1997	64,099	476	10,096	3,635	78,305	0.0	46	372	416	834	-6.5	530,995	-2.4	
1998	63,061	458	10,865	3,690	78,074	-0.3	36	303	388	727	-12.8	527,924	-0.6	
1999	61,503	375	11,104	3,535	76,518	-2.0	21	322	293	636	-12.5	522,114	-1.1	
2000	61,825	425	12,061	3,457	77,768	1.6	24	346	221	591	-7.1	520,403	-0.3	
2001	60,741	334	10,814	3,951	75,841	-2.5	25	395	179	599	1.4	519,078	-0.3	
2002	61,567	221	10,060	2,853	74,701	-1.5	20	260	160	440	-26.5	502,890	-3.1	
2003	58,167	166	9,452	2,710	70,495	-5.6	20	149	139	308		490,499	-2.5	
2004	63,668	133	9,265	2,402	75,468	7.1	18	108	131	257		503,579	2.7	
2005	66,060	103	7,989	2,135	76,287	1.1	28	51	105	184		493,800	-1.9	
2006. 1	4,838.0	4.0	538.9	185.2	5,566.1		0.8	2.6	6.2	9.6		32,511.6		
2	5,301.1	4.1	589.7	155.6	6,050.5		1.1	2.5	7.9	11.5		35,278.3		
3	6,040.7	6.3	626.6	205.4	6,879.0		1.4	8.7	8.8	18.9		40,657.9		
4	6,211.8	6.3	699.6	209.5	7,127.2		1.7	5.6	9.6	16.9		43,820.3		
5	5,776.4	6.0	661.9	193.6	6,637.5		1.6	3.8	7.8	13.2		41,395.6		
6	6,064.3	8.5	677.7	171.7	6,922.2		1.1	1.8	8.7	11.6		43,567.0		
7	5,568.9	9.6	638.1	163.9	6,380.5		1.6	4.3	9.1	15.0		43,579.9		
8	5,254.7	5.6	550.8	116.2	5,927.3		2.1	9.5	9.5	21.1		41,541.4		

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(1) Pork consumption

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가	Year							Country	
	2000	2001	2002	2003	2004	2005(p)	2006(f)		
E U 가								AMERICA	
	1,047	1,082	1,072	1,004	1,072	978	958	CANADA	
	1,252	1,298	1,349	1,423	1,556	1,615	1,640	MEXICO	
	8,455	8,388	8,684	8,816	8,817	8,671	8,826	UNITED STATES	
	1,827	1,919	1,975	1,957	1,979	2,039	2,140	BRAZIL	
	12,581	12,687	13,080	13,200	13,424	13,303	13,564	SUBTOTAL	
									EUROPE
	19,242	19,317	19,746	20,043	19,773	19,839	20,085	EU	
	235	147	200	171	123	119	112	BULGARIA	
	404	454	511	523	644	638	637	ROMANIA	
	2,019	2,119	2,429	2,329	2,337	2,429	2,484	RUSSIA	
	690	606	600	628	602	544	540	UKRAINE	
	22,590	22,643	23,486	23,694	23,479	23,569	23,858	SUBTOTAL	
									ASIA
	40,378	41,800	43,195	45,053	46,725	49,395	51,750	CHINA	
	2,228	2,268	2,377	2,373	2,562	2,512	2,500	JAPAN	
	1,058	1,158	1,199	1,294	1,331	1,282	1,297	REPUBLIC OF KOREA	
	1,038	1,085	1,137	1,167	1,170	1,130	1,152	PHILIPPINES	
	975	977	967	947	959	959	973	TAIWAN	
	408	425	422	447	493	453	454	HONG KONG	
	46,085	47,713	49,297	51,281	53,240	55,731	58,126	SUBTOTAL	
									OCEANIA
	348	360	375	410	414	427	433	AUSTRALIA	
	348	360	375	410	414	427	433	SUBTOTAL	
		81,604	83,403	86,238	88,585	90,557	93,030	95,981	TOTAL

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(2) Beef and veal consumption

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가	Year							Country
	2000	2001	2002	2003	2004	2005(p)	2006(f)	
E U 가	992	969	990	1,066	1,054	1,052	1,030	AMERICA
	2,309	2,341	2,409	2,308	2,368	2,419	2,505	CANADA
	12,502	12,351	12,738	12,339	12,667	12,666	13,061	MEXICO
	2,543	2,514	2,362	2,426	2,512	2,446	2,604	UNITED STATES
	6,102	6,191	6,437	6,273	6,400	6,774	7,035	ARGENTINA
	204	172	168	200	135	145	185	BRAZIL
	24,652	24,538	25,104	24,612	25,136	25,502	26,420	URUGUAY
								SUBTOTAL
								EUROPE
	8,108	7,658	8,187	8,315	8,292	8,145	8,200	EU
	100	80	77	77	78	78	77	BULGARIA
	196	211	205	193	198	218	219	ROMANIA
	2,246	2,400	2,450	2,378	2,308	2,200	2,175	RUSSIA
	594	556	571	445	510	472	445	UKRAINE
	630	640	640	635	635	625	620	TURKEY
	11,874	11,545	12,130	12,043	12,021	11,738	11,736	SUBTOTAL
								ASIA
	5,284	5,434	5,818	6,274	6,703	7,051	7,478	CHINA, Peoples Rep.
	1,585	1,419	1,319	1,325	1,181	1,195	1,237	JAPAN
	589	521	607	605	464	438	454	REPUBLIC OF KOREA
	88	83	94	104	85	97	103	TAIWAN
	343	342	374	350	394	390	400	PHILIPPIN
	88	86	85	93	95	106	106	HONG KONG
	1,351	1,400	1,393	1,521	1,631	1,610	1,625	INDIA
	9,328	9,285	9,690	10,272	10,553	10,887	11,403	SUBTOTAL
								AFRICA
	678	573	604	533	569	581	604	EGYPT
653	671	651	620	665	690	700	SOUTH AFRICA, REP.	
1,331	1,244	1,255	1,153	1,234	1,271	1,304	SUBTOTAL	
							OCEANIA	
645	653	696	786	747	749	760	AUSTRALIA	
129	153	123	148	126	126	120	NEW ZEALAND	
774	806	819	934	873	875	880	SUBTOTAL	
							TOTAL	
	47,959	47,418	48,998	49,014	49,817	50,273	51,743	

: (p) , (f)

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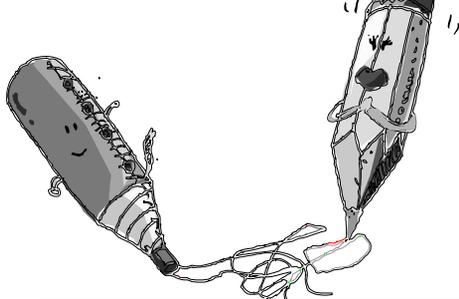
(3) Total broiler meat consumption

: ( )

가	Year							Country	
	2000	2001	2002	2003	2004	2005(p)	2006(f)		
E U	893	925	928	939	972	984	995	AMERICA	
	2,163	2,311	2,423	2,627	2,713	2,883	3,029	CANADA	
	11,474	11,558	12,270	12,539	13,080	13,455	13,878	MEXICO	
	901	881	618	719	845	973	1,034	UNITED STATES	
	5,110	5,341	5,872	5,729	5,992	6,622	7,135	ARGENTINA	
	379	360	320	306	340	405	440	BRAZIL	
	20,920	21,376	22,431	22,859	23,942	25,322	26,511	VENEZUELA	
								SUBTOTAL	
									EUROPE
	6,934	7,309	7,108	7,086	7,280	7,370	7,270	EU	
	150	251	226	263	316	356	349	ROMANIA	
	1,320	1,588	1,697	1,680	1,675	1,949	2,095	RUSSIA	
	45	113	160	214	485	395	415	UKRAINE	
	8,449	9,261	9,191	9,243	9,756	10,070	10,129	SUBTOTAL	
									ASIA
	9,393	9,237	9,556	9,963	9,931	10,150	10,325	CHINA, Peoples Rep.	
	233	242	225	212	258	268	273	HONG KONG	
	1,772	1,797	1,830	1,841	1,713	1,877	1,905	JAPAN	
	812	846	821	868	876	911	937	MALAYSIA	
	459	494	529	516	463	504	527	REPUBLIC OF KOREA	
	642	630	631	629	648	671	681	TAIWAN	
	737	806	810	722	653	776	820	THAILAND	
	471	521	629	733	628	640	672	INDONESIA	
	538	594	638	649	677	674	686	PHILIPPIN	
	1,080	1,250	1,400	1,600	1,648	1,900	2,199	INDIA	
	84	92	96	99	143	143	147	KUWAIT	
	815	804	815	873	889	949	969	SAUDI ARABIA	
	116	131	130	161	178	175	177	UNITED ARAB EMIRATES	
	17,152	17,444	18,110	18,866	18,705	19,638	20,318	SUBTOTAL	
								AFRICA	
771	786	811	929	959	991	1,026	SOUTH AFRICA, REP.		
771	786	811	929	959	991	1,026	SUBTOTAL		
								OCEANIA	
560	549	614	603	636	690	666	AUSTRALIA		
560	549	614	603	636	690	666	SUBTOTAL		
								TOTAL	
	47,852	49,416	51,157	52,500	53,998	56,711	58,650		

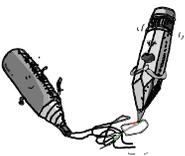
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NO		가				TEL	FAX	( )
1		05.12	04.7		717-850	199-42 (054)955-1471	(054)955-1690	,
2		86.8	82.6		150-808 459-040	67-121-159 451-6 (031)668-4255	(02)2672-3434 (031)665-2134	, , , 가 ,
3		01.5	95.11		138-921 576-964	7-11 14 9-13 (063)540-6620	(02)2077-2596 (063)545-4239	, , ,
4		90.6	86.5		464-875	271-5 (031)762-6628	(031)762-7956	, ,
5		02.5	95.9		138-826 405-818	70-9 5 1588-5590 666-11 (032)822-9240	1588-5590 (032)818-4848	, , 가
6		87.4	76.3		137-060 602-023	482-2 692-13 (051)250-2000	(02)3470-6000 (051)242-0110	, , ,
7		91.7	06.3		130-706 330-210	96-48 BD 59-1 (041)559-7310	(02)2220-9818 (041)552-2114	가 ,
8		90.8	99.10		456-843 462-839 369-834	273-4 236 575-1 (043)535-3412	(031)677-5771 (031)756-4877 (043)535-3411	, , ,
9		05.9	02.10		449-832	117-9 (031)338-0181	(031)338-0151	
10	F&B	91.7	69.4		137-717 365-830 462-819	275 BD 373 5443-1 (031)744-9601	(02)589-3126 (043)535-0061 (031)744-9604	, , ,
11		86.8	78.4		137-723 361-778 740-180 566-822 711-855	50-2 140-15 1017 327-4 29-6 (053)614-8488	(02)3479-5114 (043)279-8900 (054)420-2551 (063)642-0274 (053)614-8882	(02)3479-5100 (043)266-6274 (054)420-2589 (063)642-0974
12		88.6	79.3		133-832 580-020	27-3 277-41 853-1 (063)531-4141	(02)464-8331-4 (063)531-4145	, , , 가 ( )
13		95.6	87.11		330-882	159-9 (041)552-1072	(041)552-1076	,



회원사 주소록

NO		가					TEL	FAX	( )
14	B&F	93.1	91.5		750-080 411-350	80-10 990-3	(054)630-8114 (031)900-1664	(054)633-1231 (031)900-1699	, ,
15	C J	86.9	53.11		100-095 100-791 467-812 604-722 400-103	57가500 441 34-3 1307 37가51	(02)726-8114 (02)6740-1114 (031)632-2771 (051)200-2334 (032)881-2785	(02)726-8929 (02)6740-1020 (031)639-4005 (051)262-1985 (032)881-2979	, , , ( ),
16		86.9	83.12		138-854	287-7	(031)796-0463	(031)796-0739	, 가
17		01.10	94.11		325-872	416-29	(041)953-6634	(041)953-8232	, , ,
18		05.4	05.3		467-854	114-12	(031)637-5171	(031)637-8894	
19		93.7	87.5	1 2	456-853 456-843 138-051	222 269-1 1 187-8 4	(031)671-2500 (031)677-6398 (02)420-6071	(031)671-2501 (031)677-6397 (02)420-1371	, , , , ( , , )
20		95.12	03.2		445-932	695-4	(031)353-7171	(031)353-6880	
21		06.03	01.07		449-871	628	(031)339-7676	(031)339-2494	, ,
22		02.4	92.8	1	704-929 702-800	1000-30 1393-167 3	(053)593-2260 (053)384-2262	(053)593-2258	,
23		86.8	63.8		626-230 135-841 320-844	150 905-19 3 가 171-7	(055)387-5001 (02)564-6044 (041)741-9040	(055)387-5008 (02)568-4260 (041)741-7535	. . , ,
24		97.7	94.12		695-905	2513-2	(064)799-8890	(064)799-1616	



회원사 주소록

NO			가					TEL	FAX	( )
						690-809	2 801-7 4	(064)725-8710	(064)725-8709	
25			93.12	84.8		413-881 157-200	533 가 450-13	(031)959-7885 (02)3661-3551	(031)959-2185 (02)3662-7252	가 , ,
26			95.9	90,10		570-883 449-843 320-838 576-863	13-14 853-1 6 386-33 65-19	(063)862-2542 (031)262-8125 (041)742-1091 (063)542-6614	(063)861-7857 (031)263-1244 (041)742-5529 (063)542-0665	가 , , , ,
27			06.03	86.04	1 2	447-130 360-830 330-892	9-1 77-19 314	(031)377-9300 (043)878-4744 (041)523-0990	(031)377-9309 (043)878-4746 (041)522-0660	( , , )
28			98.12	90.2		621-841	6-1	(055)338-0821	(055)338-0826	가 , , , , 가 ,
29			91.7	45.1		140-708 437-070	131-1 150-1	(02)709-7766 (031)450-6181	(02)796-6240 (031)477-2894	
30			95.3	91.6		435-831	59-3 4	(031)458-8228	(031)459-0686	
31			05.7	01.8		471-030	275-3	(031)555-5420	(031)551-6477	( . ) ,
32			93.12	91.9		689-807	683-1	(052)264-8764	(052)263-6757	

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(사)한국육가공협회 2006년 겨울호

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팩 스:  
주 소:  
우편 번호:

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