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CA, USA, August 8-11

Global Food Crisis and Korean Preparedness

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Chairman, Korea Food Security Research Foundation**





Definition of Food Security

The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”.

모든 사람들이 건강하고 활동적인 삶을 영위하기
위한 안전하며 영양가 있는 식품을 항상 충분히
얻을 수 있는 상태



3 Pillars of Food Security

- **Food availability (가용성)**
Food production and supply
- **Food access (접근성)**
Purchasing power, Food price
- **Food use (이용성)**
Knowledge on nutrition,
safety and water hygiene

(자료; WHO, 2009)



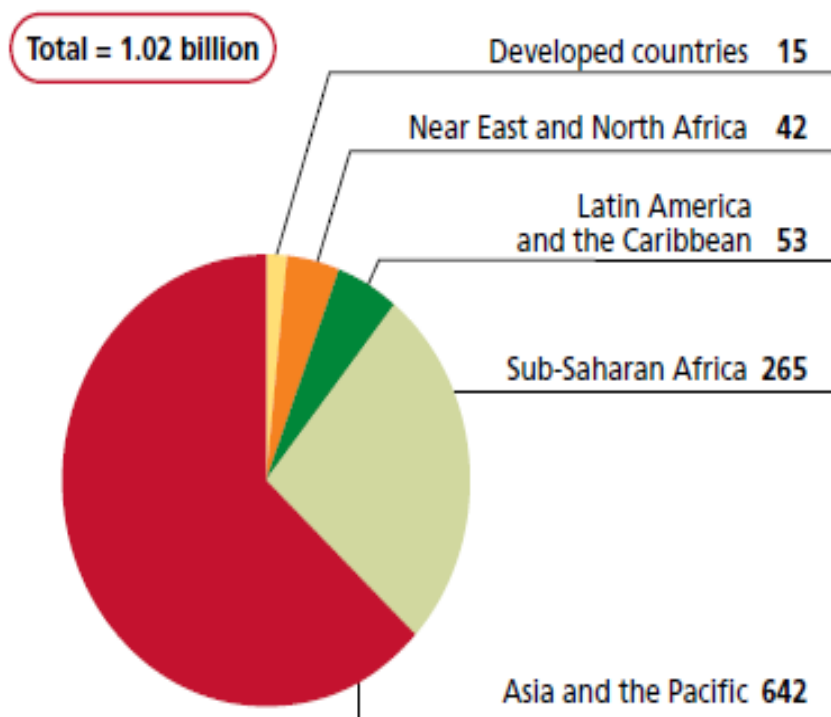
Disputes on global food crisis

- **Is world food production sufficient to feed world population – a matter of distribution?**
- **Will it be sufficient in the future?**
- **Is national food self-sufficiency meaningful in the globalized world?**
- **Is globalization helpful for the countries of food shortage?**

World distribution of undernourished people

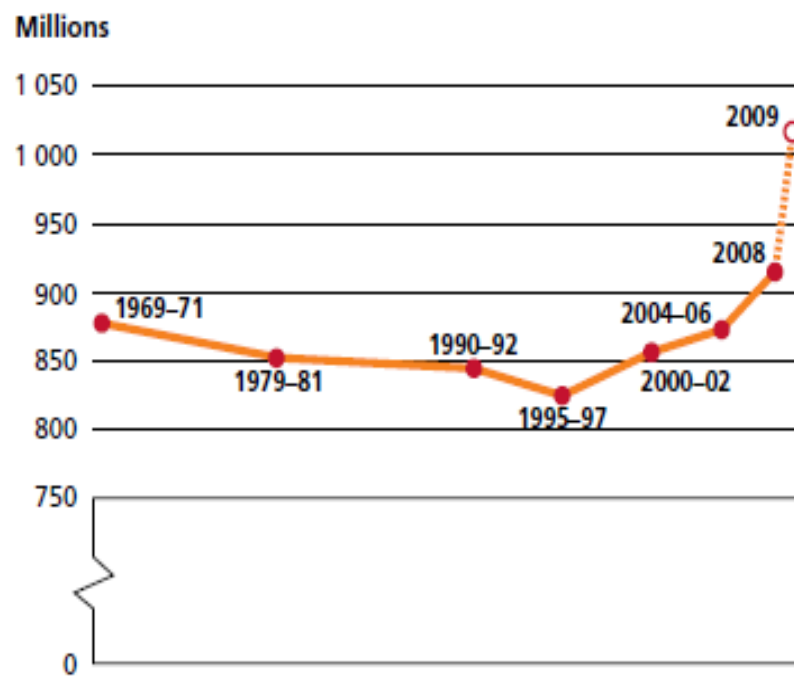


Undernourishment in 2009, by region (millions)



Source: FAO.

Learning from the past: number of undernourished in the world, 1969-71 to 2009



Source: FAO.

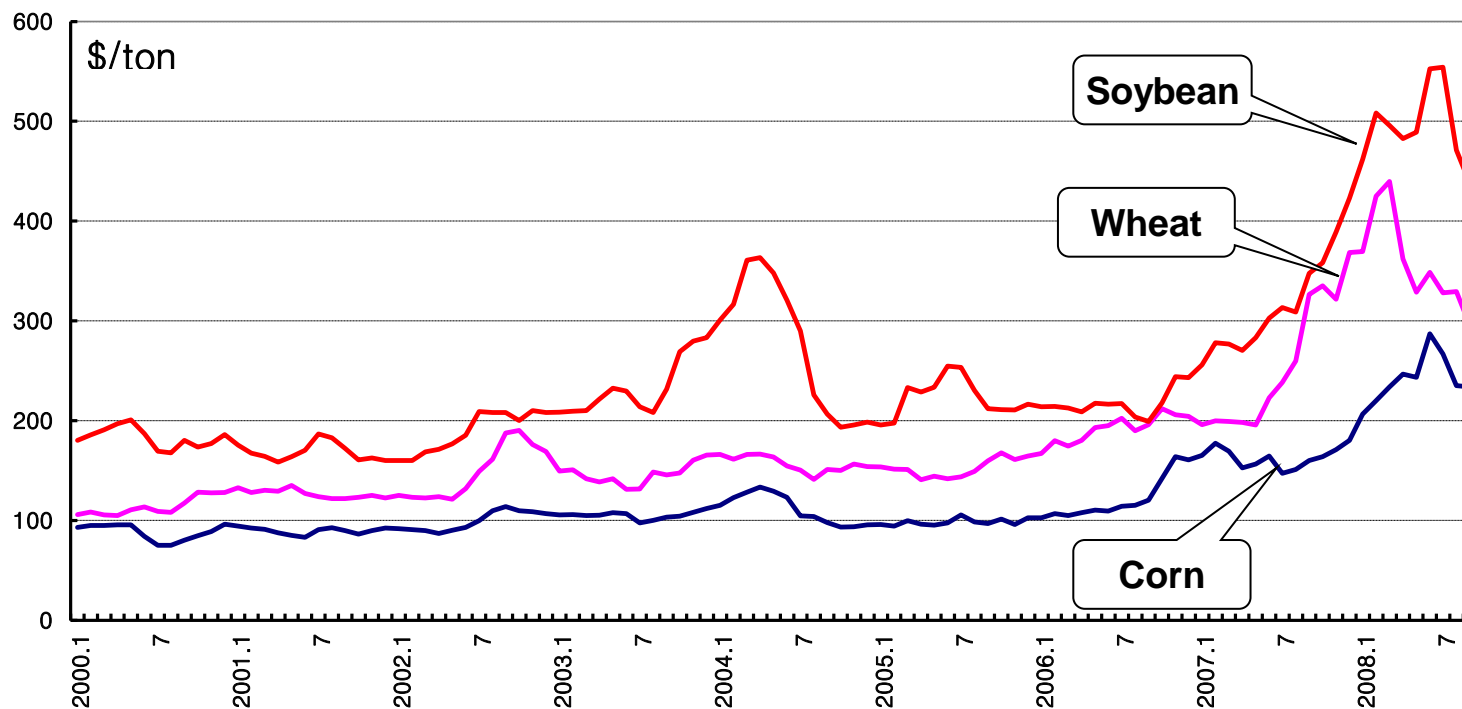
Food situation after the trade liberalization under WTO



- Aggravation of uneven distribution of food.
- Disruption of food production infra-structure of under-developed countries.
- Strengthen the price decision power of food supplier.
- Control of food market by a few major companies and power countries.

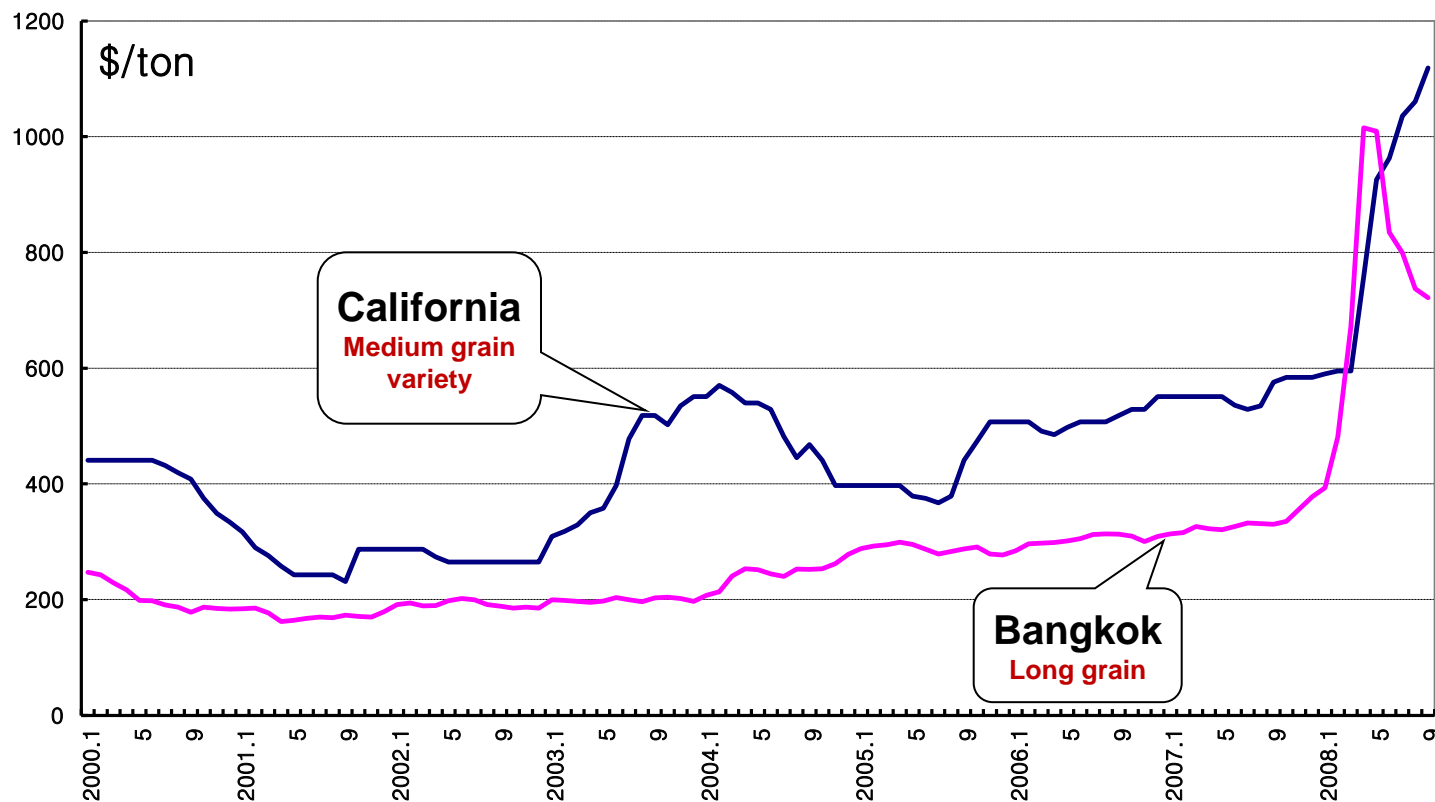


Grain Price hike in 2007/2008

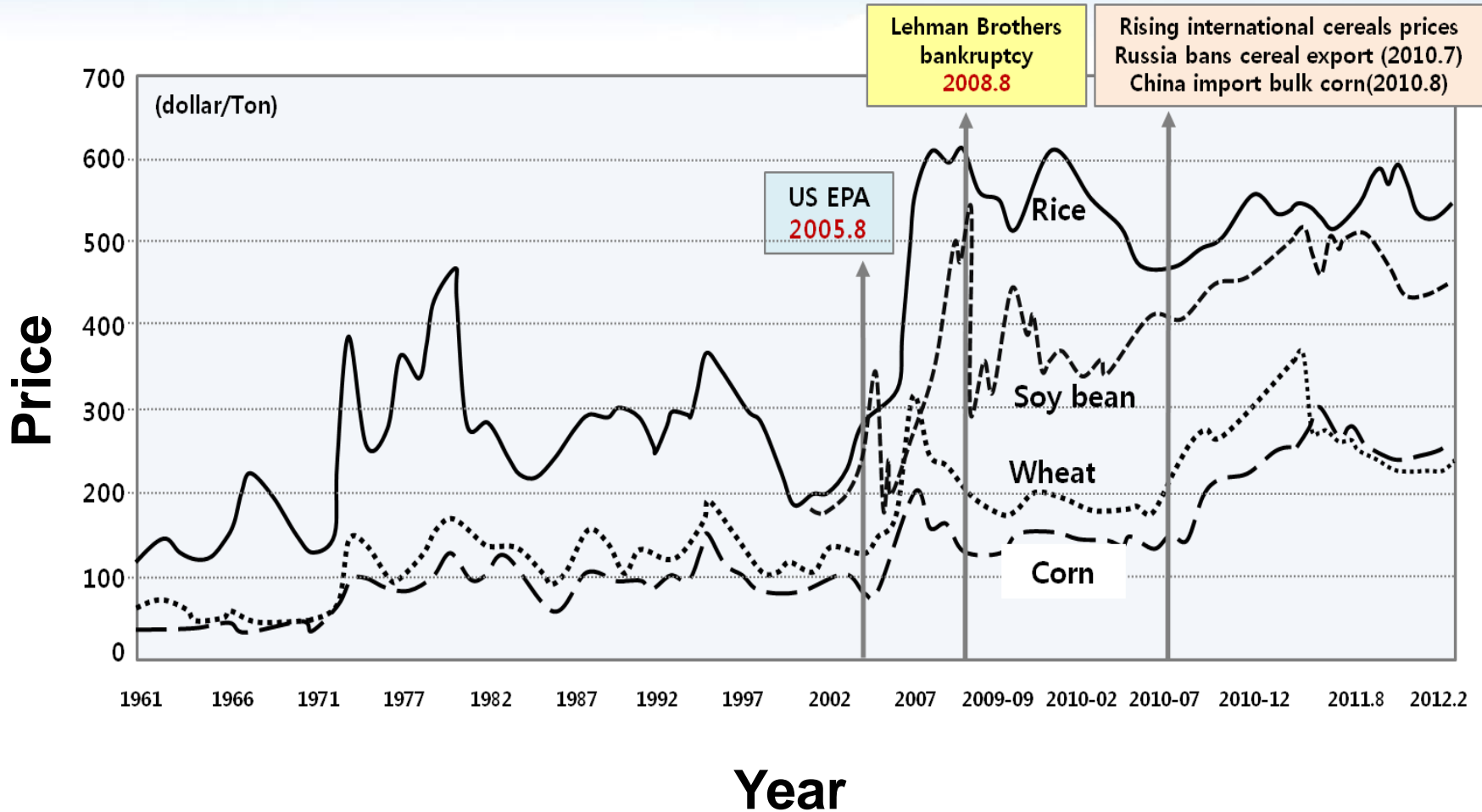




Changes in rice price



Changes in world grain prices



Future global food crisis– cause analysis

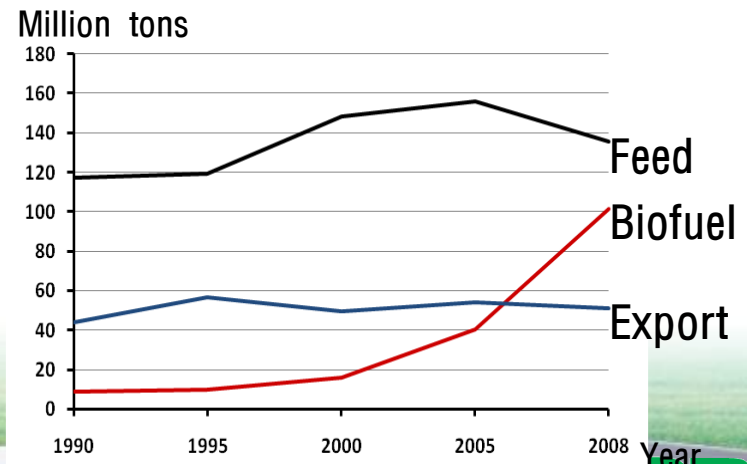
- Global warming and climate change
- Bio-energy production from food grains
- Animal food consumption by China and India
- Conflict on the use of GM foods
- Food nationalism banning food export

Estimation of grain production change in 2080 by global climate change

	1990-2080 (% change)
World	-0.6 to -0.9
Developed countries	2.7 to 9.0
Developing countries	-3.3 to -7.2
Southeast Asia	-2.5 to -7.8
South Asia	-18.2 to -22.1
Sub-Saharan Africa	-3.9 to -7.5
Latin America	5.2 to 12.5

Source: Adapted from Tubiello and Fischer 2007.

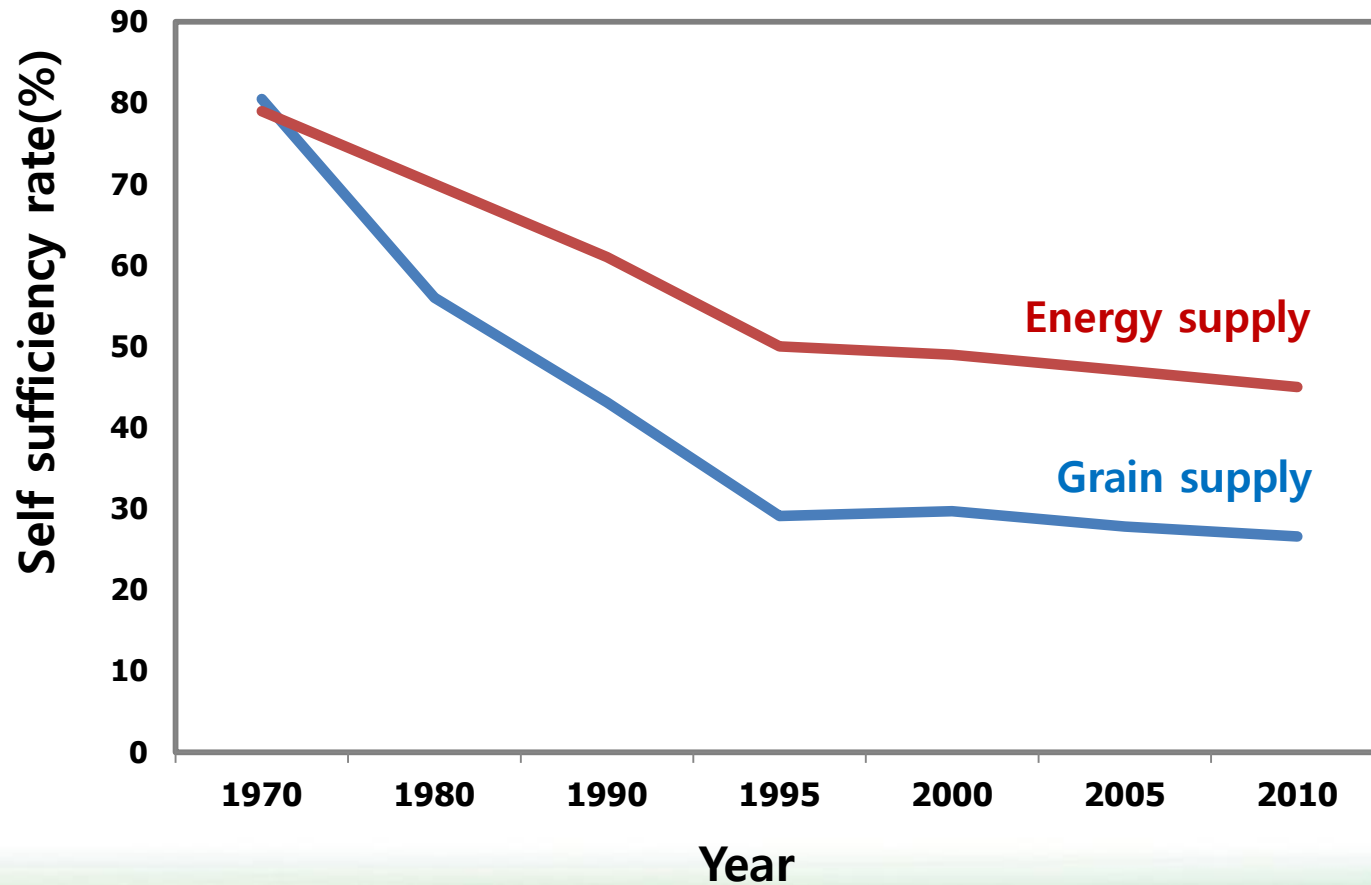
<Corn utilization in USA>



Food situation in Korea



1. Rapid reduction in food self-sufficiency



Asia APO Workshop, 1999. 1. 27 - 2. 4, Tokyo, Japan



International trade and Food security

*Country paper to be presented to the APO Workshop
Seminar on International Trade and Food Security
27 January - 4 February, 1999, Tokyo, Japan*

Impact of trade liberalization on food security situation in Korea

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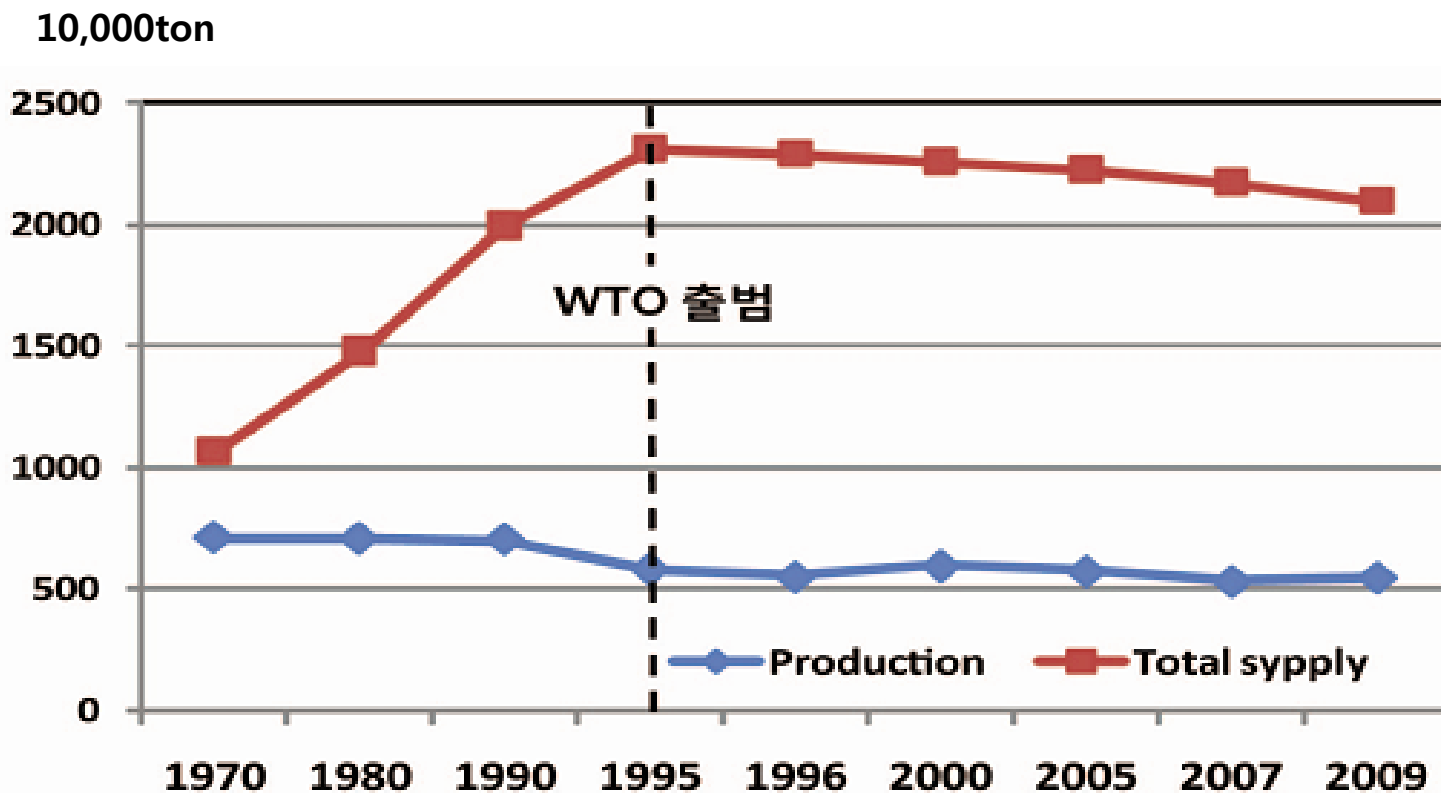


Changes in Food Self Sufficiency

	1970	1975	1980	1985	1990	1995
USA	111	174	157	173	142	129
Canada	132	171	181	202	223	172
France	141	152	178	204	210	181
England	59	64	96	114	116	114
Germany	72	80	91	95	114	113
Thai(rice)	-	-	-	146	138	218
China	-	98	92	94	100	94
Japan	46	40	33	31	30	30
Korea	81	76	56	48	40	28

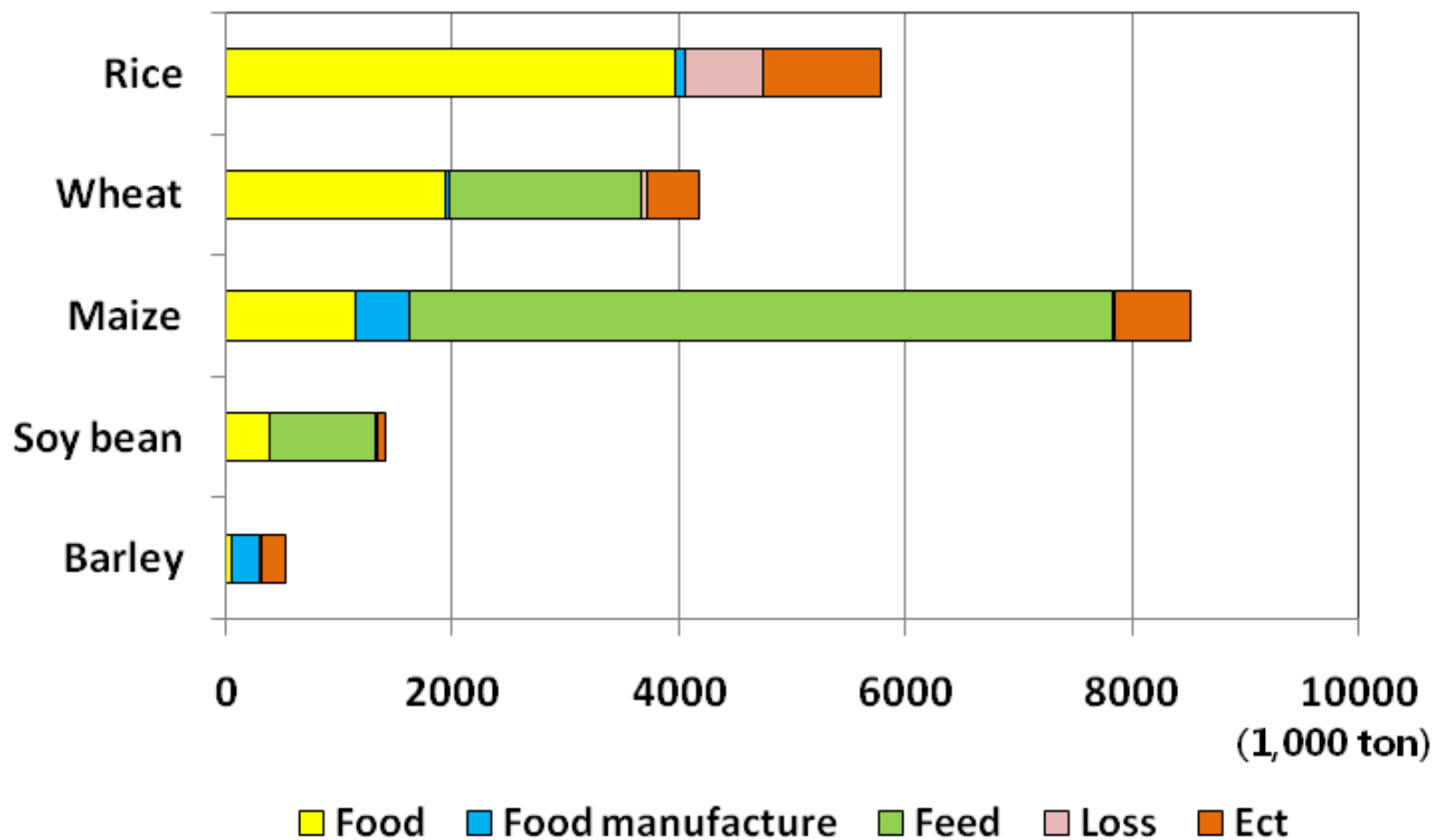


Changes in grain supply in Korea





Amounts of grain usage in Korea(2009)



Food situation in Korea



2. Reduction of rice consumption

Changes in food consumption of Korean, kg per caput/year

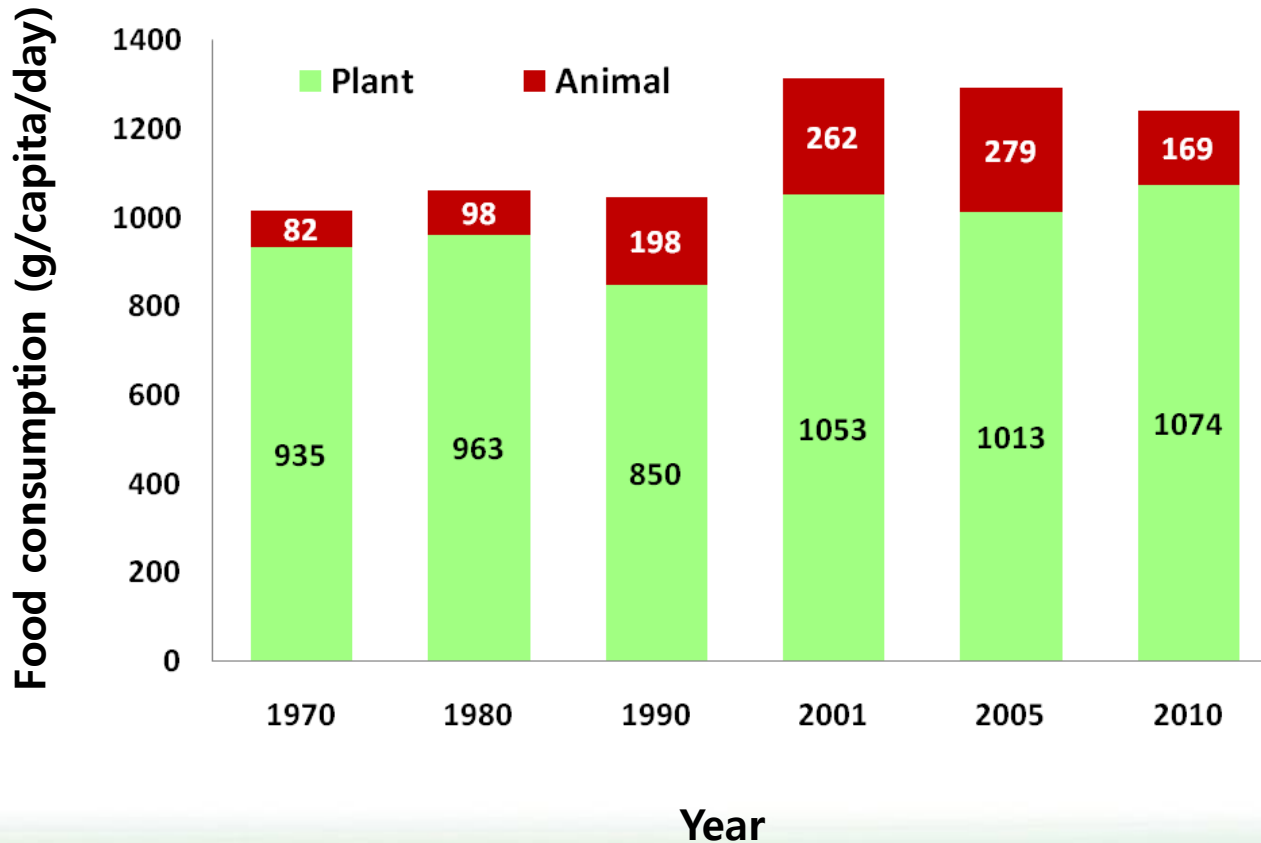
	1970	1980	1990	2000	2010	Self- sufficiency (%) (2009)
Rice	136	132	119	94	74	101
Barley	37	14	1.6	1.6	1.2	48
Wheat	26	29	30	36	31	0.5
Corn	1	3	3	6	4	1.0
Soybean	5	8	8	2	4	9.8

Food situation in Korea



3. Increase in animal food and fat consumption

Changes in food consumption of Korean



Source: KREI



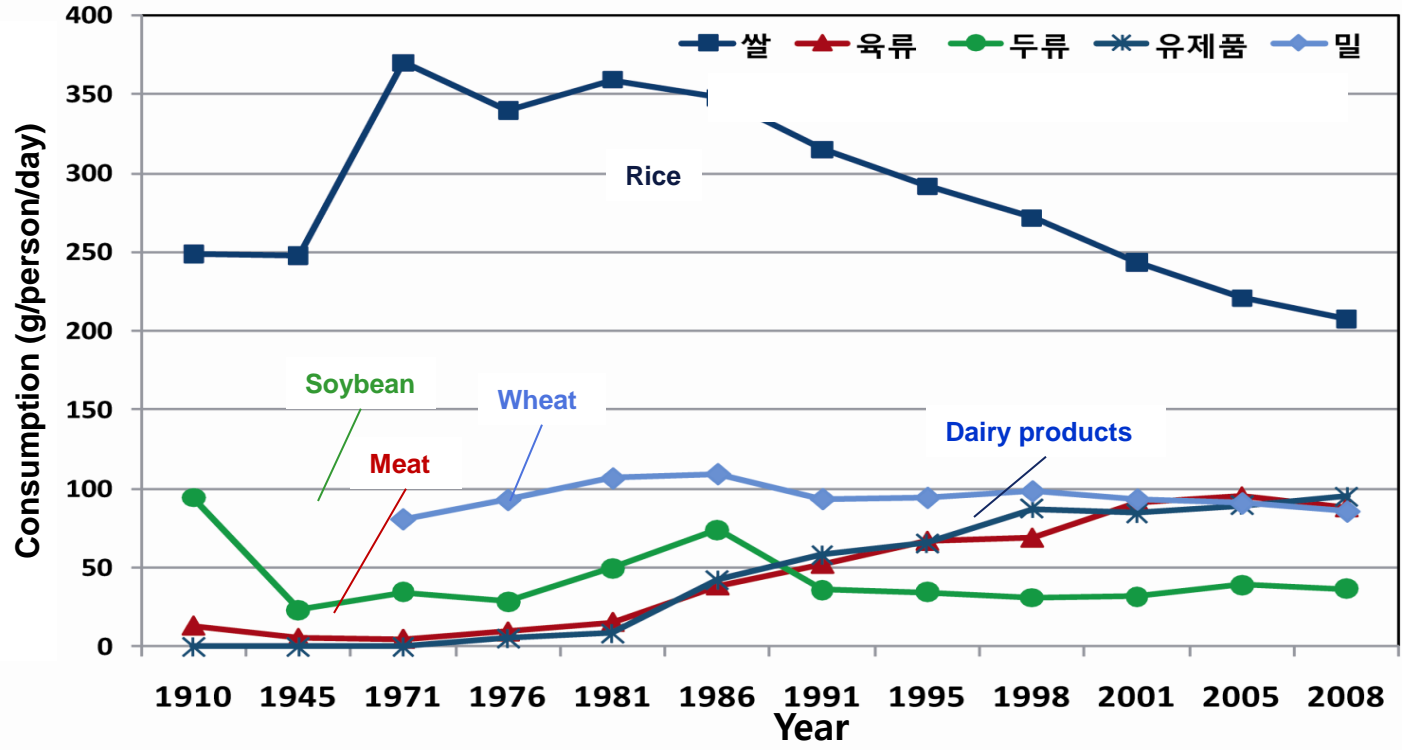
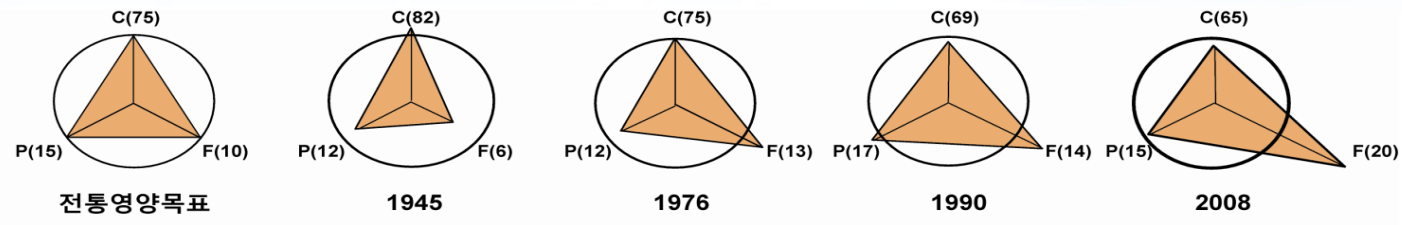
Changes in the number of patients registered in Korean medical insurance(1980-1986)

	1980	1983	1986
Total number	100	144.8	184.5
Cancer	100	141.0	227.5
Diabetes	100	238.2	532.8
Hyperpiesia	100	164.5	259.0
Heart disease	100	194.0	334.4
Cerebral	100	141.5	271.7
Liver	100	141.9	230.3

Source: Lee et. al. (1988)

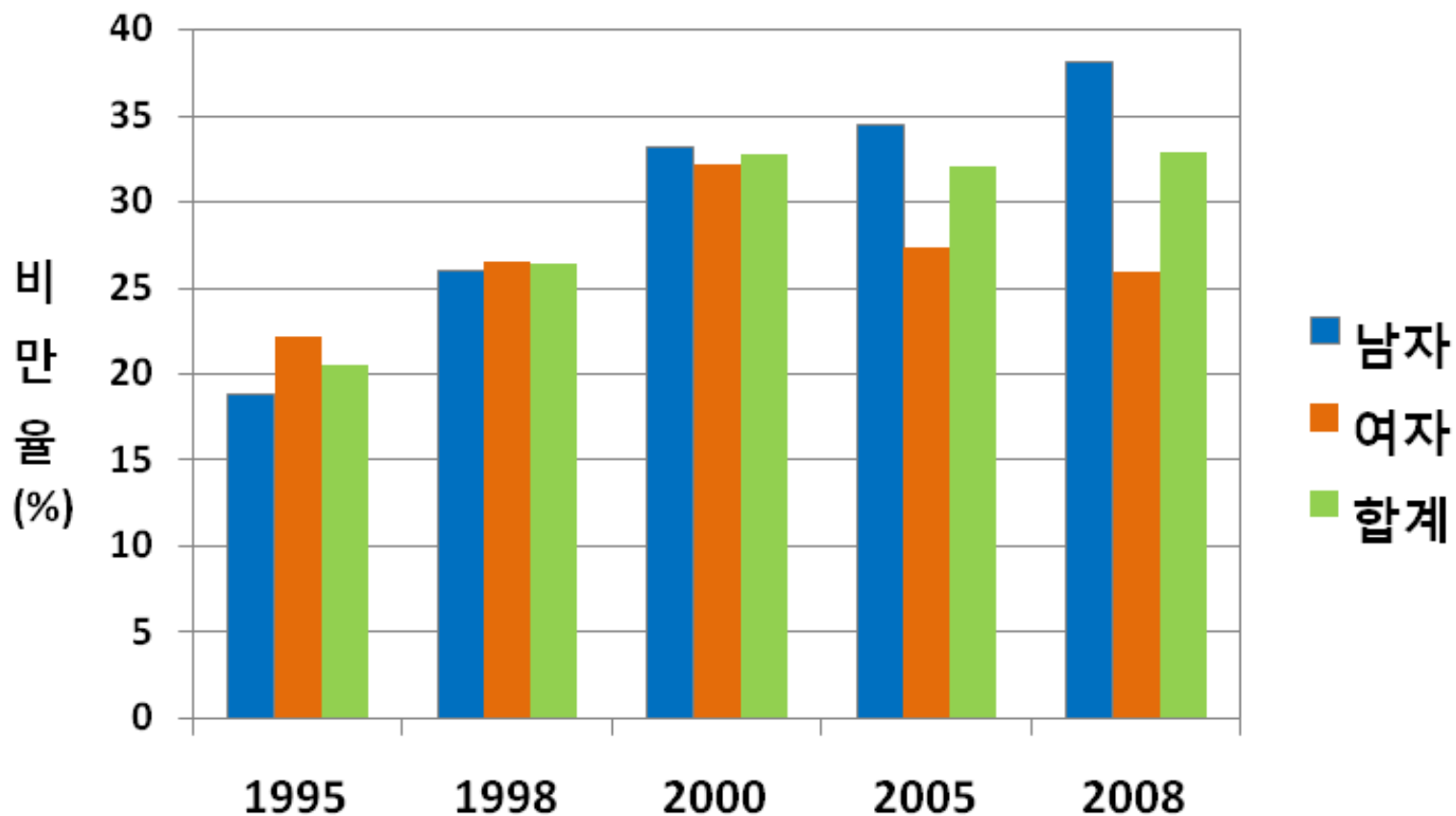


Changes in the energy composition of Korean diet





Changes in obesity ratio of Korean



Changes in the causes of death of Korean

(per 100,000 death)



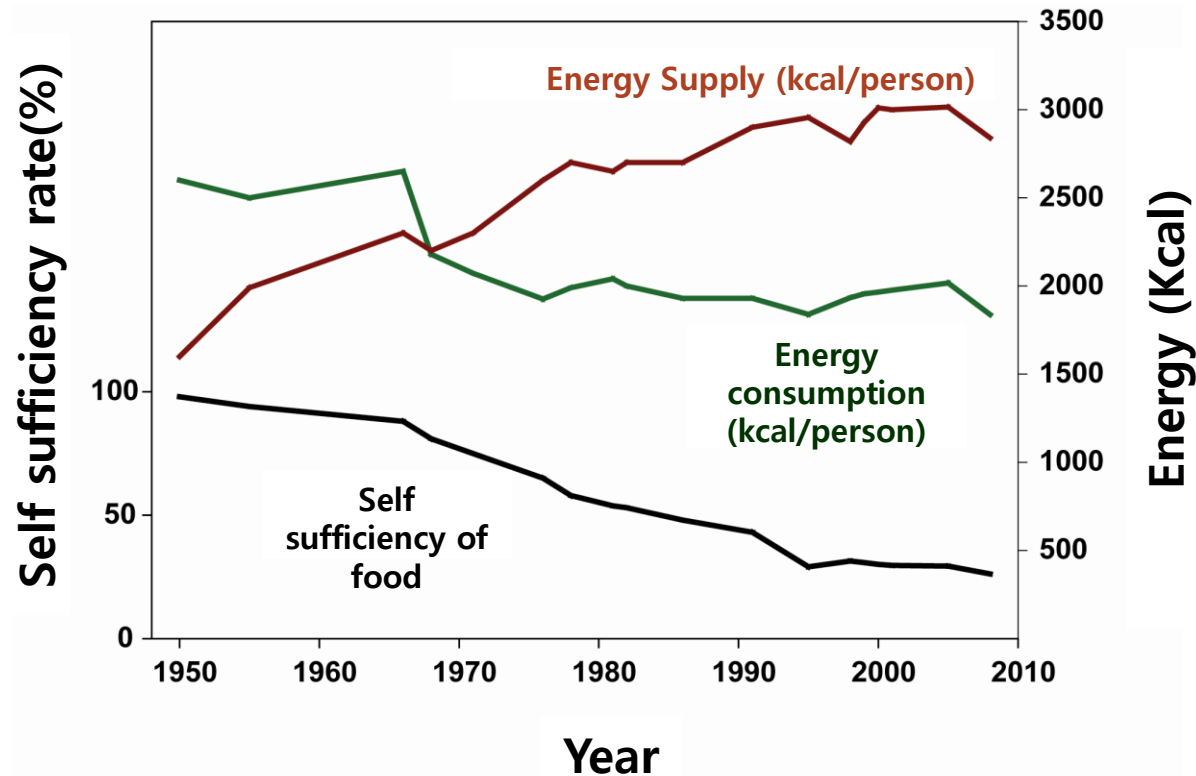
	1989	1998	2006	2009	1989-2009 ratio(%)
Circulatory diseases	161.5	123.7	111.8	109.3	-32.3
Cancer	105.0	110.8	134.0	140.5	33.8
Stomach	31.7	23.9	22.0	20.4	-35.6
Liver	23.6	20.0	22.4	22.6	-4.2
Breast	1.6	2.1	3.3	3.8	137.5
Colon	3.9	7.0	12.8	14.3	266.7
Diabetes	9.4	21.1	23.7	19.6	108.5

Source: Health Insurance Statistics, 2009

Food situation in Korea



4. Food waste



Analysis of National food balance sheet and National food consumption survey (Lee, 1999)

Energy supply – Energy consumption = Food loss(waste)



Special situation of Korea

- **Food security – Very weak**
 - Import 70% of grain consumption
- **Demand for food safety – Very high**
 - Frequent food safety incidences
 - Mistrust for government authorities
 - Irresponsible action of some consumer organizations and news media
 - Passive response of scientific circles



Food safety and Food security

- Two faces of a coin
- **Mutually colliding and complementing**
Food shortage – No room for food safety
Unsafe – No use a pile of food

Food safety↑ - **Food Availability** ↓ - **Food price**↑

**Need social consensus to harmonize
food safety and food security**

2009 IUFOST-Japan

Food safety and Security Symposium



INTERNATIONAL UNION OF FOOD SCIENCE & TECHNOLOGY

E-Newsline

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[-Analyst ups Coca-Cola estimate](#)

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[-Kraft to wait for Cadbury's Q3 results](#)

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IUFOST -JAPAN Food Safety and Security Symposium

September 2009 saw the opportunity for the IUFOST leadership to reaffirm and renew our long relationship with IUFOST founding member, Japan with the IUFOST-Japan Food Safety and Security Symposium, meetings with Japan industry and research institutes, with our colleagues in IUFOST Japan and with hands-on training in Cup-of-Noodle making.

From left: IUFOST Japan President, Tomohiko Mori, Academy Fellow Katsuyoshi Nishinari and Academy Founding Fellow and former IUFOST Governing Council member, Kyoden Yasumoto



The first paper of the symposium was given by Prof Seiichi Homma, the immediate past Commissioner of the Food Safety Commission, in the Cabinet Office of the Japanese government. He reminded us of Japan's high dependency on imported food, some 60% of its needs. Pressure was therefore on government both on food security, and on food safety, as improved methods of analysis lowered detection levels of pesticide residues and contaminants. Then Prof Takanori Mine, Director of Food Safety Research for ILSI Japan

 인

2009 IUFoST-Japan



Food safety and Security Symposium

September 12, 2009, Nagoya University, Japan

- Food Safety and Security in Japan
Seiichi Homma (passed Commissioner of Food Safety Commission)
- Food Safety and Food Security – IUFoST Global Role
Geoffrey Campbell-Platt (IUFoST President, Univ. of Reading, UK)
- Food Safety and Security in China
Piingfan Rao (Fuzhou Univ., China)
- Food Safety and Security in Korea
Cherl-Ho Lee (Korea Univ., Korea)
- Food Safety and Security in Canada
Rickey Yada (Guelph Univ., Canada)



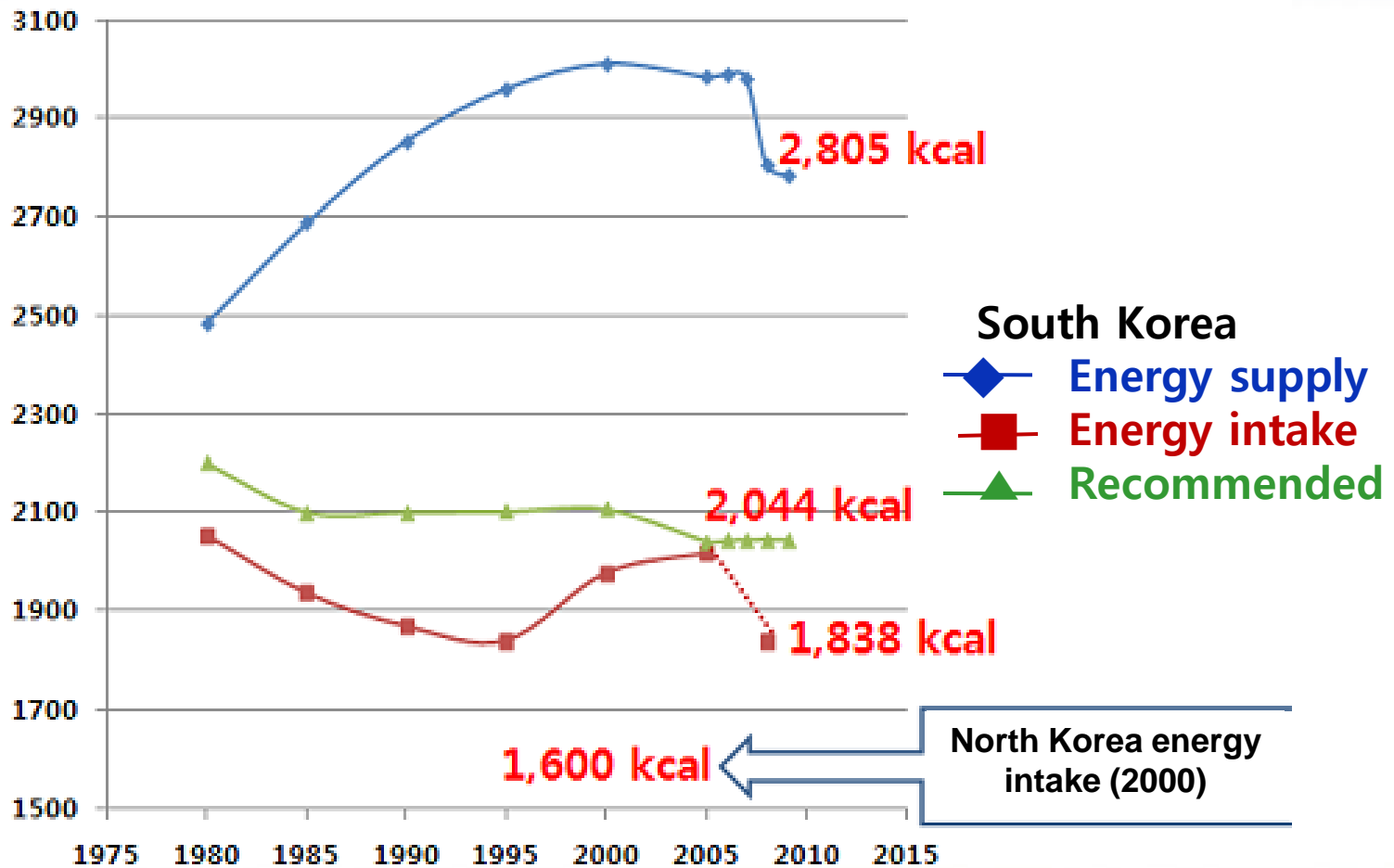
Korean Dilemma

1. **Grain self-sufficiency below 30% - Does Korean government take this situation seriously as crisis and is willing to improve?**
2. **Rice market will be opened in 2015 – Is Korean rice competitive to the imported rice?**
3. **Non-GM crops are disappearing from the world market – Are Koreans ready to consume GM food?**
4. **Ever-increasing constrains on food industries – is Korean food chain sound and responsible for national food supply?**

MFAFF plan for food self-sufficiency (%)

	<u>2010</u>	<u>2015</u>	<u>2020</u>
Grain self-sufficiency(+feed)	26.7	30	32
Grain self-sufficiency(food use)	54.9	57	60
Calorie self-sufficiency	50.1	52	55
Food sovereignty	27.1	55	65
Rice	104.6	98	98
Wheat	1.7	10	15
Soybean	31.7	36.3	40
Meat	72	71.4	72.1
Milk and their products	65.4	65	64

Energy supply of North and South Korea



Anthropological evaluation of the 60 years division of Korean peninsular



	South Korea	North Korea
Per capita daily food intake (g)	1,300	500(+)
Energy intake (kcal)	2,000	1,600
Energy composition(C:P:F)	65:15:20	80:12:8
Grain self-sufficiency (%)	26	97
Average height(cm, M/F)	173/159	166/155
Obesity ratio(%)	33	-
Tuberculosis, contraction/dead (person/100,000)	90/8	344/25
Per capita GDP (US\$)	17,175	960
Political system	Open, Capitalistic	Closed, Socialistic



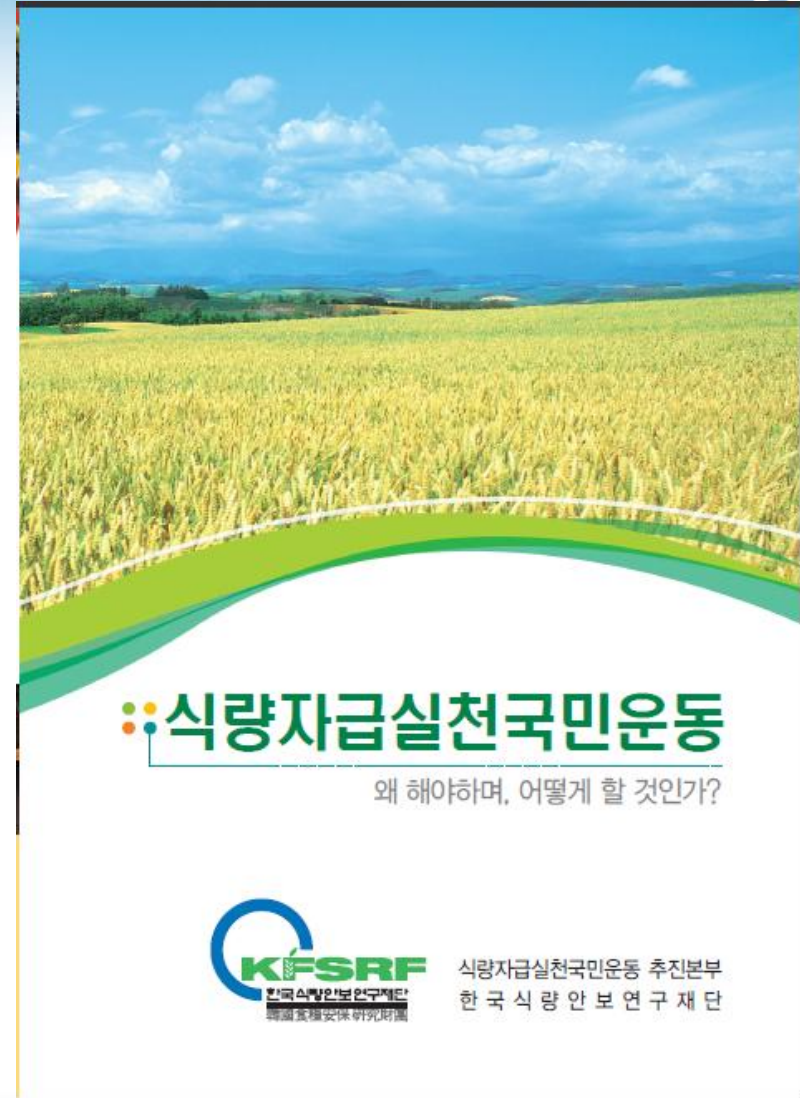
Optimal Food consumption model of Korean

Contant	Detail
Nutritional goal of traditional Korea diet	Energy 2,000 – 2,500 kcal Protein 80-90g (Animal protein 20-30%)
Energy composition	CHO 75%: Protein 15%: Fat 10%
Optimal food consumption model of Korean	Food consumption pattern of 1980 Rice intake – 2 times of today Animal food intake – ½ of today Amount of food intake- 1,000g/capita/day
Grain self-sufficiency in 1980 in Korea	56%

FOOD ACTION of Korea

Started March, 2011

Organized by
Korea Food Security
Research Foundation



OUR ACTION



- (1) Eat fresh and local food for health.
- (2) Eat breakfast for health and vitality.
- (3) Economize food and reduce waste.
- (4) Grow vegetables at home and garden.
- (5) Cultivate idle-land and double-cropping.



OUR ACTION



- (6) Produce Top-rice of best quality.
- (7) Globalize Korean food of high quality and safety.
- (8) Support and up-bring food industry as the major food supplier.
- (9) Keep bio-resources and sea area for sustainable food production.
- (10) Create new agricultural and fishery societies as the root of people' s life.



식량자급실천국민운동 전진대회

• 일시 : 2011년 3월 30일 오후 2시 • 장소 : aT센터 5층 대회의실 • 주최 : 한국식량안보연구재단 • 후원 : 농림수산식품부, 교육과학기술부, 보건복지부



Declaration of People's Movement



- . Economize food and be ashamed of food wasting.
- . Create sound food culture recognizing the effort of food producers.
- . Try best for the stable supply of safe and nutritious food.
- . Research and develop sustainable food production and bio-resource systems.
- . Create new farm and fishery lands as the root of people's life.





아이디

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