Elmadfa I (ed): European Nutrition and Health Report 2009.
Forum Nutr. Basel, Karger, 2009, vol 62, pp 17–42

4

Trends of Average Food Supply in the European Union

Calculated Trends of Average Food Supply in the European Union

On the Basis of the FAO Food Balance Sheets

The Food Balance Sheets (FBS) of the Food and Agriculture Organization of the United Nations (FAO), as part of the FAO's database FAOSTAT, are agricultural statistics which provide detailed information about the pattern of a country's food supply during a specified reference period. Since 1961, FBS have been compiled every year up to 2003. FBS are made up of sources of supply, such as the total quantity of foodstuffs produced in a country and the total quantity imported and adjusted to any change in stocks that may have occurred since the beginning of the reference period as well as its utilization for non-food purposes, such as feed, seed and manufacture.

Because of the equality of the methods used to obtain the data, FBS permit a comparison of international and national data and are the main source used in the assessment and appraisal of the world food situation. Moreover, the comparison in terms of commodities can be helpful for the formulation of the Common Agriculture Policy (CAP) in Europe.

FBS have some limitations. In essence, these data include food consumption at home, food consumption outside of home and wastes along the whole food chain from the production to the end-consumer, even though an attempt to estimate the overall amount of wastes is also made. Compared to methods of collecting data at household or individual level, FBS estimate food consumption only from a food supply perspective and do not differentiate between diets consumed by different population groups such as children, the elderly, or those from disadvantaged backgrounds. Furthermore, they do not give any indication of the differences between ecological zones or geographical areas within a country nor seasonal variations.

Nevertheless, FBS are a unique source for showing international trends in food supply.

Following the *European Nutrition and Health Report 2004*, this chapter provides an overview of the average food supply of the 25 participating countries based on

the FBS; data from Belgium and Luxembourg are combined. In the subsequent sections, the highest and lowest supply levels for different food groups (table 4.1) as well as the calculated arithmetic average of the participating countries are presented for each year since 1961. Additionally the year 2003 will be emphasized because the *European Nutrition and Health Report 2004* described the supply from 1961 to 2001. It should be noted that data for Belgium-Luxembourg, the Czech Republic, Estonia, Latvia, Lithuania, and Slovenia are only available since 1993 and data for Norway are missing.

In order to compare different regions, the participating countries were grouped as follows:
North: Sweden, Norway, Finland, Estonia, Latvia, Lithuania, Denmark
South: Portugal, Spain, Italy, Cyprus, Greece
West: UK, Belgium-Luxembourg, The Netherlands, France, Ireland
Central and East: Poland, Czech Republic, Slovenia, Romania, Hungary, Austria, Germany

For the comparison of the regions, data were weighted using the number of inhabitants from 2003 [Eurostat, 2009].

Fruits – Excluding Wine
The increasing tendency of the fruit supply described in the report of 2004 also continued on in the years 2002 and 2003 (fig. 4.1). In 2003 the highest supply was observed in The Netherlands (182 kg/capita/year) followed by Greece and Denmark with an average supply of 147 kg/capita/year. The countries with the lowest supply were Poland (48 kg/capita/year), Latvia (54 kg/capita/year) and Romania (65 kg/capita/year). Comparing the different regions, the supply in the South and West regions was higher than in the North and Central and East regions.

Vegetables
As shown in figure 4.2, the mean supply of vegetables increased over the past four decades. A South-North gradient can be observed. The supply in Greece (276 kg/capita/year) was in 2003 almost four times higher than in Finland (71 kg/capita/year).

Potatoes
The average supply of potatoes showed a decreasing tendency over the last 40 years (fig. 4.3). In 2003, the lowest supply was observed in Cyprus (38 kg/capita/year) and Italy (41 kg/capita/year), whereas the supply was highest in Poland (130 kg/capita/year) and Latvia (140 kg/capita/year). The supply of potatoes was lowest in the South region and highest in the Central and East and West regions.

Table 4.1. List of commodities classified by major food groups in FAOSTAT

Fruits – excluding wine	plantains, bananas, oranges, lemons and limes, grapefruit and pomelos, tangerines, mandarins, clementines, satsumas, other citrus fruits, melons, watermelons, apples, apricots, avocados, cherries, figs, grapes, mangoes, papaya, peaches, pears, persimmons, pineapples, plums, quinces, blueberries, cranberries, gooseberries, raspberries, strawberries, kiwi, other fruits fresh, dates, figs dried, prunes currants, raisins, other dried fruits
Vegetables	beets, carrots, turnips, rutabagas or swedes, onions green, onions dry, artichokes, tomatoes, asparagus, cabbage, cauliflower, celery, kale, lettuce, spinach, beans green, broad beans green, chili peppers, garlic, cucumbers, mushrooms, eggplant, peas green, pumpkins, squash, gourds, okra, radishes, other
Cereals	wheat, rye, barley, oats, maize, rice, mixed grains, buckwheat, sorghum, millet, quinoa, other
Sugar and sweeteners	sugar cane, sugar beet, sugar refined, sugar non-centrifugal, molasses, honey, other sugars and syrups
Pulses	beans dry, broad beans dry, peas dry, chick peas, cow peas, pigeon peas, lentils, vetches, lupins, other
Oil crops	soybeans, coconuts (incl. copra), oil palm fruit, groundnuts, olives, rape and mustard seed, sunflower seed, cottonseed, linseed, hempseed, sesame seed, other
Vegetable oils	rape and mustard seed oil, sunflower seed oil, cottonseed oil, linseed oil, hempseed oil, sesame seed oil, copra and coconut oil, palm kernel oil, palm oil, soybean oil, olive oil, maize oil
Animal fats	butter, ghee, fish liver oil, whale oil, other
Meat	beef and veal, buffalo, pork, mutton and lamb, goat, horse, chicken, goose, duck, turkey, rabbit, game, offal
Fish and seafood	freshwater fish, demersal fish, pelagic fish, crustaceans, molluscs, aquatic mammals meat, aquatic plants
Milk and milk products – excluding butter	cow, goat, sheep, buffalo, skim, evaporated unsweetened whole, condensed sweetened whole, evaporated unsweetened skim, condensed sweetened skim, dried whole, dried skim, cream
Eggs	chicken, other
Alcoholic beverages	wine, beer, fermented drinks

Source: FAO, 2001

Cereals

Figure 4.4 shows the mean supply of cereals over the last 40 years, which was decreasing although there was a slight increase as from 1992. In 2003 the highest supply of cereals was observed in Romania (205 kg/capita/year) followed by Italy (163 kg/capita/year) and Lithuania (155 kg/capita/year). The lowest supply levels were reported in Cyprus (98 kg/capita/year), Spain (99 kg/capita/year) and The Netherlands (103 kg/capita/year). Concerning the different regions, no big difference can be observed.

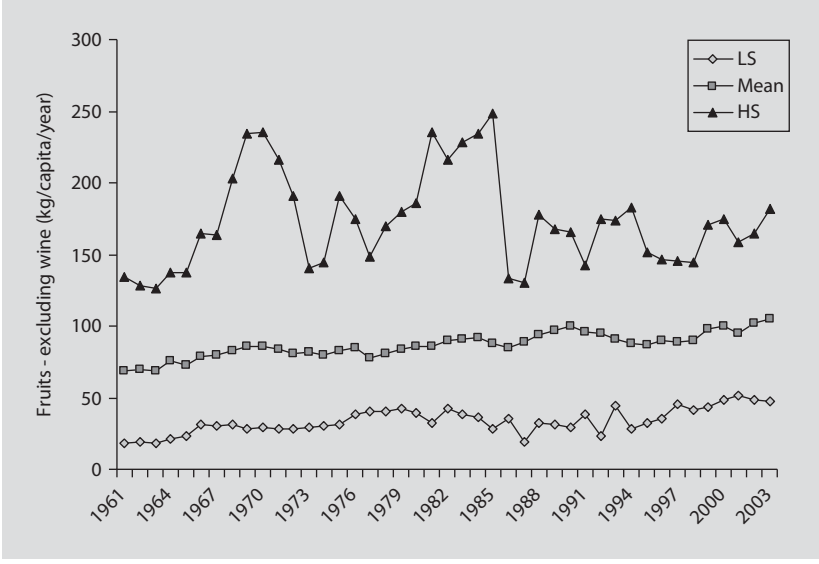

Fig. 4.1. Average supply of fruits excluding wine in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = NL, LS = PL. *Source of raw data:* FAO, 2009.

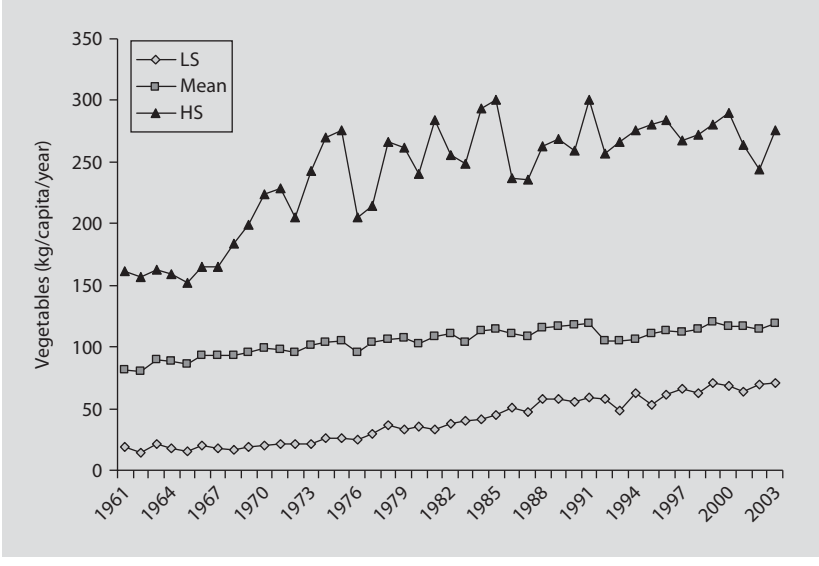

Fig. 4.2. Average supply of vegetables in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = GR, LS = FI. *Source of raw data:* FAO, 2009.

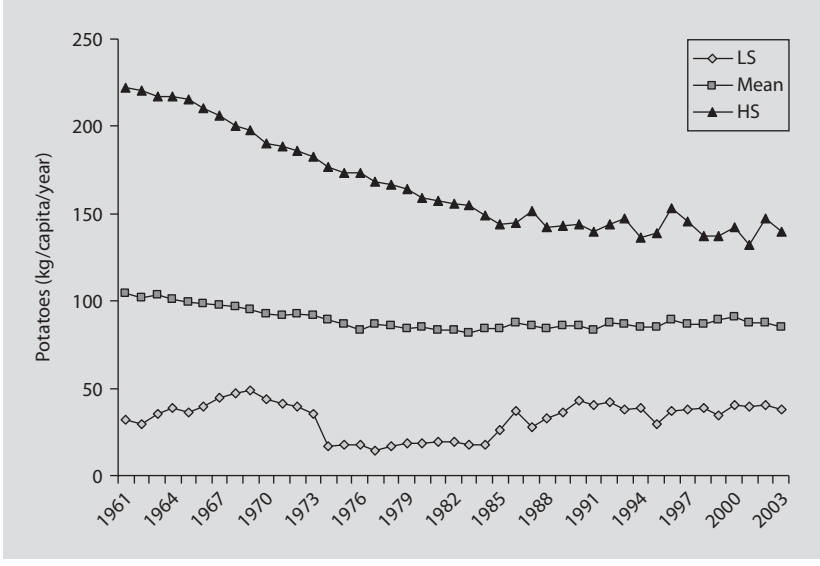

Fig. 4.3. Average supply of potatoes in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = LV, LS = CY. *Source of raw data:* FAO, 2009.

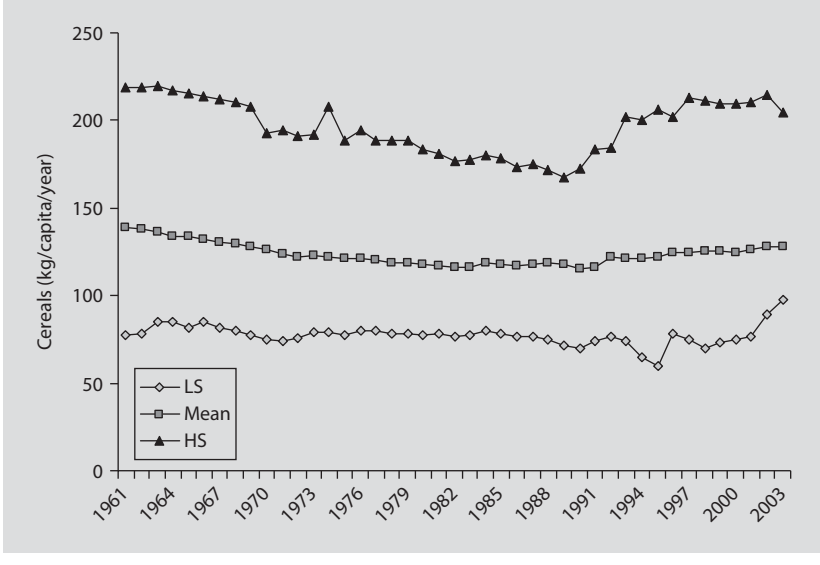

Fig. 4.4. Average supply of cereals in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = RO, LS = CY. *Source of raw data:* FAO, 2009.

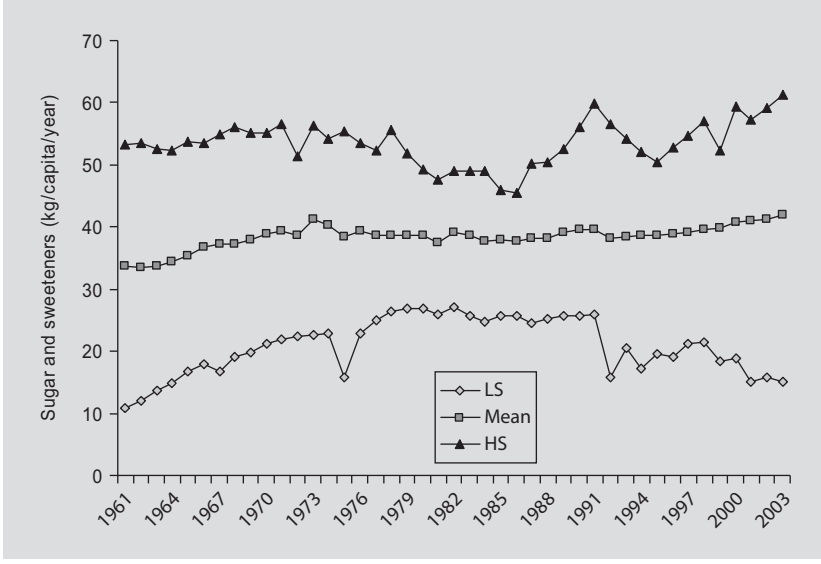

Fig. 4.5. Average supply of sugar and sweeteners in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = EE, LS = SI. *Source of raw data:* FAO, 2009.

Sugar and Sweeteners

As shown in figure 4.5, the mean supply of sugar and sweeteners has increased over the last four decades. In 2003 the supply was highest in Estonia and Denmark with about 60 kg/capita/year. Low supply levels were found in Slovenia (15 kg/capita/year) and Romania (27 kg/capita/year). The supply was lowest in the South region.

Pulses

The amount of pulses available in the participating countries showed an undesirable decreasing tendency (fig. 4.6). As was the case with the vegetable supply, a South-North gradient can be observed. The highest supply in 2003 was found in Spain with almost 6 kg/capita/year and the lowest supply in Latvia. The supply was highest in the South region followed by the West region. The North and Central and East regions showed the lowest supply.

Oil Crops

The mean supply of oil crops in the participating countries has increased slightly since 1961 (fig. 4.7). In 2003 the supply was highest in the southern countries such as Spain (7 kg/capita/year), Cyprus (9 kg/capita/year) and Greece (15 kg/capita/year). The lowest supply levels were observed in the Baltic countries and Slovenia (about 1 kg/capita/year). The supply of oil crops was almost twice as high in the South region as in the West and Central and East regions, and almost three times higher than in the northern countries.

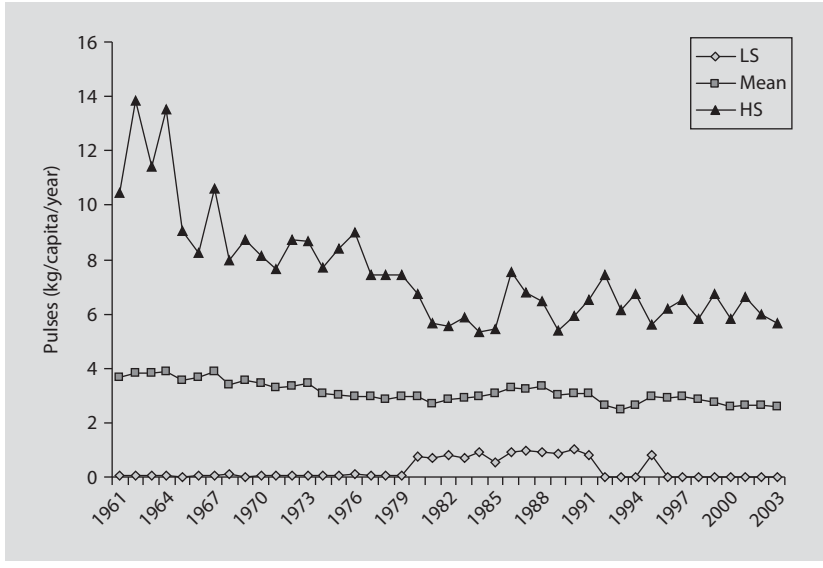

Fig. 4.6. Average supply of pulses in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = ES, LS = LV. *Source of raw data:* FAO, 2009.

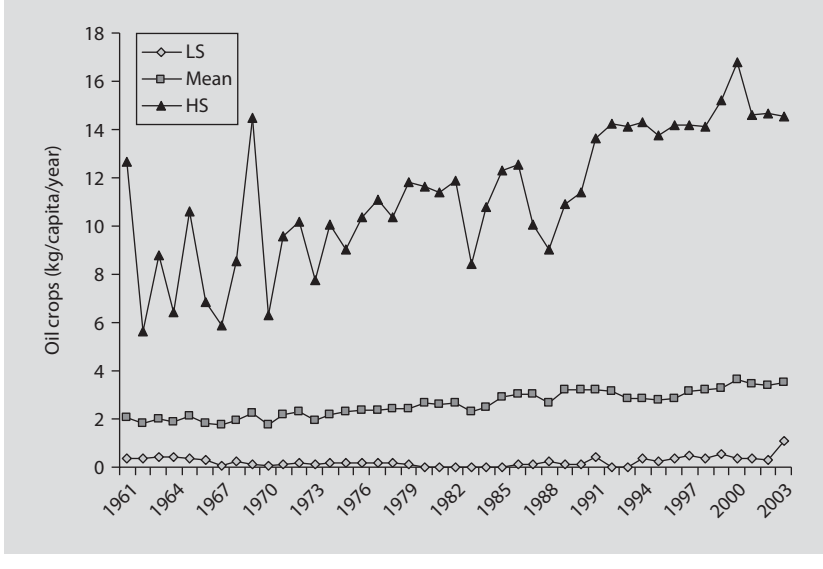

Fig. 4.7. Average supply of oil crops in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = GR, LS = EE. *Source of raw data:* FAO, 2009.

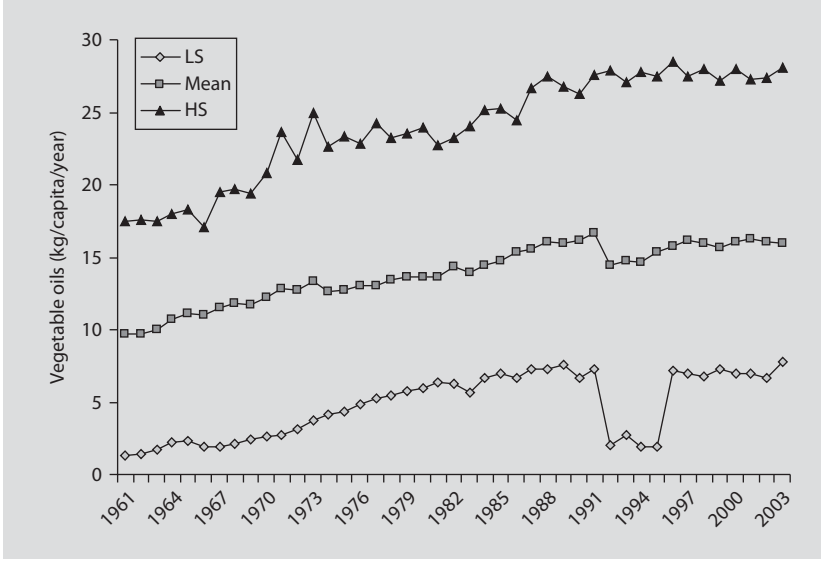

Fig. 4.8. Average supply of vegetable oils in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = ES, LS = DK. *Source of raw data:* FAO, 2009.

Vegetable Oils

The average supply of vegetable oils in the participating countries increased from 1961 to 2003 (fig. 4.8). As was the case with the supply of oil crops, the highest supply levels in 2003 were found in the southern countries (25–28 kg/capita/year). The lowest supply levels were reported in Denmark, Estonia, and Slovenia (<10 kg/capita/year). A South-North gradient can also be observed.

Olive Oil

Although there was an increase of the supply of vegetable oils, the mean supply of olive oil barely changed in the period of 1961–2003 (fig. 4.9). The highest supply was observed in Greece (16 kg/capita/year) followed by Italy (13 kg/capita/year) and Spain (12 kg/capita/year). In general, the southern countries showed a higher supply than the countries in North, West, East, and Central Europe. Romania, Lithuania, and Poland showed the lowest supply.

Animal Fats

In the past four decades, the supply of animal fats remained relatively constant (fig. 4.10). The highest and lowest supply levels were contrary to the supply of vegetable oils. The southern countries showed the lowest supply. The highest supply in 2003 was reported in Hungary (28 kg/capita/year) and the lowest in Cyprus (3 kg/capita/year).

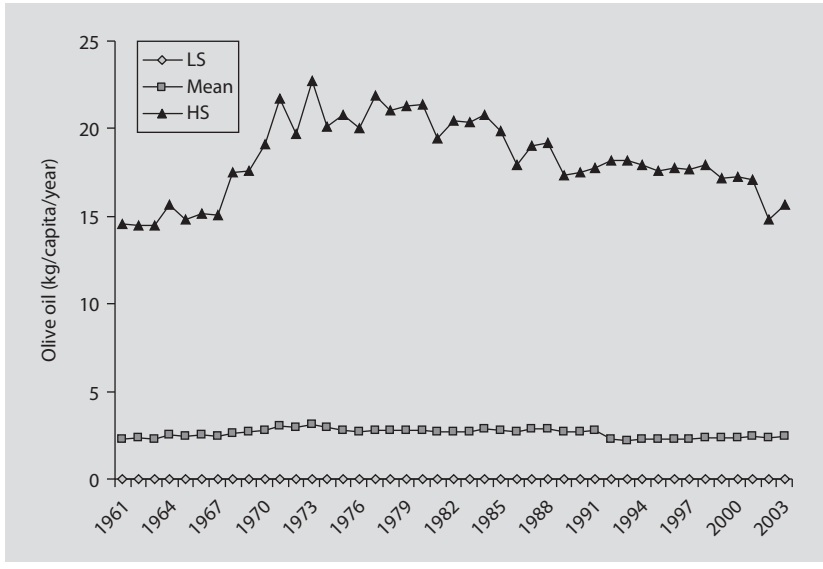

Fig. 4.9. Average supply of olive oil in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = GR, LS = RO. *Source of raw data:* FAO, 2009.

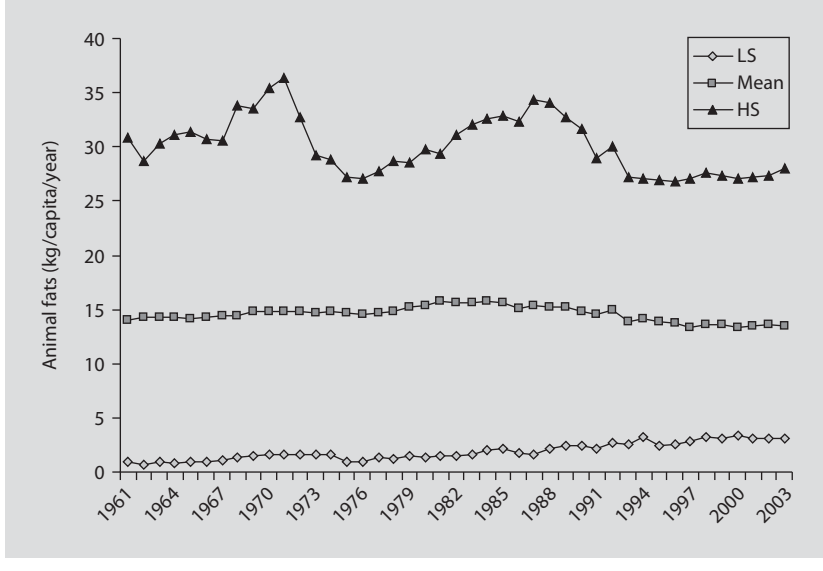

Fig. 4.10. Average supply of animal fats in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = HU, LS = CY. *Source of raw data:* FAO, 2009.

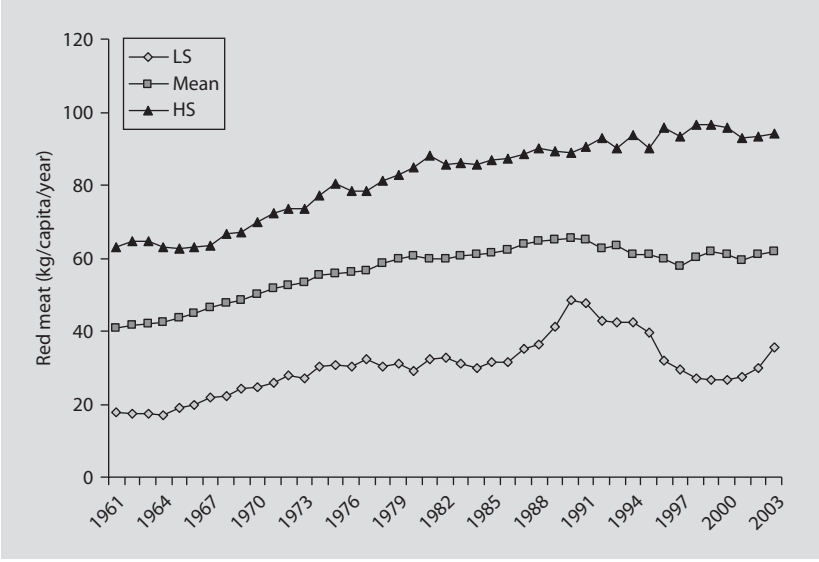

Fig. 4.11. Average supply of red meat in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = AT, LS = LV. *Source of raw data:* FAO, 2009.

Red Meat

The supply of red meat has shown an undesirable increase during the past 40 years (fig. 4.11). In 2003 the supply was highest in Austria with 94 kg/capita/year and lowest in Latvia with 35 kg/capita/year. Between the regions, no big difference can be observed.

Bovine Meat

Figure 4.12 shows the mean supply of bovine meat in the participating countries from 1961 to 2003. It scarcely changed during the past four decades. In 2003, the highest supply was observed in Denmark (29 kg/capita/year) followed by France (26 kg/capita/year) and Italy (25 kg/capita/year). Hungary showed the lowest supply with 6 kg/capita/year. In 2003, the supply of bovine meat was highest in the West region followed by the North and South regions. The lowest supply was found in the East and Central European countries.

Pork

The supply of pork showed an increase in the past 40 years. The supply nearly doubled from 1961 to 2003 (fig. 4.13). The lowest supply in 2003 was observed in Latvia with 25 kg/capita/year and the highest supply in Austria with 74 kg/capita/year. Regarding the different regions, no big difference can be observed, although the supply was a little bit lower in the North and West regions than in the South and Central and East regions.

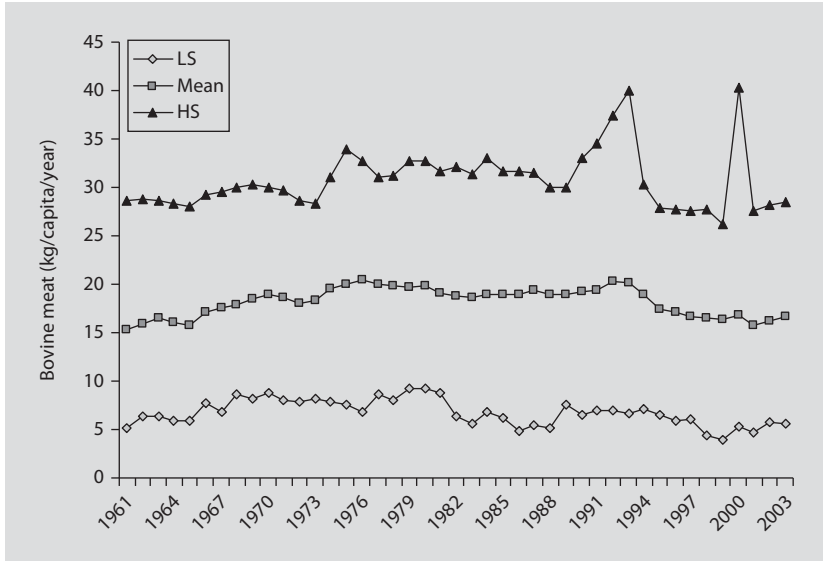

Fig. 4.12. Average supply of bovine meat in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = DK, LS = HU. *Source of raw data:* FAO, 2009.

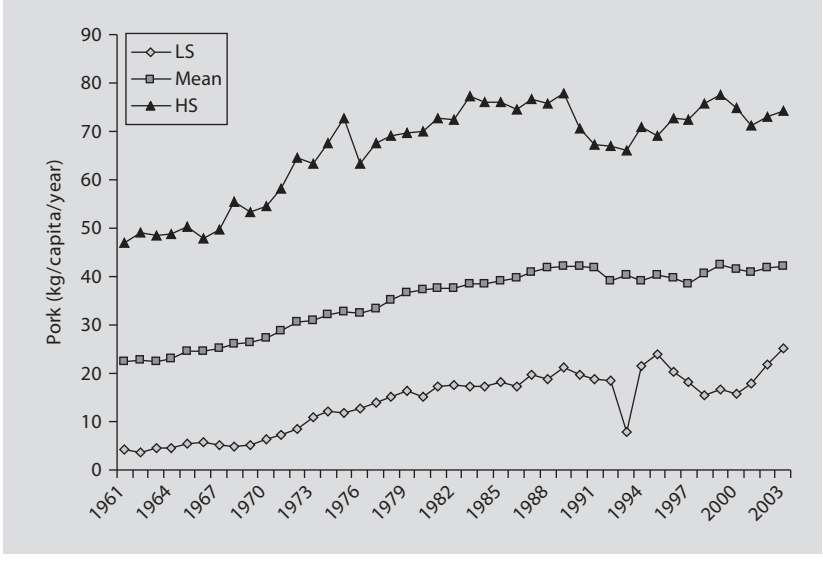

Fig. 4.13. Average supply of pork in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = AT, LS = LV. *Source of raw data:* FAO, 2009.

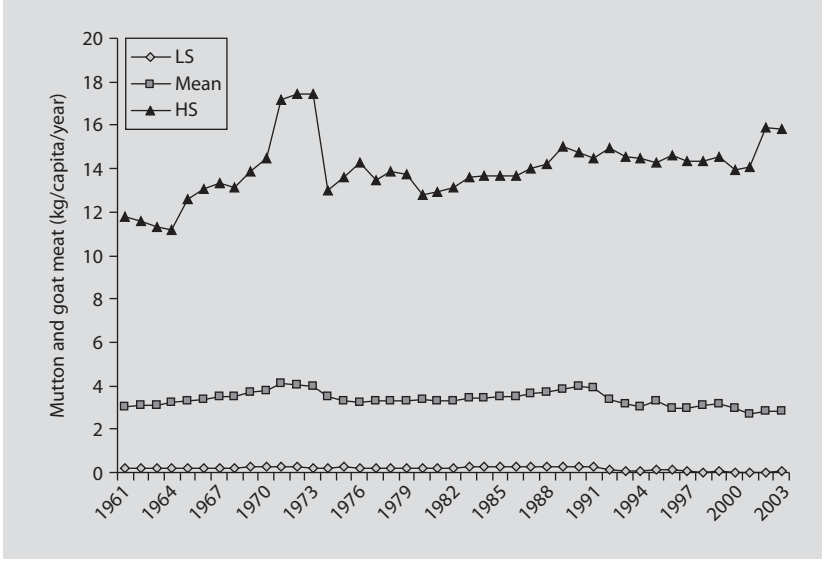

Fig. 4.14. Average supply of mutton and goat meat in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = CY, LS = PL. *Source of raw data:* FAO, 2009.

Mutton and Goat Meat

Figure 4.14 shows the average supply of mutton and goat meat in the participating countries during the past four decades. The supply remained relatively constant. In 2003, the supply was at its highest in Cyprus (16 kg/capita/year) followed by Greece (12 kg/capita/year) and Spain (6 kg/capita/year). The lowest supply was observed in Poland. In the South and West regions the supply was four times higher as in the North and Central and East regions.

Poultry

In 2003, the mean supply of poultry was almost five times higher than in 1961 (fig. 4.15). Cyprus showed in 2003 the highest supply with 37 kg/capita/year and The Netherlands the lowest supply with 9 kg/capita/year. Concerning the different regions, no big difference can be observed.

Fish and Seafood

As shown in figure 4.16, the average supply of fish and seafood in the participating countries increased from 1961 to 2003. The highest supply levels were observed in the northern and southern countries such as Lithuania and Portugal (60 kg/capita/year). Romania showed the lowest supply with 3 kg/capita/year. Hence the supply is higher in the North and South regions than in the West region. The Central and East region showed the lowest supply.

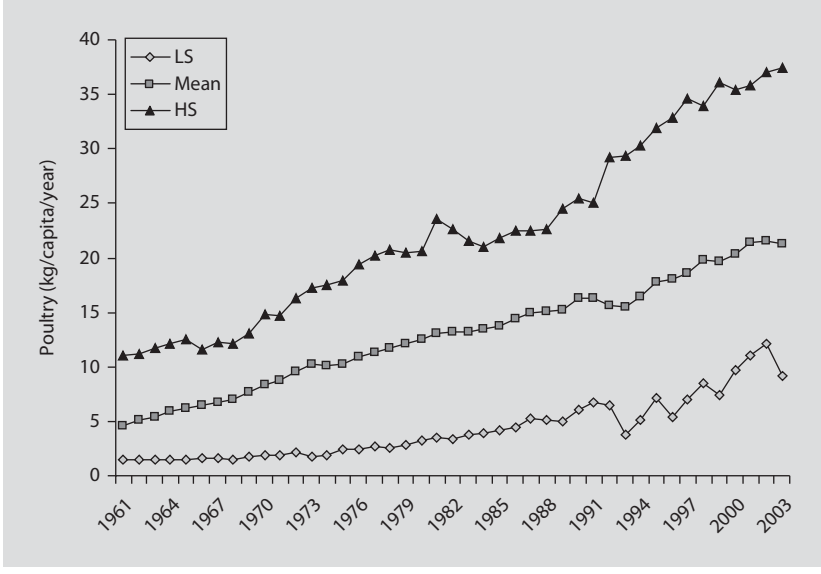

Fig. 4.15. Average supply of poultry in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = CY, LS = NL. *Source of raw data:* FAO, 2009.

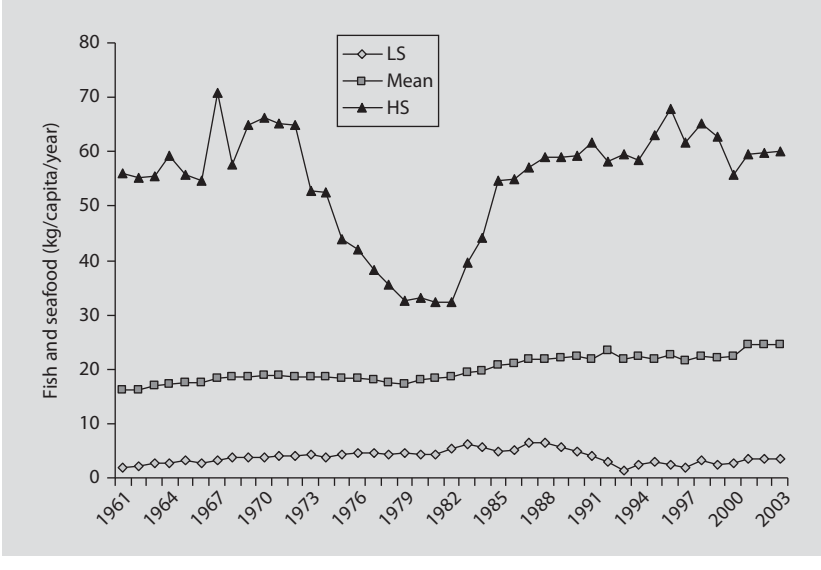

Fig. 4.16. Average supply of fish and seafood in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = LT, LS = RO. *Source of raw data:* FAO, 2009.

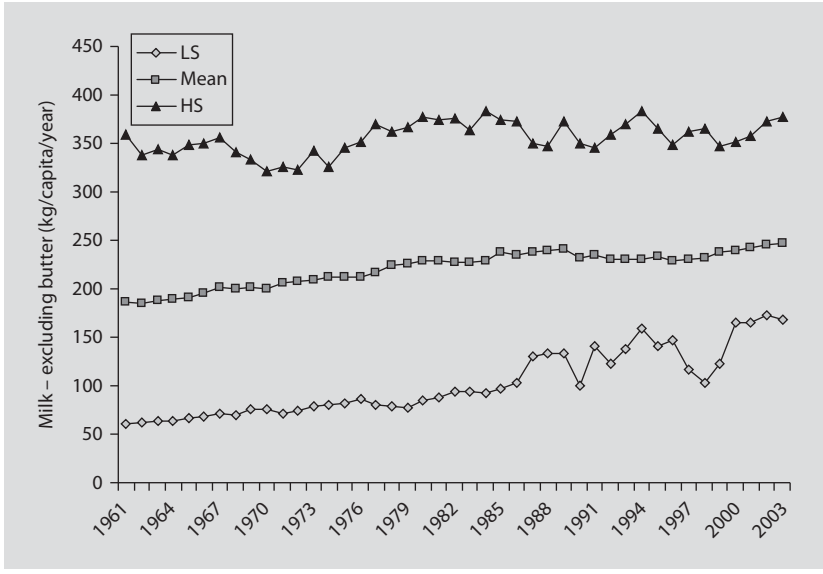

Fig. 4.17. Average supply of milk and milk products – excluding butter in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = SE, LS = HU. *Source of raw data:* FAO, 2009.

Milk and Milk Products – Excluding Butter

Figure 4.17 shows the amount of milk available in the participating countries in the past 40 years. From 1961 to 2003, an increase was observed. In 2003, the Nordic countries Sweden and Finland showed the highest supply (378 kg/capita/year respectively 356 kg/capita/year). The lowest supply was recorded in Hungary with 169 kg/capita/year. Regarding the different regions, it can be observed that the supply was higher in the North and West regions than in the South and Central and East regions.

Eggs

The mean supply of eggs increased slightly over the past four decades (fig. 4.18). In 2003, Denmark and Hungary showed the highest supply (17 kg/capita/year). The lowest supply was observed in Ireland and Slovenia (7 kg/capita/year) followed by Finland with 8 kg/capita/year. Concerning the different regions, no big difference was observed.

Beer

The average supply of beer doubled in the past 40 years in the participating countries (fig. 4.19). In 2003, Ireland showed the highest supply with 190 kg/capita/year. The supply was lowest in the southern countries such as Italy (30 kg/capita/year), France (30 kg/capita/year) and Greece (33 kg/capita/year). The highest supply was recorded in the Central and East region followed by the West and North regions. The lowest supply was reported in the South region.

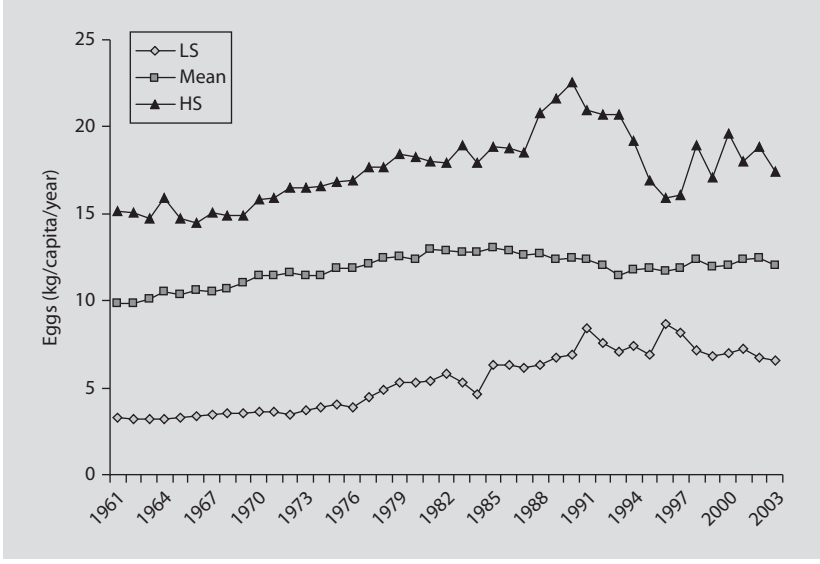

Fig. 4.18. Average supply of eggs in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = DK, LS = IE. *Source of raw data:* FAO, 2009.

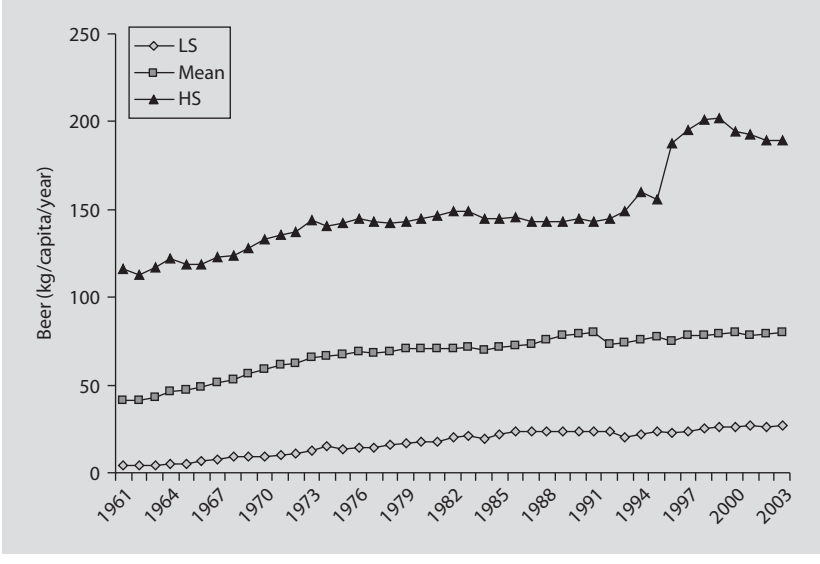

Fig. 4.19. Average supply of beer in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = IE, LS = IT. *Source of raw data:* FAO, 2009.

Wine

The mean wine supply slightly decreased in the participating countries from 1961 to 2003 (fig. 4.20). In contrast to the beer supply, where the southern countries showed the lowest supply, they showed highest supply in the case of the wine supply (France: 54 kg/capita/year, Portugal: 53 kg/capita/year, Italy: 51 kg/capita/year). The lowest supply was reported in Poland with 2 kg/capita/year. Regarding the different regions, a South-North gradient can be observed.

Comparison of the Proportion of Macronutrients in Total Energy Supply

The proportion of macronutrients was calculated using the Atwater conversion factors (1 g protein = 4 kcal, 1 g carbohydrates = 4 kcal, 1 g fat = 9 kcal). Carbohydrates (E%) were calculated by difference. Whereas the FBS provide only data for protein and fat, the difference includes carbohydrates as well as alcohol. Because no generally accepted factor for the alcohol content of alcoholic beverages exists, the calculations were done exclusive of alcohol.

Figure 4.21 shows the comparison of the mean development of the supply of the proportion of macronutrients from 1961 and 2003. Whereas there was no change in the proportion of protein, the proportion of fat increased and the proportion of carbohydrates decreased.

Comparison of the Proportion of Animal and Vegetable Products in Total Energy Supply

The proportion of animal and vegetable products in total energy supply slightly changed from 1961 to 2003 in most of the participating countries. Noteworthy is that the proportion of animal products in total energy supply strongly increased over the past four decades in the southern European countries Cyprus, Greece, Italy, Portugal and Spain as well as in Romania, whereas the proportion of vegetable products in total energy supply decreased (cf. table 4.2).

Concerning the different regions, the proportion of animal products in total energy supply remained relatively constant in the West region, decreased slightly in the North region, increased in the Central and East region and increased markedly in the South region over the past 40 years (cf. table 4.3).

Comparison of the Supply of Different Food Groups (1961 and 2003)

Figure 4.22 shows the differences in mean supply of selected food groups in the participating countries. The basis for this graph are the differences of the average supply of the year 2003 (A) from the average supply of the year 1961 (B): Formula: ((A – B)/A)100 = % difference). Concerning most of the food groups, an increase can be observed except for pulses, potatoes, wine, cereals and mutton and goat meat. The supply of animal fats remained relatively constant.

The following figures (fig. 4.23–4.36) show the region-specific comparison indicating the change in the supply of different food groups from 1961 to 2003; for this purpose the minimum and maximum from every region are presented.

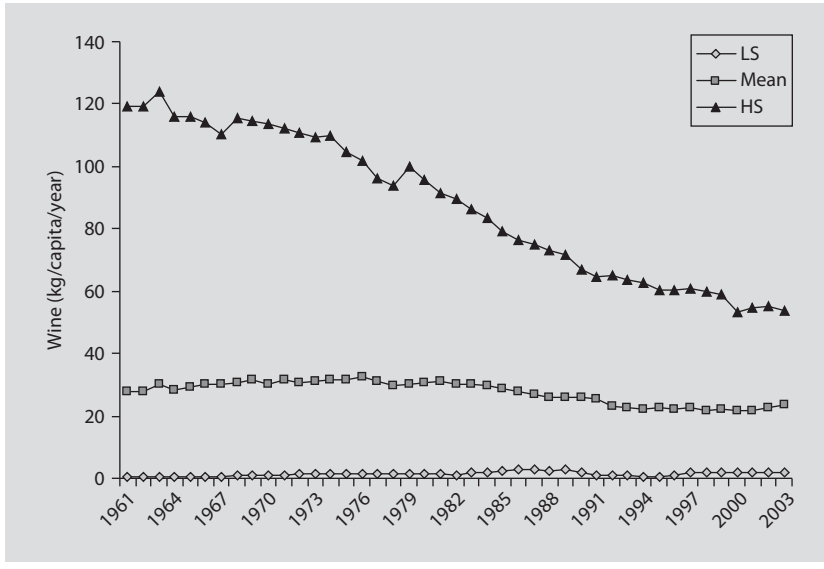

Fig. 4.20. Average supply of wine in the participating countries. HS = Highest supply; LS = lowest supply. 2003: HS = FR, LS = PL. *Source of raw data:* FAO, 2009.

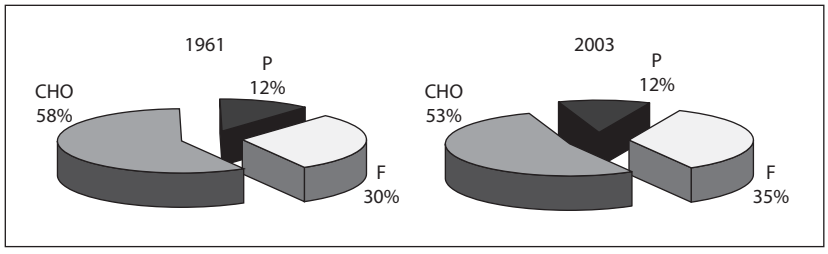

Fig. 4.21. Comparison of the proportion of macronutrients in the participating countries. P = Protein; CHO = carbohydrates incl. alcohol; F = fat. *Source of raw data:* FAO, 2009.

Cereals and Potatoes

Figures 4.23 and 4.24 show the change in the supply of cereals and potatoes in the four regions. The supply of cereals increased in the North region during the last 40 years; in the other regions a slight decrease can be observed. The supply of potatoes decreased in the West and Central and East regions and stayed relatively constant in the South region. In the North region the gap between minimum and maximum has been widening.

Fruit, Vegetables and Pulses

The supply of fruit increased from 1961 to 2003 in every region (fig. 4.25). The supply of vegetables increased in the North, South as well as the Central and East regions. In the West region a slight decrease can be observed (fig. 4.26). Concerning the supply of pulses, a decrease can be observed in the South and Central and East regions and an increase in the North and West regions (fig. 4.27).

Table 4.2. Comparison of the proportion of animal and vegetable products in total energy supply in the participating countries

	Animal products, %E		Vegetable products, %E	
	1961	2003	1961	2003
Austria	32	33	68	67
Belgium-Luxembourg	33	31	67	69
Cyprus	13	30	87	70
Czech Republic	n.a.	25	n.a.	75
Denmark	36	36	64	64
Estonia	n.a.	26	n.a.	74
Finland	39	37	61	63
France	32	37	68	63
Germany	33	31	67	69
Greece	13	23	87	77
Hungary	31	32	69	68
Ireland	36	32	64	68
Italy	16	26	84	74
Latvia	n.a.	28	n.a.	72
Lithuania	n.a.	27	n.a.	73
Poland	28	26	72	74
Portugal	14	29	86	71
Romania	15	23	85	77
Slovenia	n.a.	31	n.a.	69
Spain	13	28	87	72
Sweden	37	36	63	64
The Netherlands	30	30	70	70
United Kingdom	39	31	61	69

Source of raw data: FAO, 2009

Table 4.3. Comparison of the proportion of animal and vegetable products in total energy supply (min-max) in the four different regions

	Animal products, %E		Vegetable products, %E	
	1961	2003	1961	2003
North	36–39	26–37	61–64	63–74
South	13–16	23–30	84–87	70–77
West	30–39	30–37	61–70	63–70
Central and East	15–33	25–33	67–85	67–77

Source of raw data: FAO, 2009

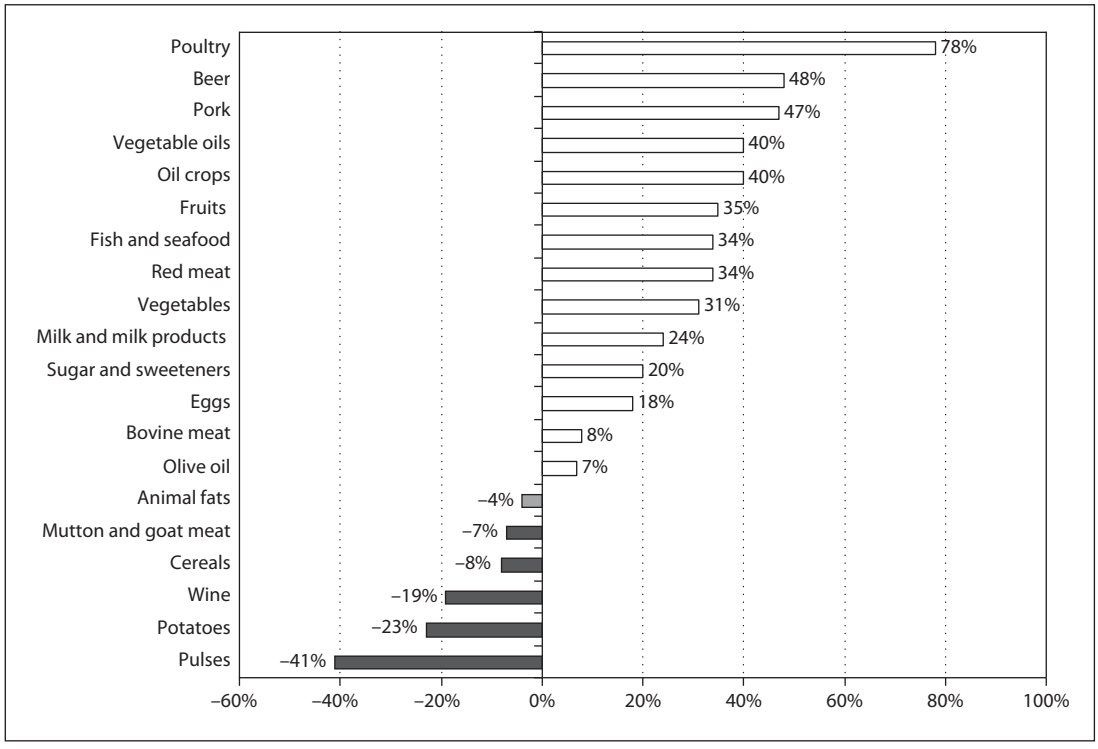

Fig. 4.22. Differences in mean supply of selected food groups in the participating countries (1961 and 2003). *Source of raw data:* FAO, 2009.

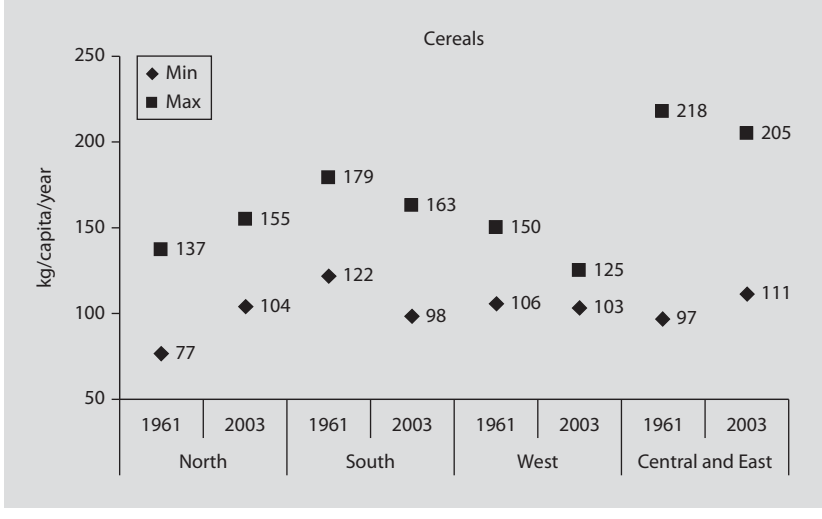

Fig. 4.23. Supply (min-max) of cereals in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

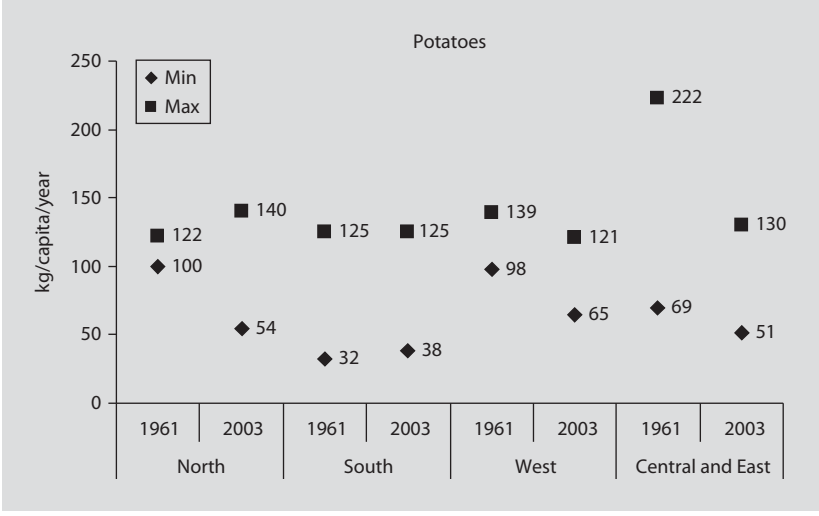

Fig. 4.24. Supply (min-max) of potatoes in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

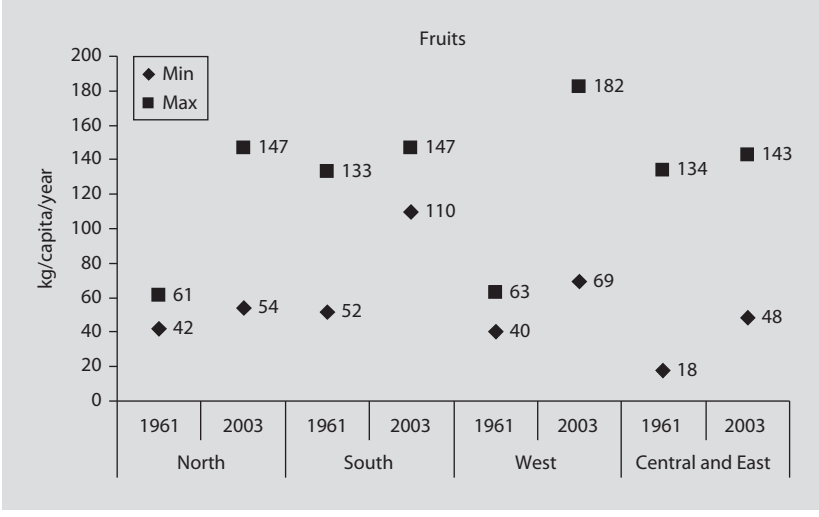

Fig. 4.25. Supply (min-max) of fruits in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

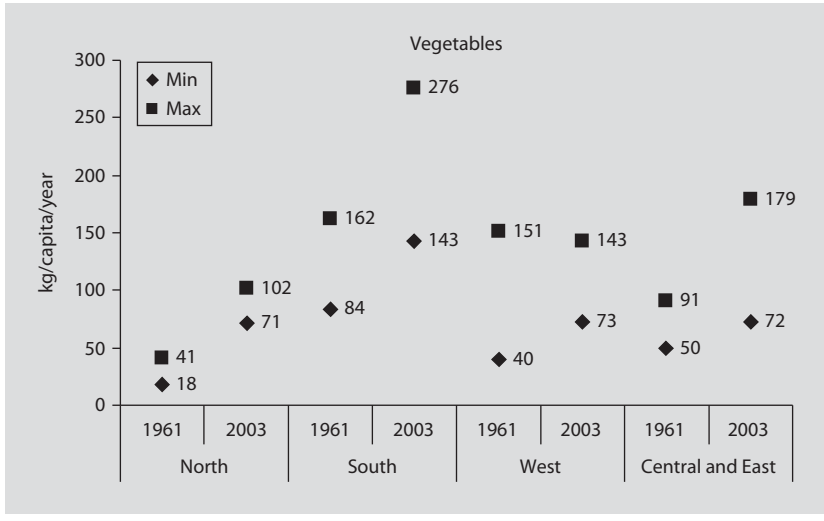

Fig. 4.26. Supply (min-max) of vegetables in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

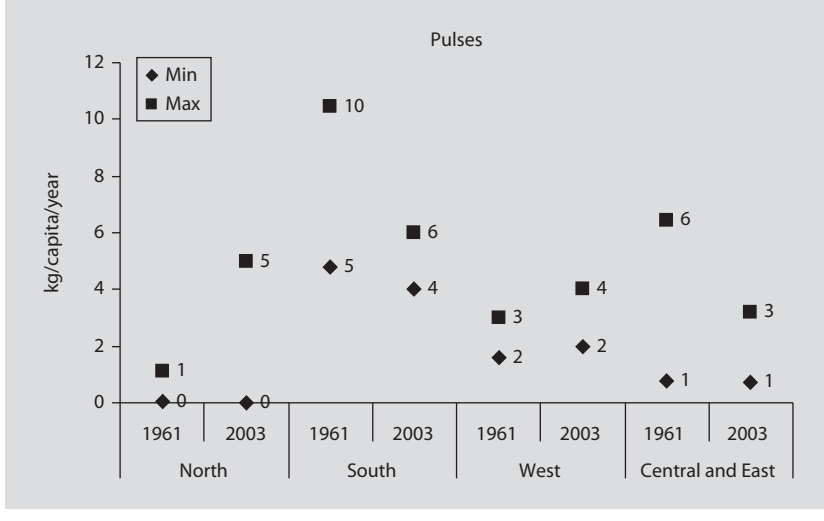

Fig. 4.27. Supply (min-max) of pulses in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

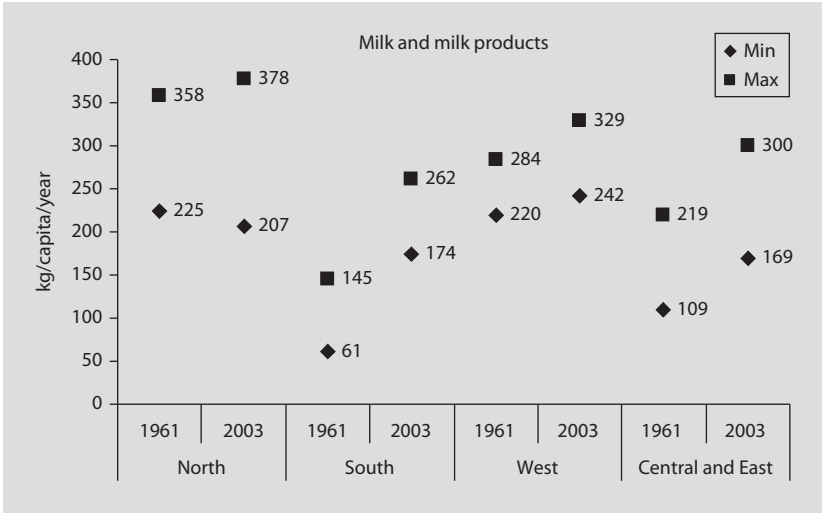

Fig. 4.28. Supply (min-max) of milk and milk products in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

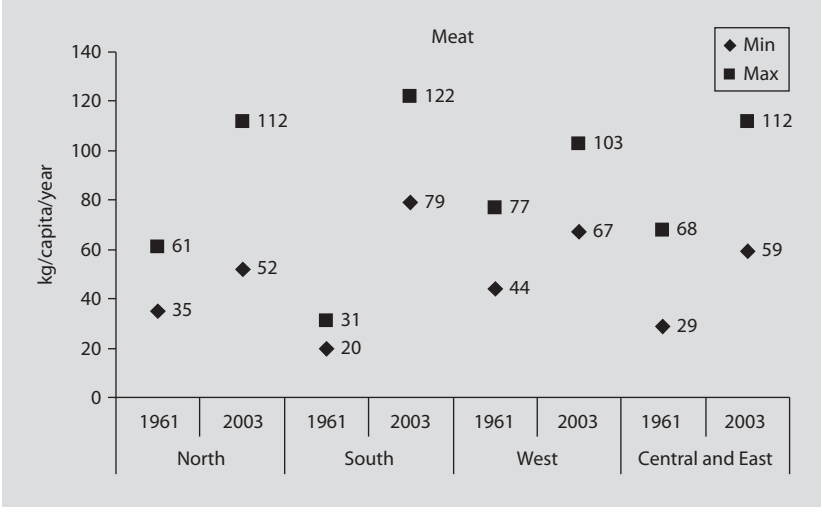

Fig. 4.29. Supply (min-max) of meat in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

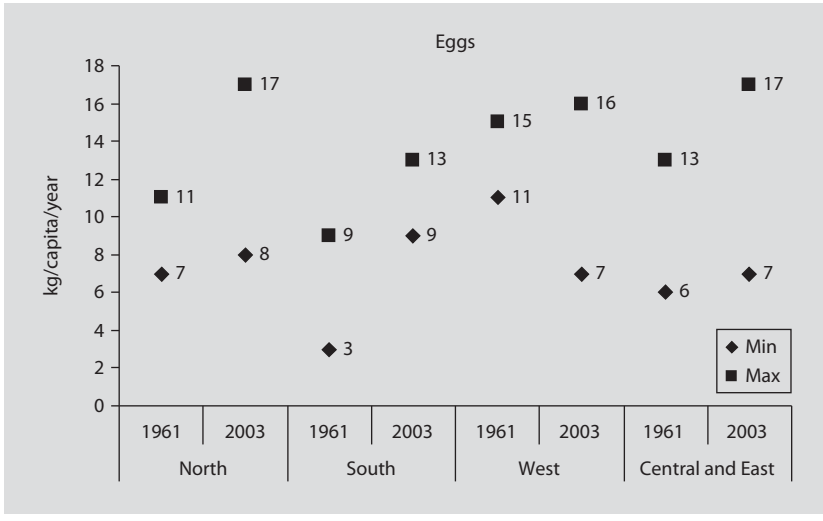

Fig. 4.30. Supply (min-max) of eggs in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

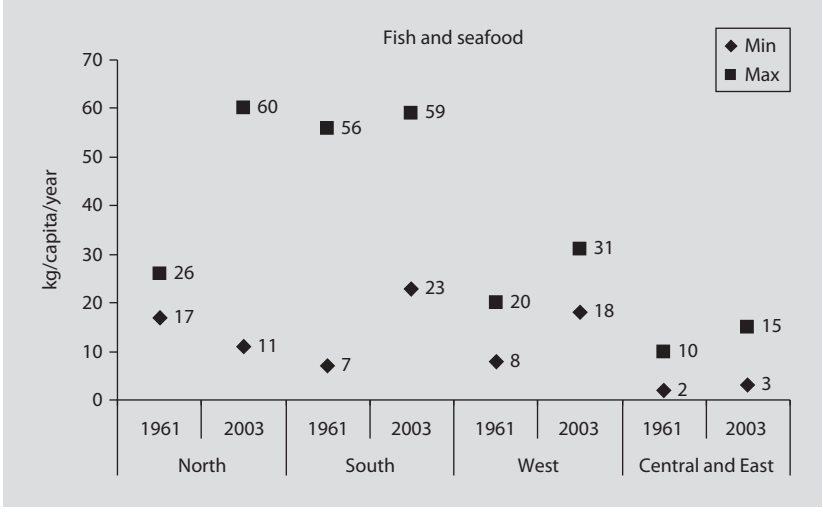

Fig. 4.31. Supply (min-max) of fish and seafood in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

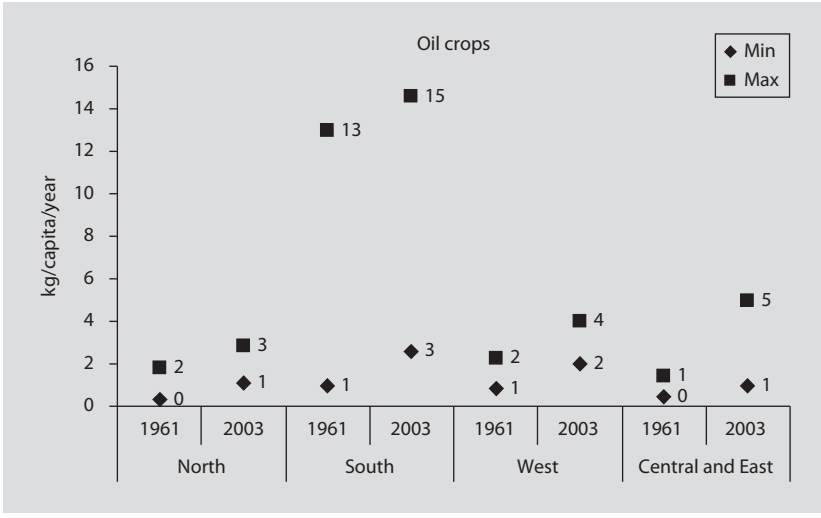

Fig. 4.32. Supply (min-max) of oil crops in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

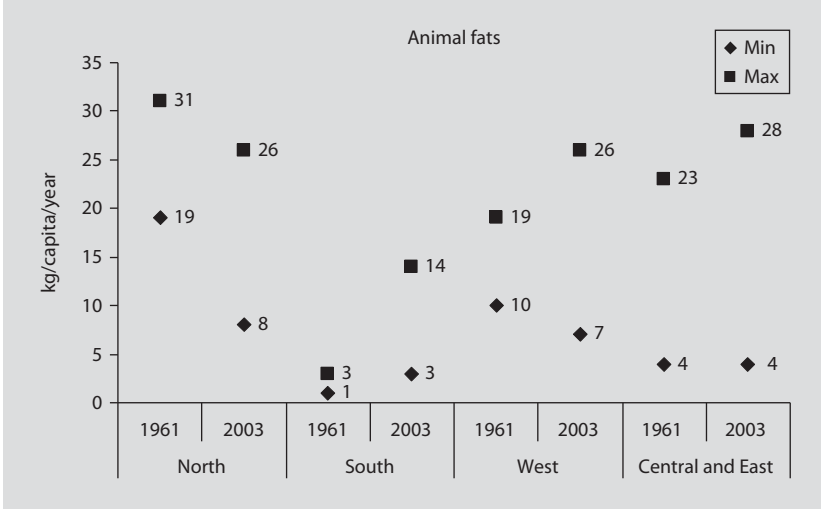

Fig. 4.33. Supply (min-max) of animal fats in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

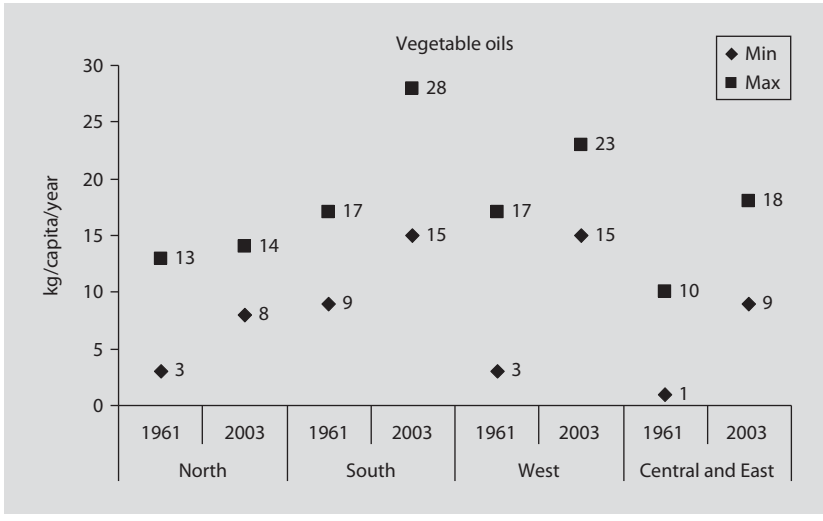

Fig. 4.34. Supply (min-max) of vegetable oils in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

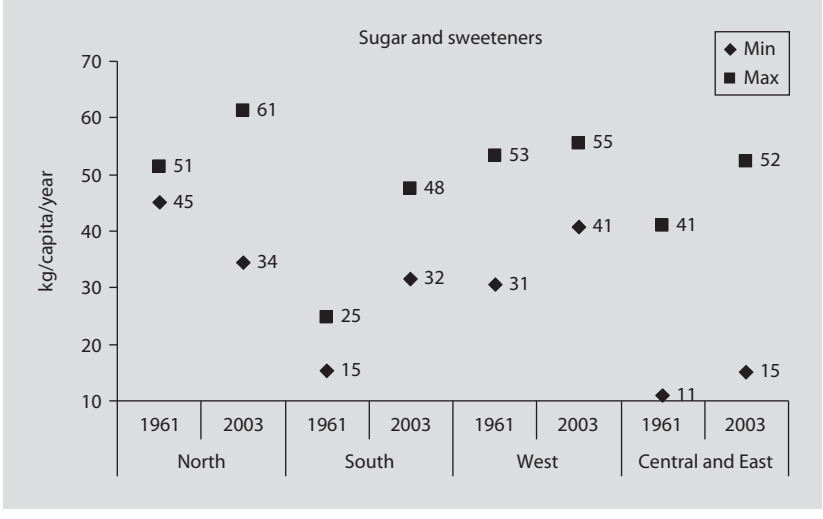

Fig. 4.35. Supply (min-max) of sugar and sweeteners in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

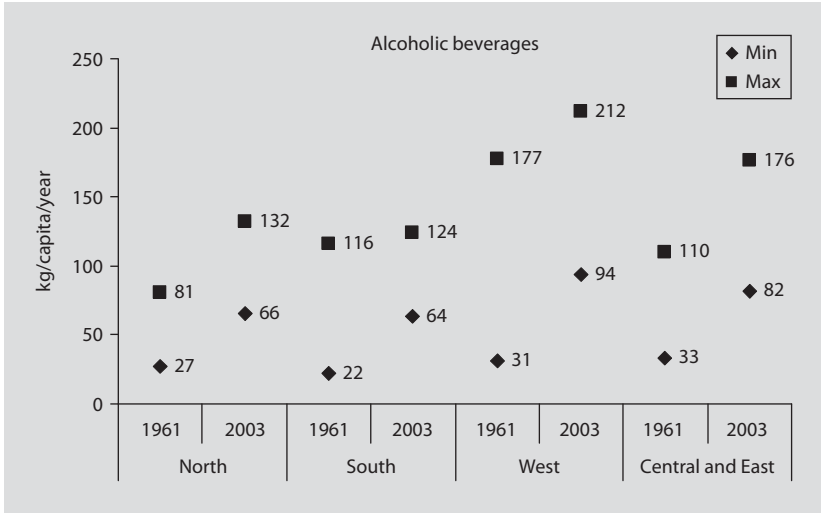

Fig. 4.36. Supply (min-max) of alcoholic beverages in the four regions (1961 and 2003). *Source of raw data:* FAO, 2009.

Milk and Milk Products

The supply of milk increased in every region except for the North region where it stayed relatively constant (fig. 4.28).

Animal Products – Excluding Milk

Figures 4.29–4.31 show the change in the supply of meat, eggs as well as fish and seafood in the four regions. In general an increase in the supply of animal products can be observed.

Fats, Oils and Sugar

The supply of oil crops increased in every region, whereas there was a strong increase of the maximum values in the South region (fig. 4.32). Both the supply of animal fats and the supply of vegetable oils increased over the past 40 years except for the North region where the supply of animal fats decreased (fig. 4.33, 4.34). The supply of sugar and sweeteners increased too. In the North region the gap between minimum and maximum has been widening (fig. 4.35).

Alcoholic Beverages

As shown in figure 4.36, the supply of alcoholic beverages increased over the past 40 years in every region.