

Consumer needs and health

Sabah Benjelloun, Ph.D.

Department of Food Science & Nutrition

**Institut Agronomique et Vétérinaire Hassan II
Rabat, Morocco**



Young Train Project Meeting

**Challenges to a Whole Chain Approach
to Meat Quality and Safety**

March 25, 2007

**Faculty of Agriculture, Ain Shams University,
Cairo, Egypt**

Outline

1. Meats supplies: past, present & future
2. Meat in Nutrition and health
3. Health problems in the region
4. Role of meat in a balanced diet
5. Conclusions & Recommendations

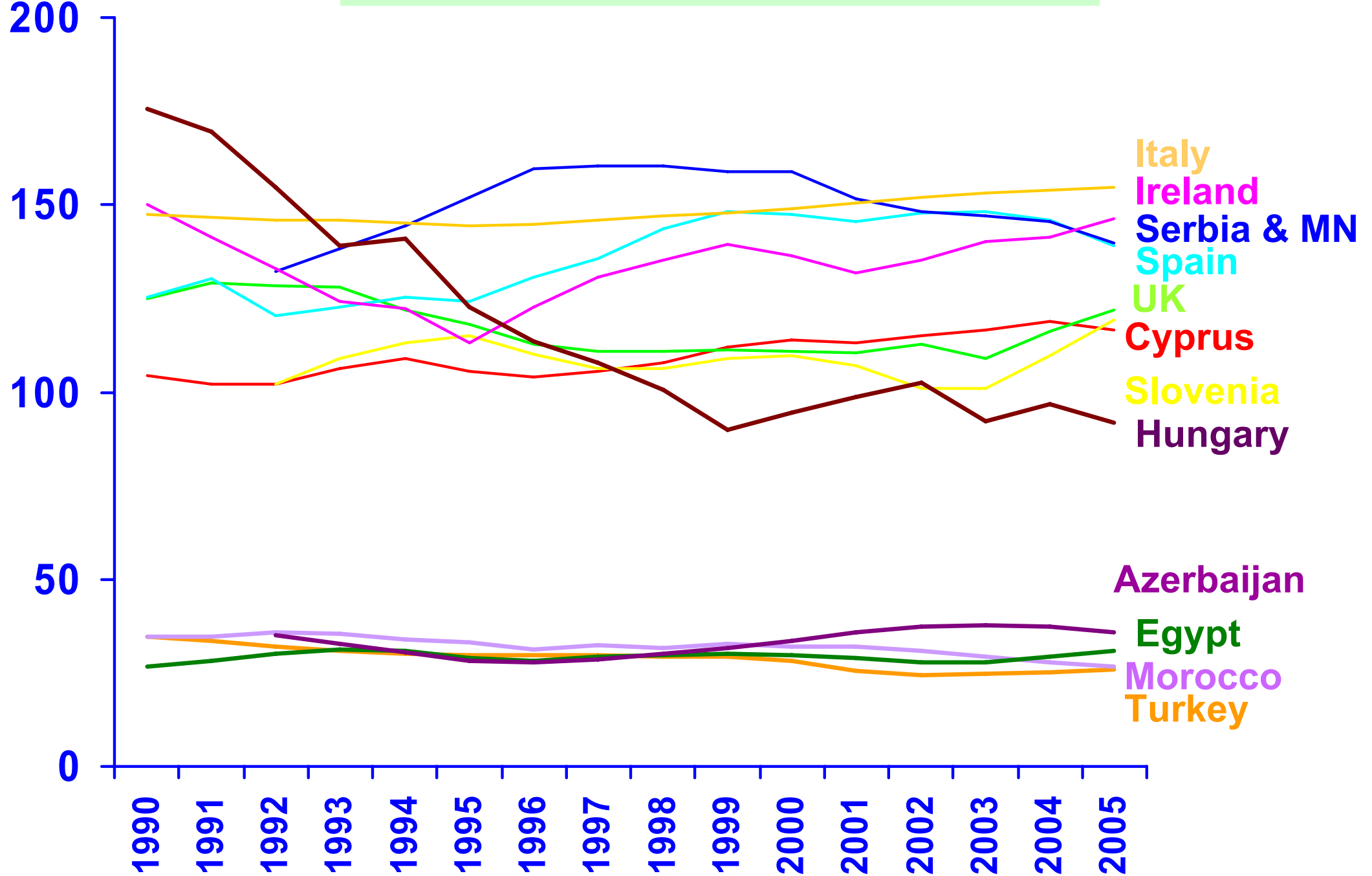
Outline

1. Meats supplies: past, present & future
2. Meat in Nutrition and health
3. Health problems in the region
4. Role of meat in a balanced diet
5. Conclusions & Recommendations

Trends in Red Meats supplies

(FAOSTAT, 2007)

Grams/capita/day



Current Red Meats supplies (Avg 2003-05)

(FAOSTAT, 2007)

Grams/capita/day

200

150

100

50

0

154

Italy

144

Spain

144

Serbia & MN

143

Ireland

117

Cyprus

116

UK

110

Slovenia

94

Hungary

37

Azerbaijan

29

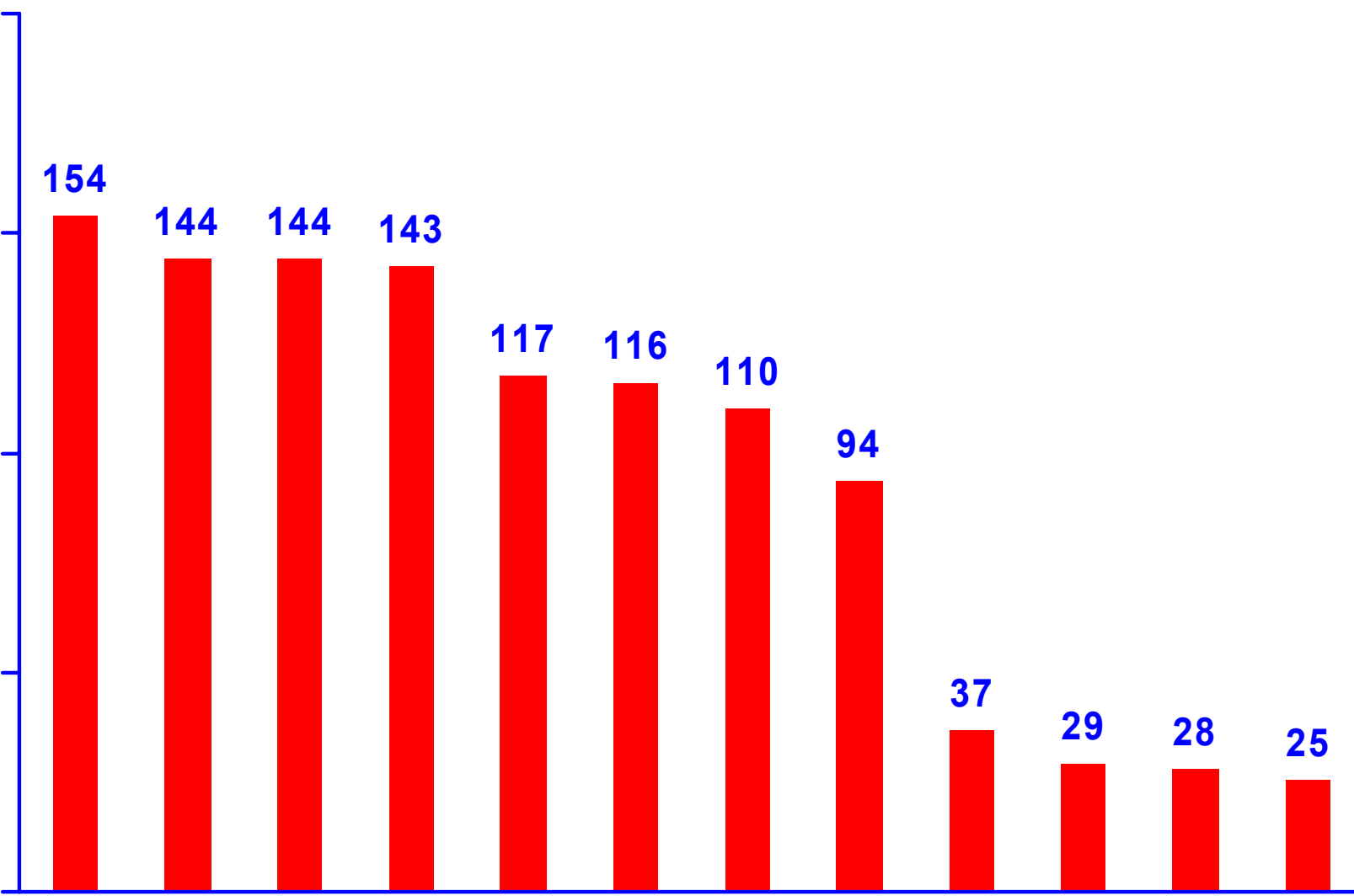
Egypt

28

Morocco

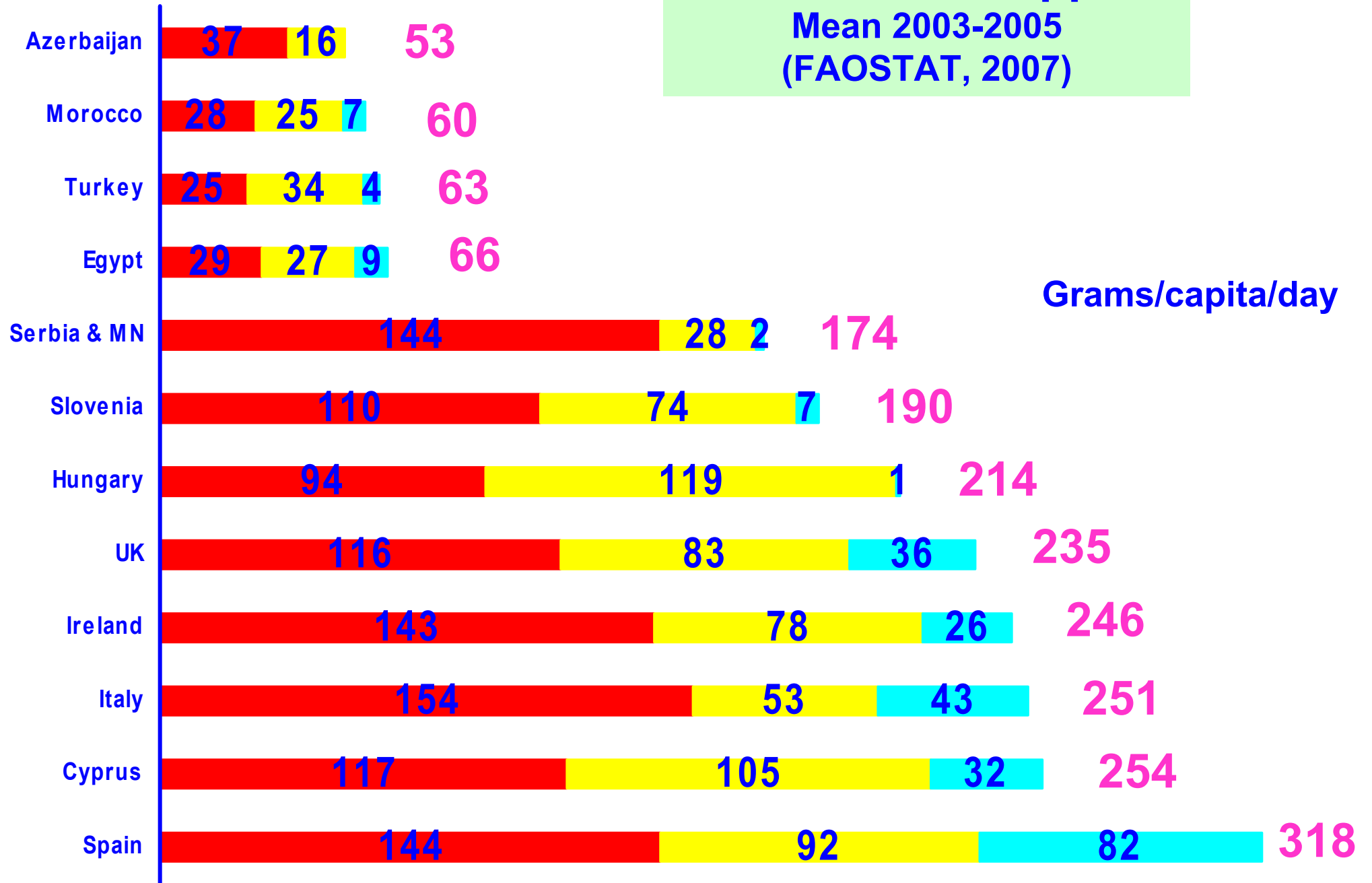
25

Turkey



Meats & Fish supplies

Mean 2003-2005
(FAOSTAT, 2007)



Grams/capita/day

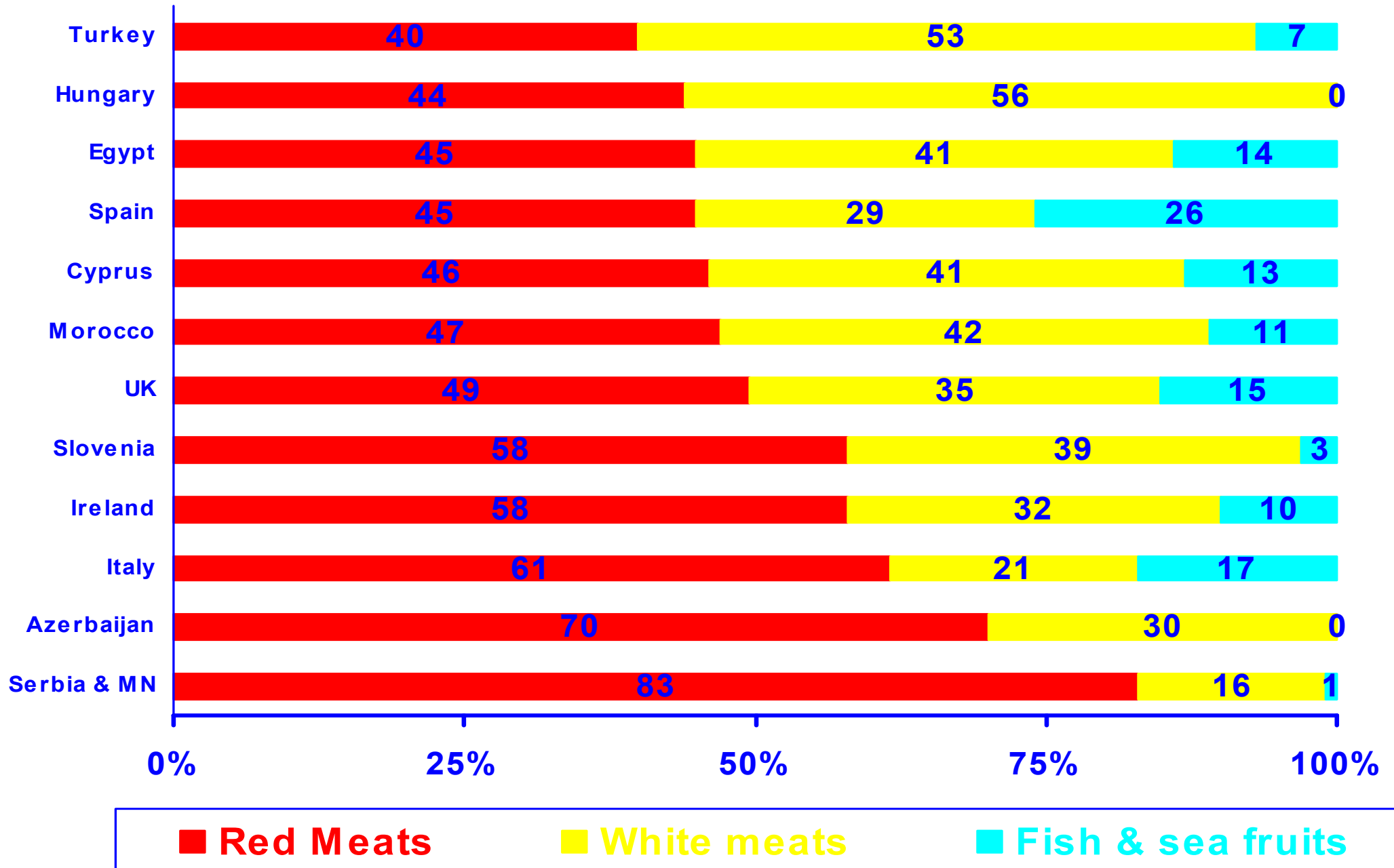
■ Red Meats

■ White Meats

■ Fish & Sea fruits

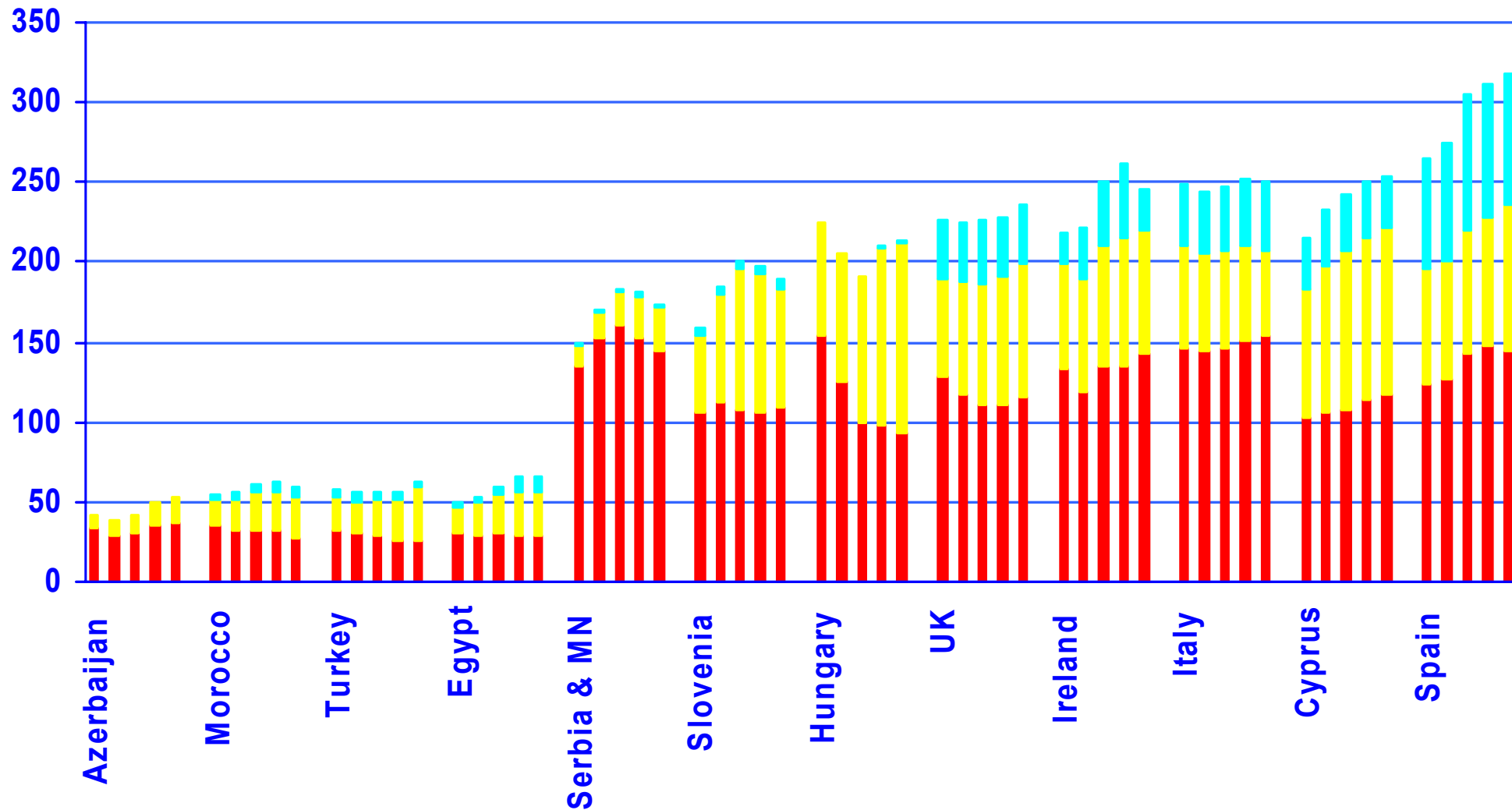
Meats & Fish supplies (%)

Mean 2003-2005
(FAOSTAT, 2007)



Evolution of supplies (FAOSTAT, 2007)

Grams/capita/day

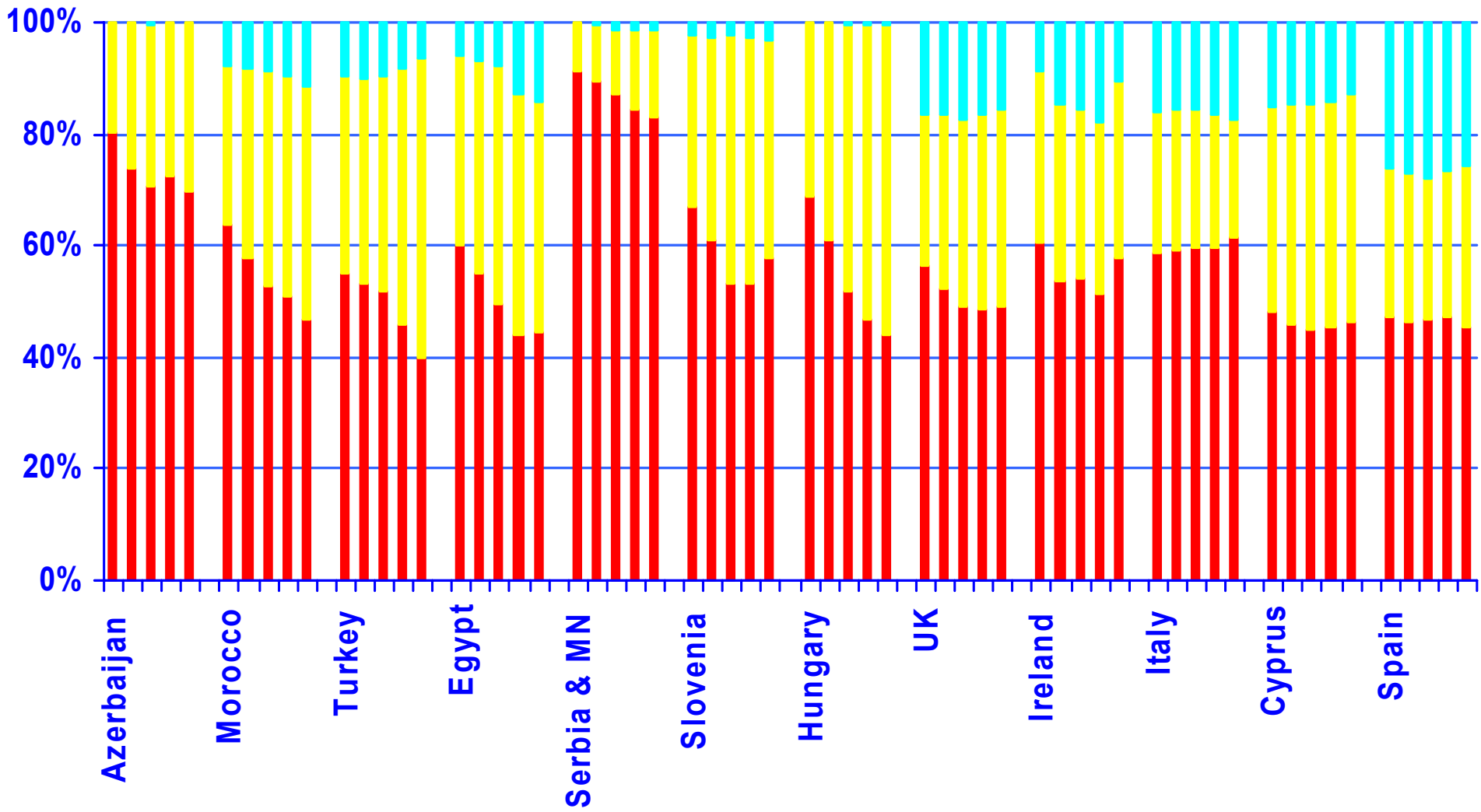


■ Red Meats
 ■ White Meats
 ■ Fish & Sea fruits

Averages: 1991-93; 1994-96; 1997-99; 2000-02; 2003-05

Evolution of supplies (%)

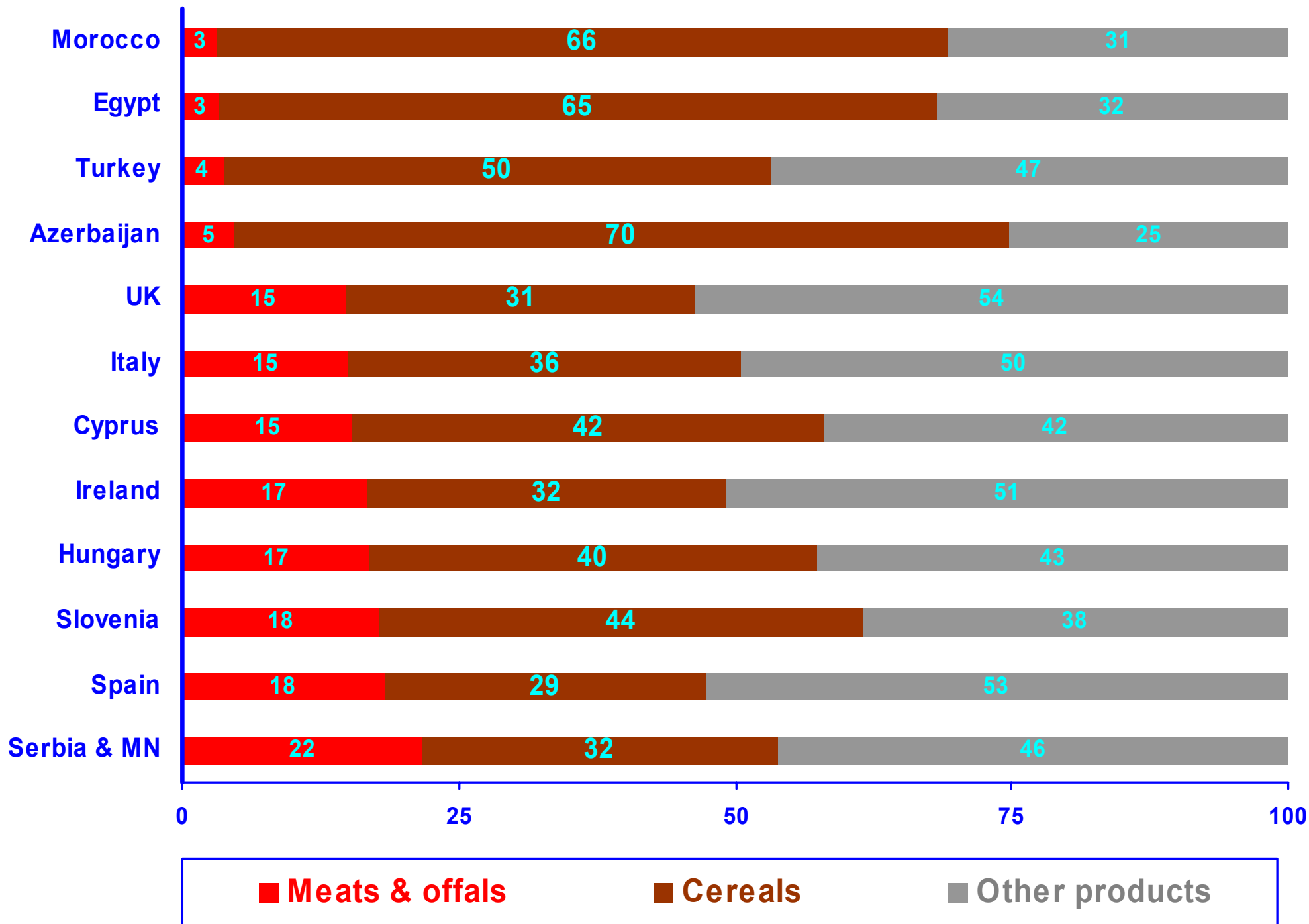
(FAOSTAT, 2007)



■ Red Meats
 ■ White Meats
 ■ Fish & Sea fruits

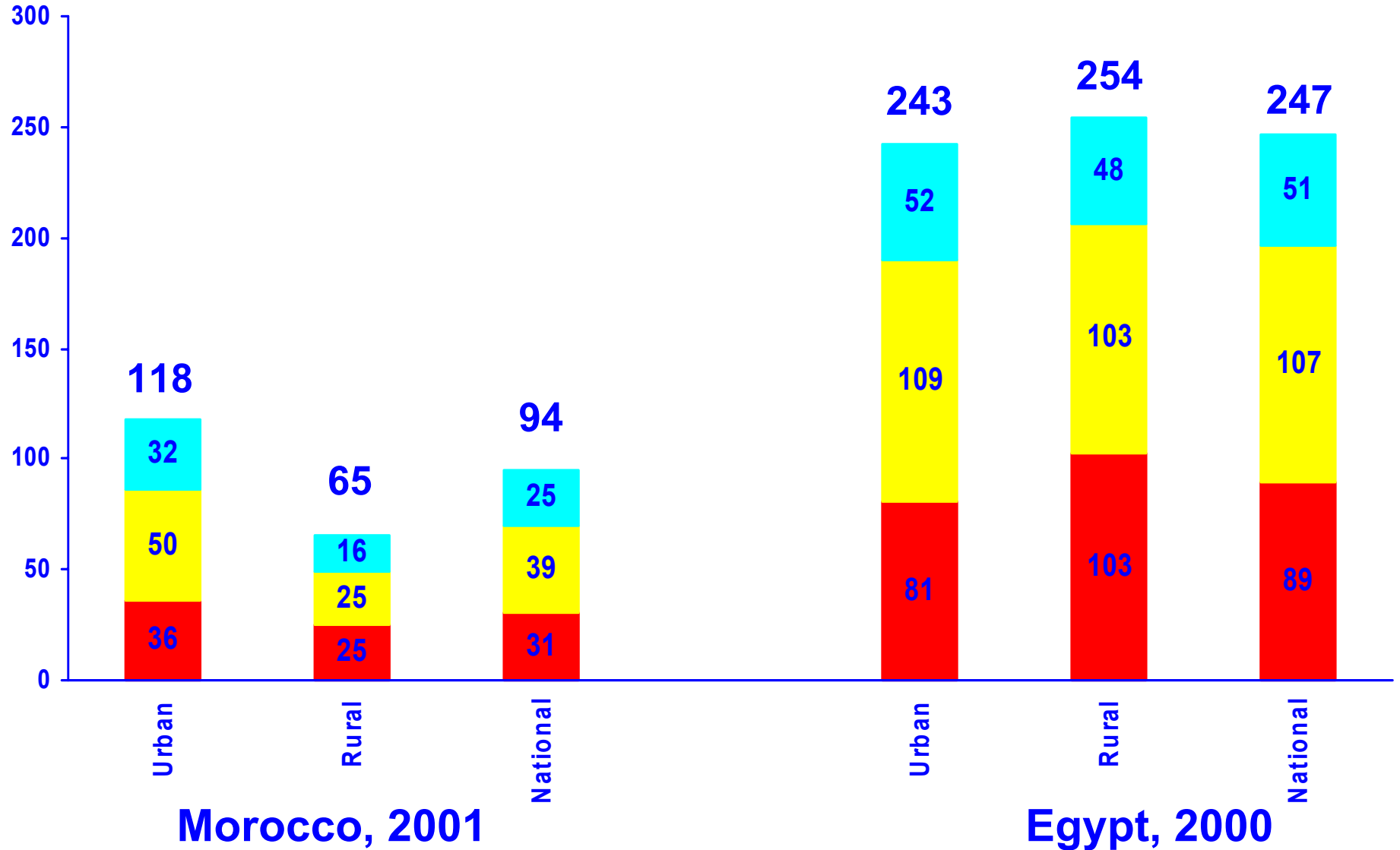
Averages: 1991-93; 1994-96; 1997-99; 2000-02; 2003-05

Origin of Calories (%) 2005



Intake of Meats (National household surveys)

Grams/person/day



■ Red Meats

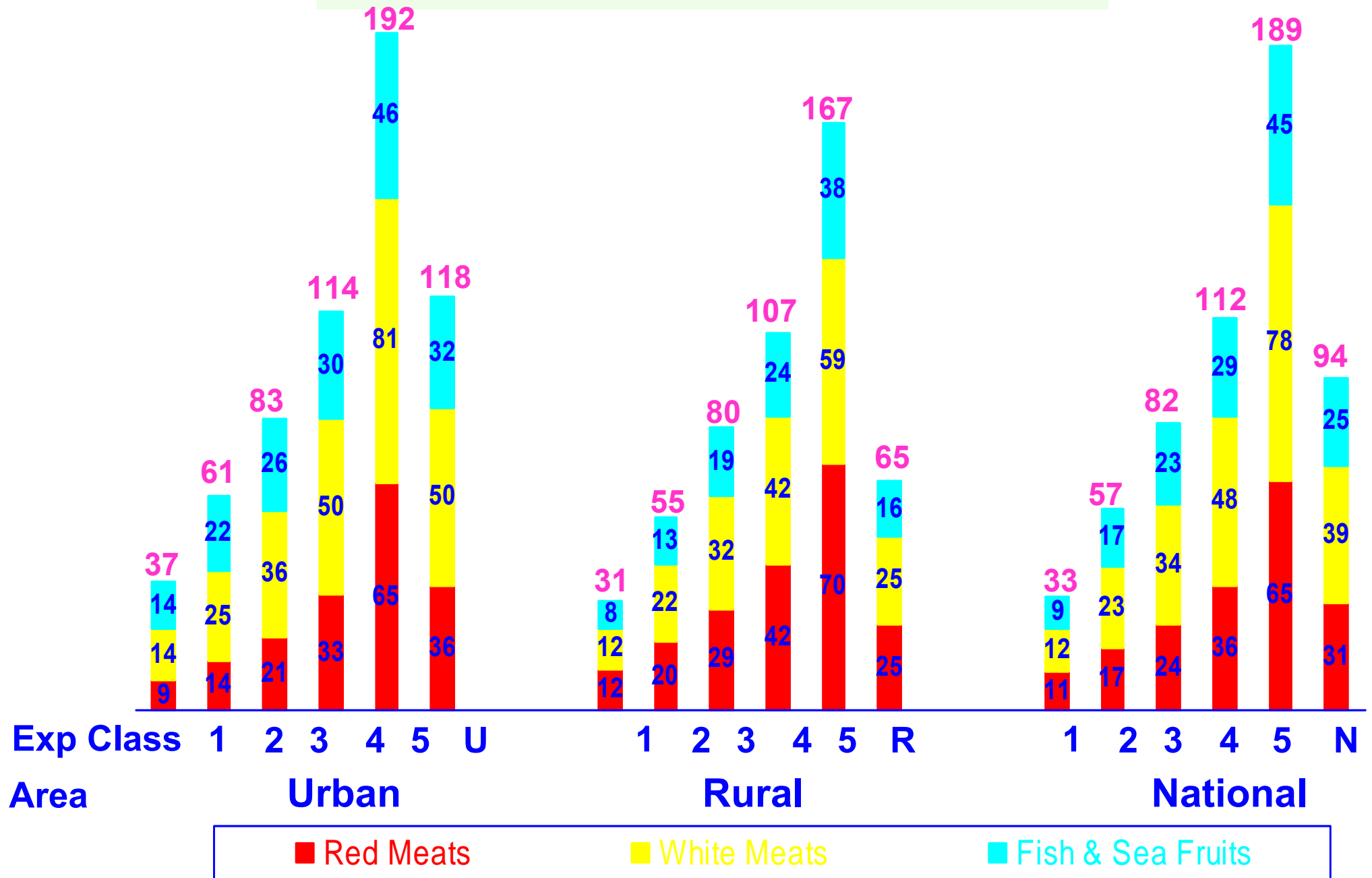
■ White Meats

■ Fish & Sea Fruits

Intake of Meats in Morocco

(grams/person/day)

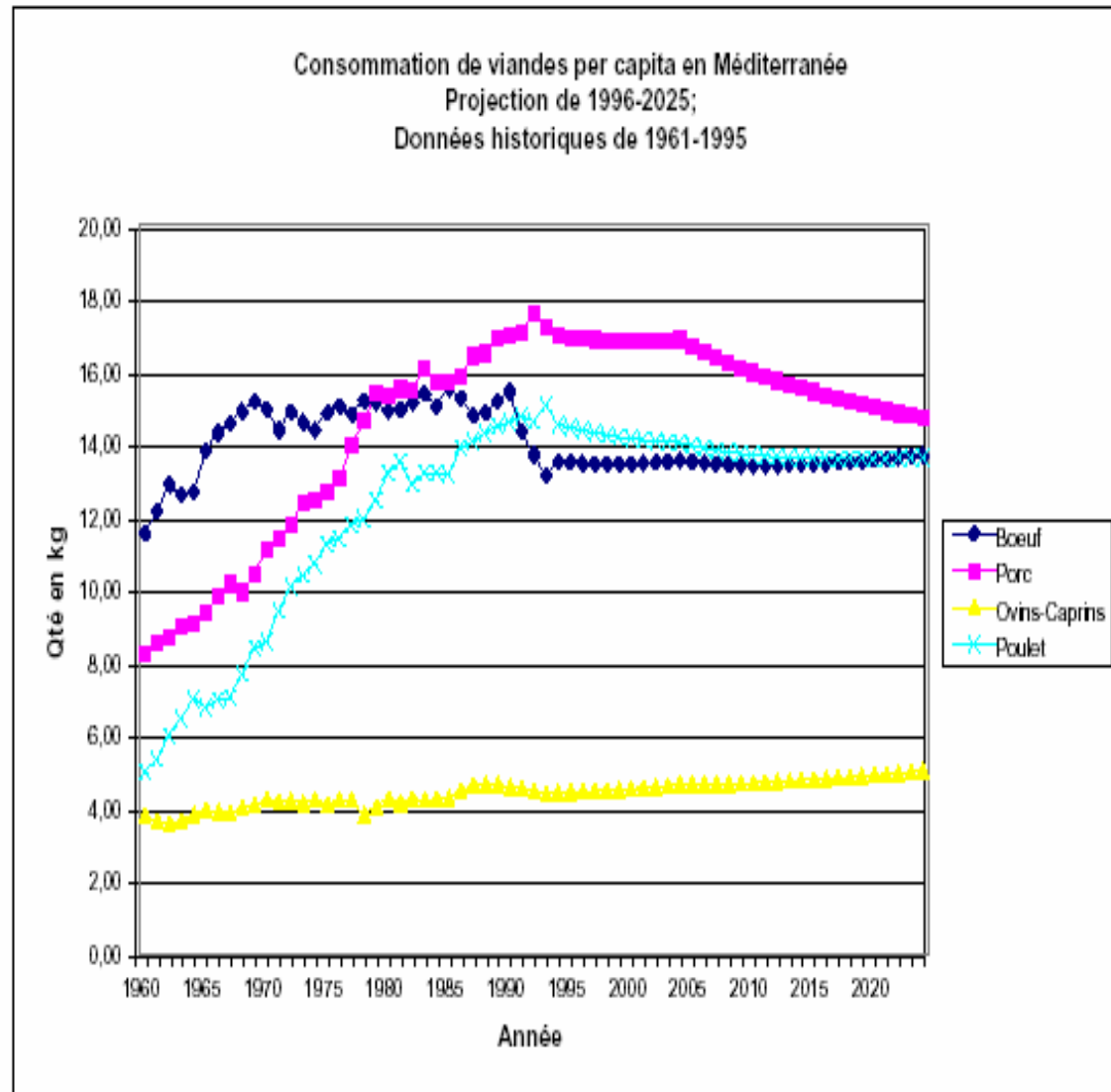
(National household survey, 2001)



Prospects of meat consumption in Near East / North Africa (FAO, 2003)

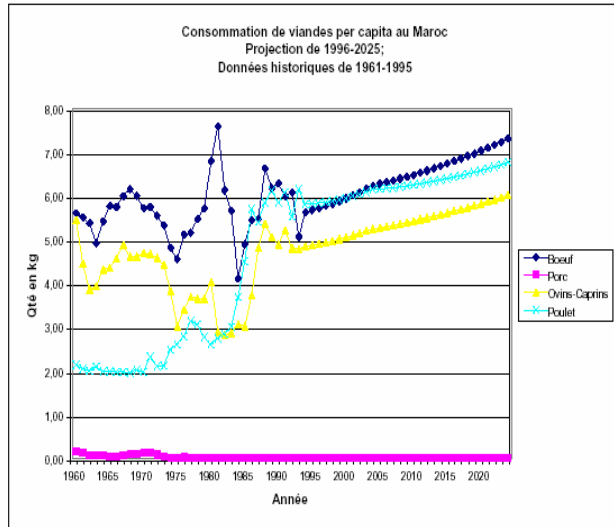
Kg/person/year	1964- 66	1974- 76	1984- 86	1997- 99	2015	2030
Cereals	172	189	204	209	206	201
Roots & tubers	16	21	31	34	33	33
Sugar	19	24	29	28	29	30
Pulses	7	7	7	7	7	7
Vegetable oils	7	9	12	13	14	16
Meats	12	14	20	21	29	35
Milk & dairy products	69	72	83	72	81	90
Other foods	223	247	297	327	335	345
Total	2291	2592	2953	3006	3090	3170

Projections to 2025 of annual per capita Meats intake (Schmitt, 2002)

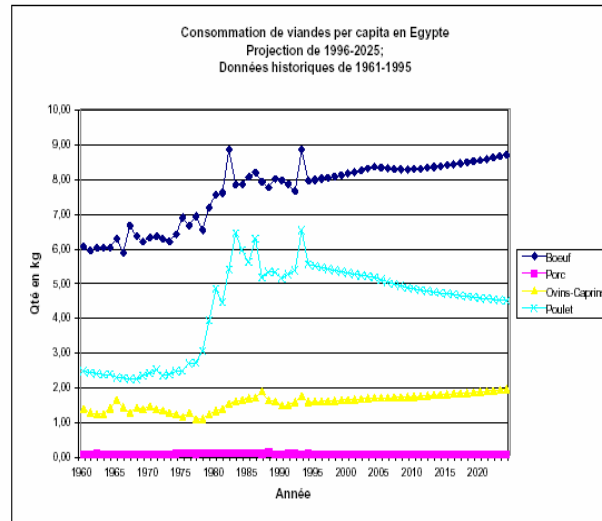


MEDITERRANEAN COUNTRIES

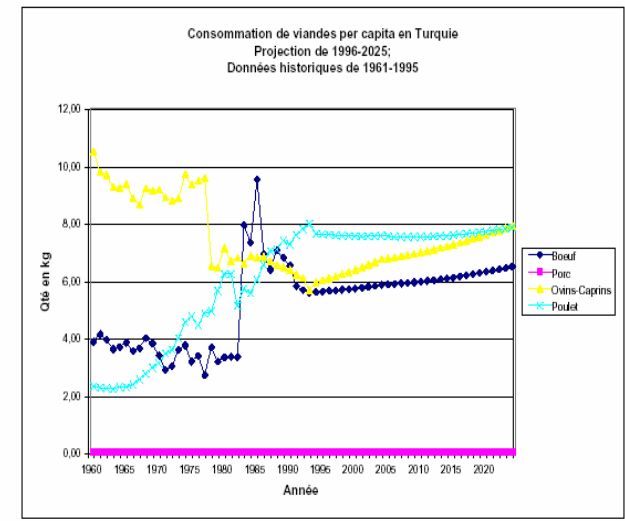
Projections to 2025 of annual per capita Meats intake (Schmitt, 2002)



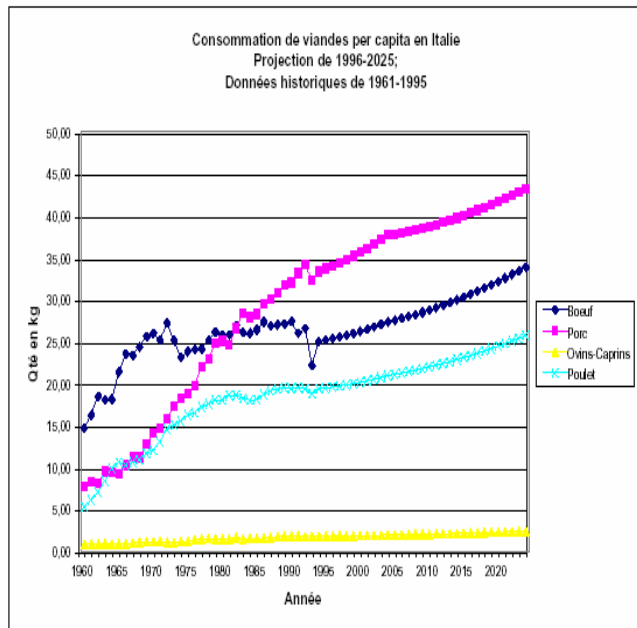
MOROCCO



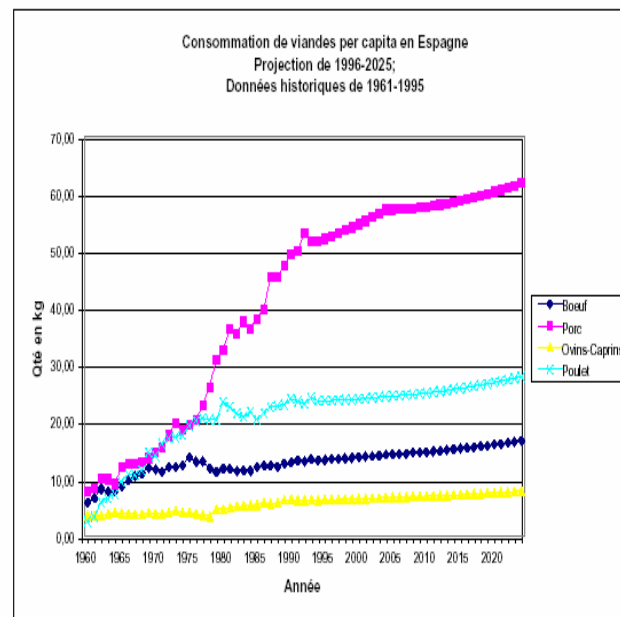
EGYPT



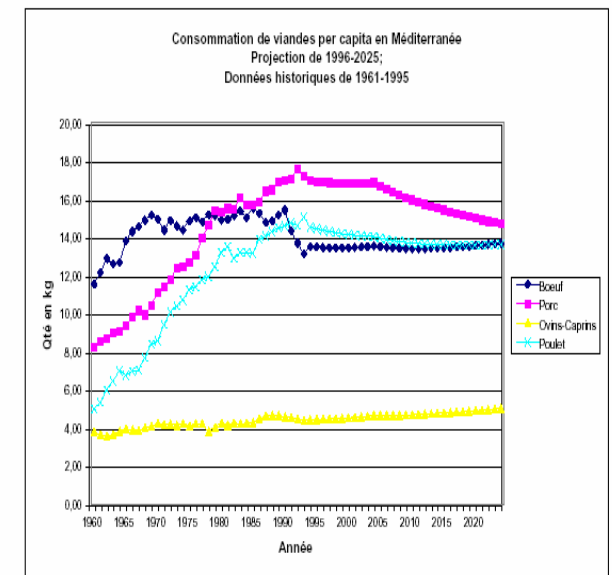
TURKEY



ITALY



SPAIN



MEDITERRANEAN

— BEEF — POULTRY — SHEEP & GOAT — PORK

Outline

1. Meats supplies: past, present & future
2. Meat in Nutrition and health
3. Health problems in the region
4. Role of meat in a balanced diet
5. Conclusions & Recommendations

Nutritional value of meat

Meats provide:

- Energy
- Proteins of high biological value: good composition of amino acids as needed by human body
- Fat
- Numerous vitamins & minerals

Composition of fat & lean meats

Per 100 g wet weight

	Water (g)	Protein (g)	Fat (g)	Energy (KJ)
Beef, fat	24	9	67	2,6
Beef, lean	74	20	5	0,5
Lamb, fat	21	6	72	2,8
Lamb, lean	70	21	0	0,7
Pork, fat	21	7	71	2,8
Pork, lean	72	21	7	0,6

Fat Content of fat & lean meats

Per 100 g wet weight

	Saturated (g)	Mono (g)	Poly (g)	Cholesterol (g)
Beef, fat	29	32	3	90
Beef, lean	2	2	0,2	60
Lamb, fat	36	28	3	75
Lamb, lean	4	3	0,4	80
Pork, fat	26	29	11	75
Pork, lean	2,5	3	1	70

Vitamins & Minerals

★ Vitamins:

- B vitamins: thiamine, riboflavin, pantothenic acid, folate, niacin, vitamin B6, vitamin B12,
- Vitamin D of good biological value
- Vitamin A (liver)

★ Minerals:

- Iron: haem iron better absorbed, helps absorb non-haem-iron
- Zinc
- Magnesium, copper, cobalt, phosphorus, chromium & nickel.

Health concerns associated with meats

★ **Cardiovascular diseases:**

- Saturated fat has been implicated as an important risk factor

★ **Cancer:**

- High intakes of red meat have been associated with colorectal cancer
- Processed meat may be a stronger risk factor than red meat

★ **Obesity**

★ **Type 2 diabetes**

★ **Bovine spongiform encephalopathies**

★ **Residues of drugs, pesticides, etc.**

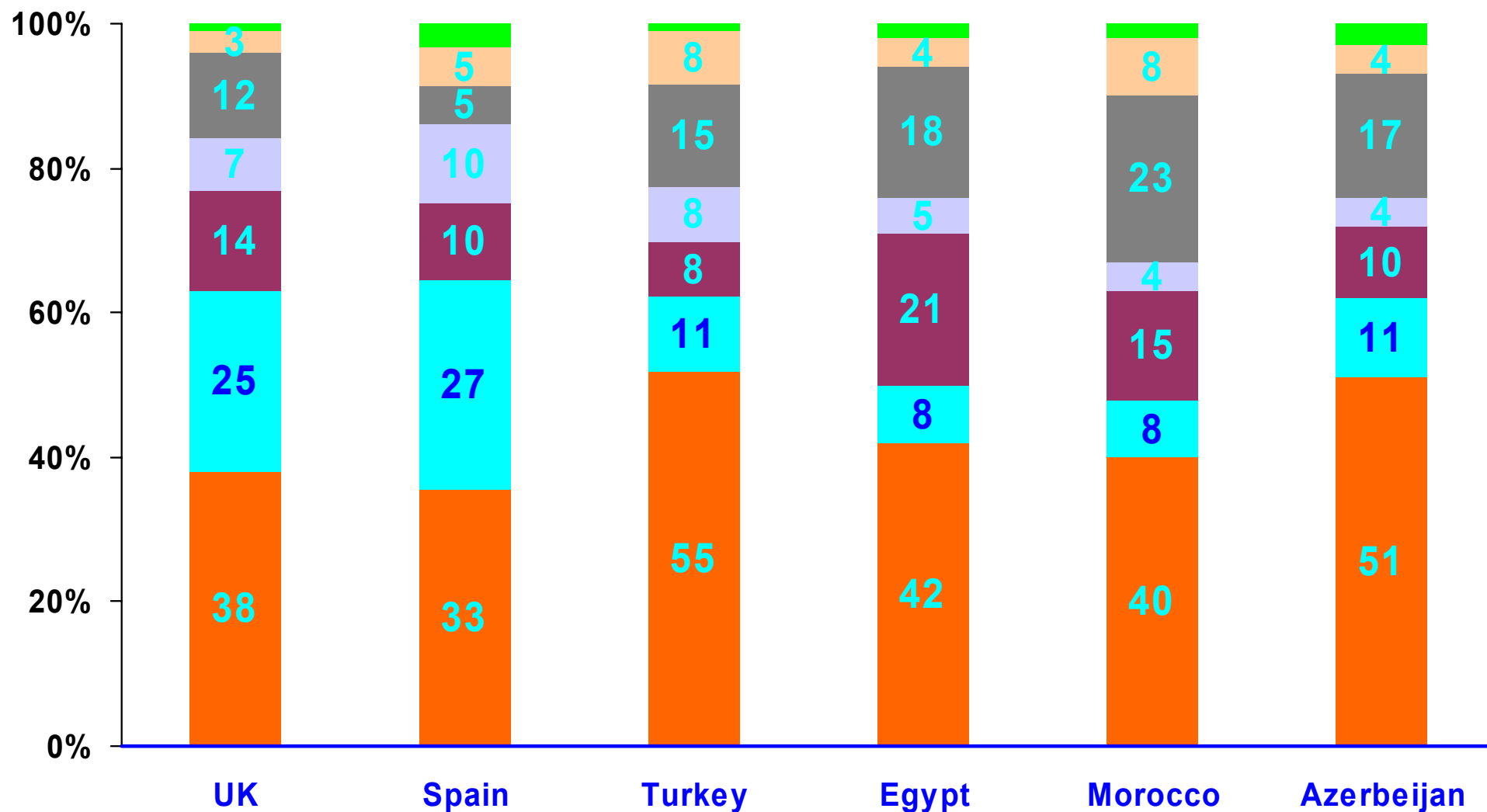
Outline

1. Meats supplies: past, present & future
2. Meat in Nutrition and health
3. Health problems in the region
4. Role of meat in a balanced diet
5. Conclusions & Recommendations

Health problems in the region

Health problem	Upper income	Lower income
Undernutrition	-	++
Anaemia	+	++
Overweight & obesity	+++	++
Diabetes	+++	++
CVD	+++	++
Cancer	+++	++

Causes of death WHO, 2002



- CVD
- Cancer
- Other chronic diseases
- Communicable, maternal, nutr deficiencies
- Diabetes
- Chronic Respiratory diseases
- Injuries

Anaemia in selected countries

UK (2000/01):

- 8% among females 19-65 yrs
- 10% among females 35-50 yrs

Turkey (1997):

- 50% among preschool children
- 50% among pregnant & lactating women
- 33% among school children

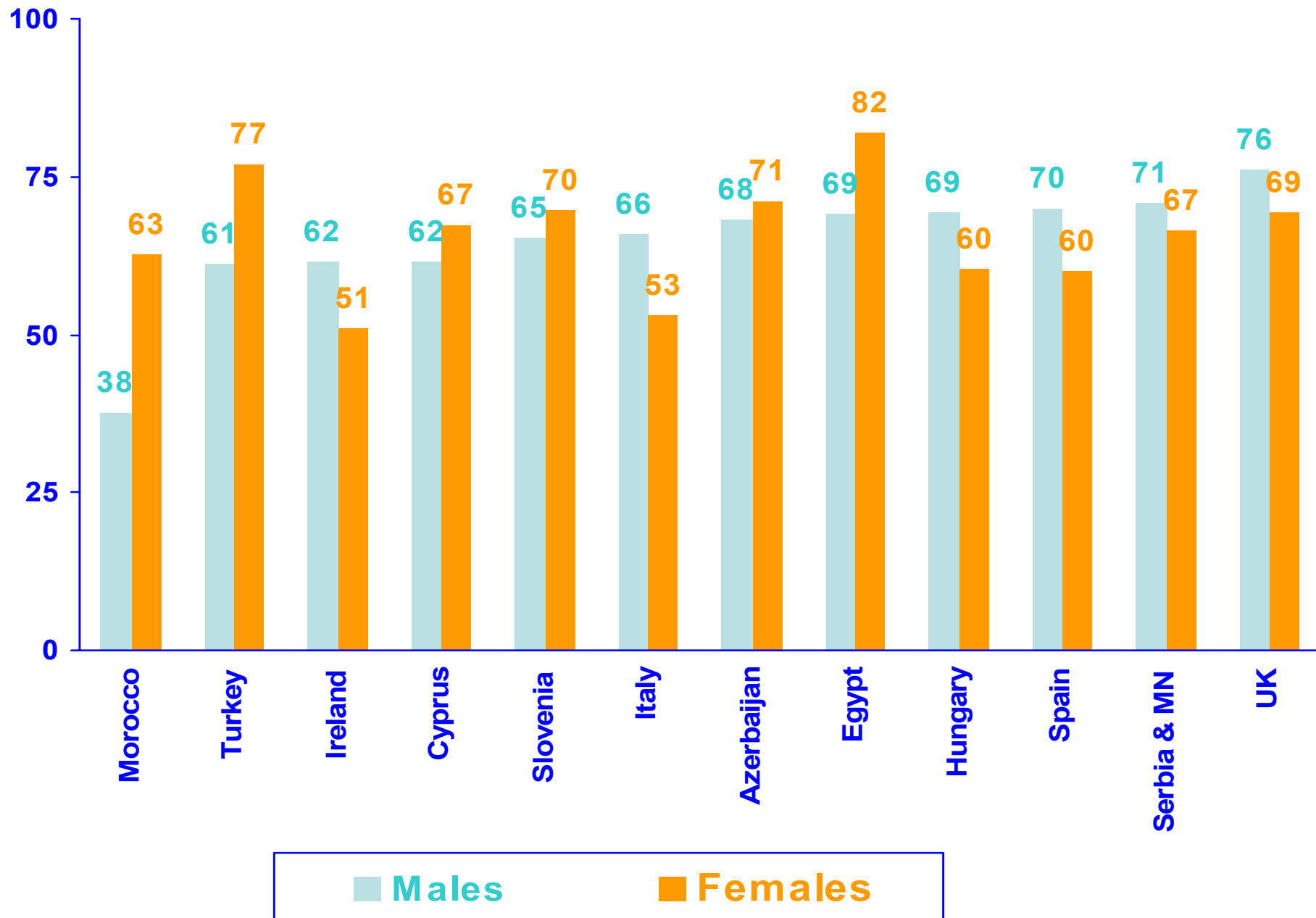
Egypt (2000):

- 30% among all women
- 30% among children

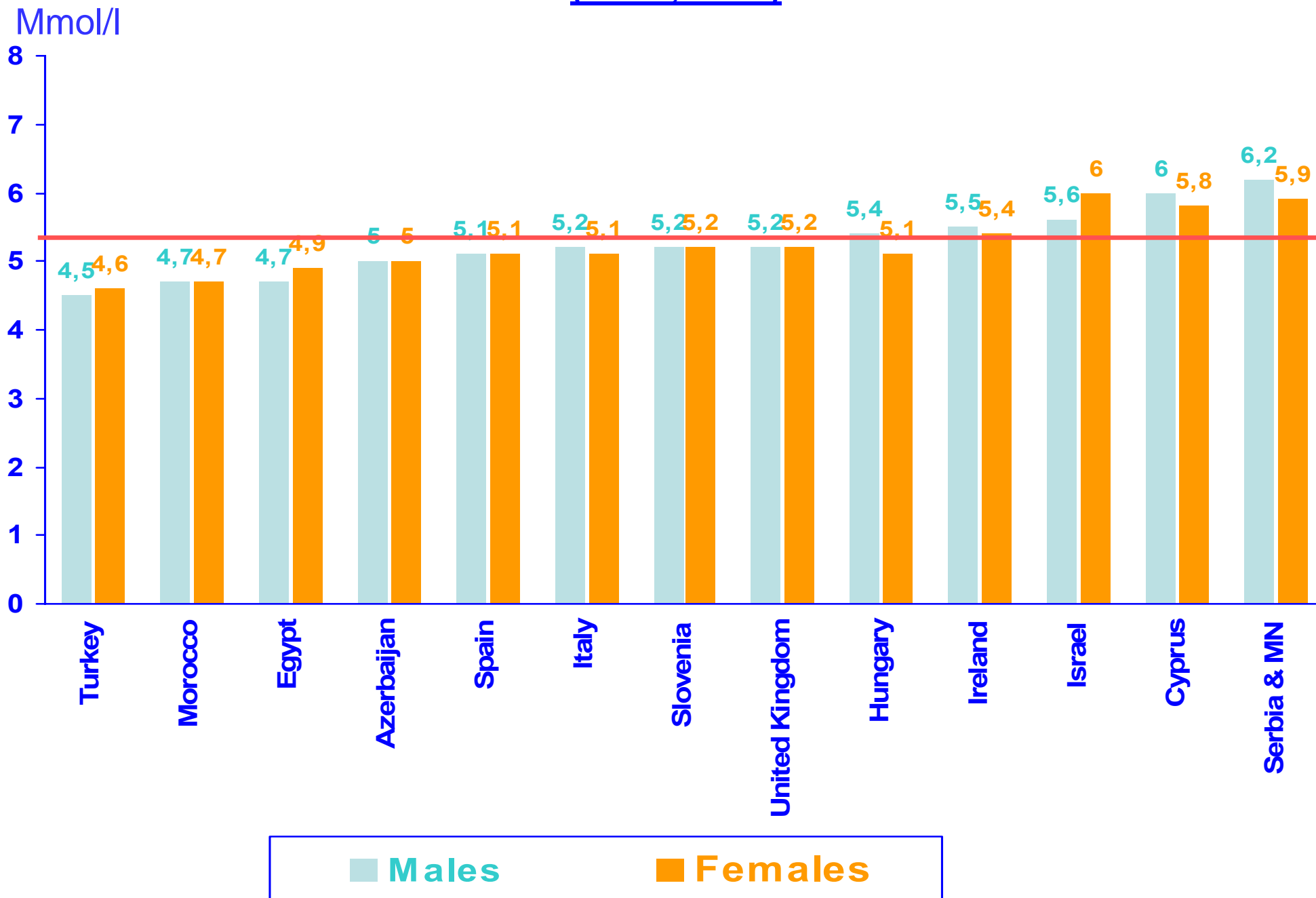
Morocco (1994):

- 33% among preschool children
- 45% among pregnant women
- 30% among women 15-49 yrs
- 10% among men

Prevalence of overweight adults ≥ 30 yrs 2005 (WHO, 2007)

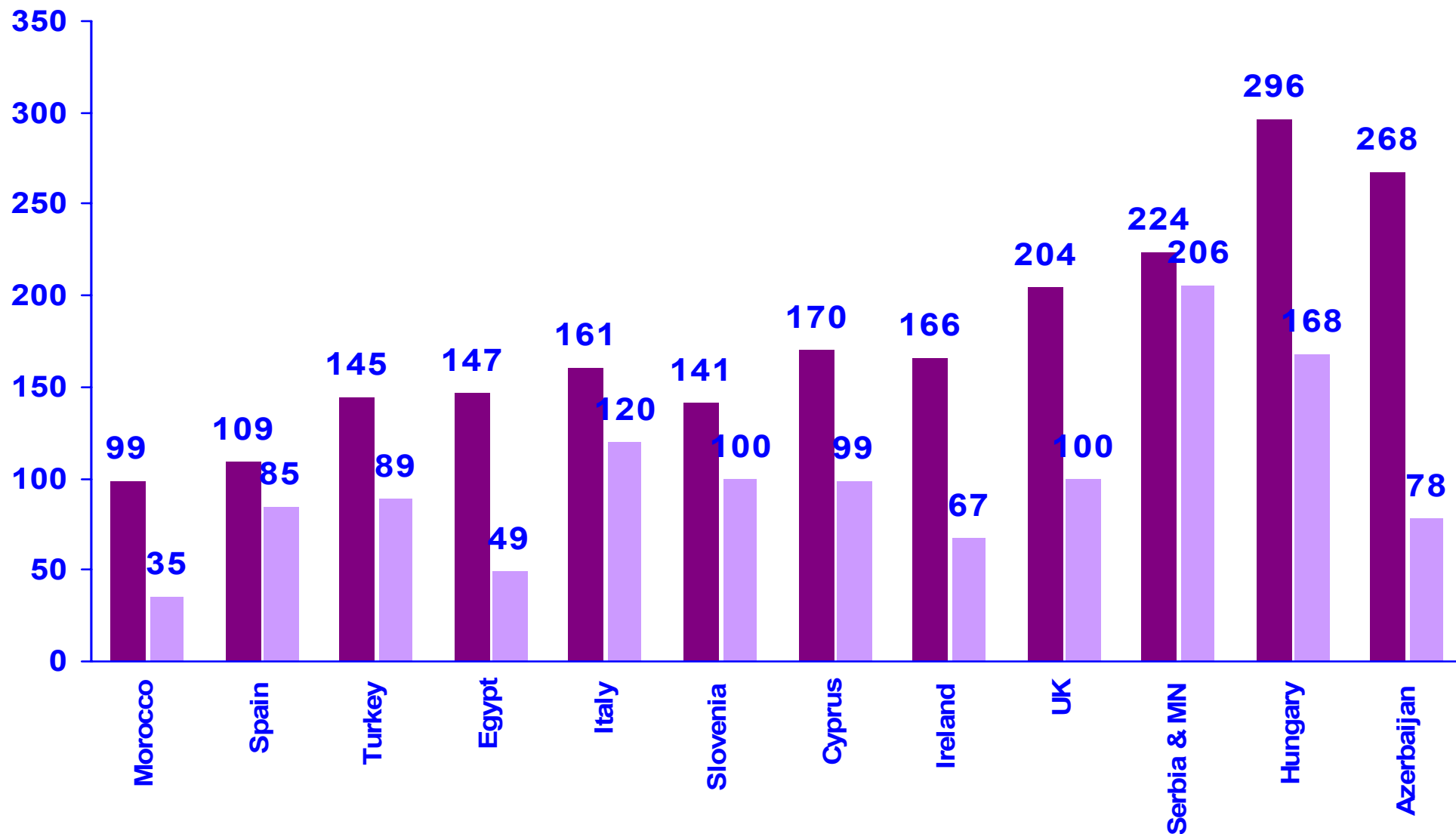


Mean blood cholesterol ≥ 15 yrs 2005 (WHO, 2007)



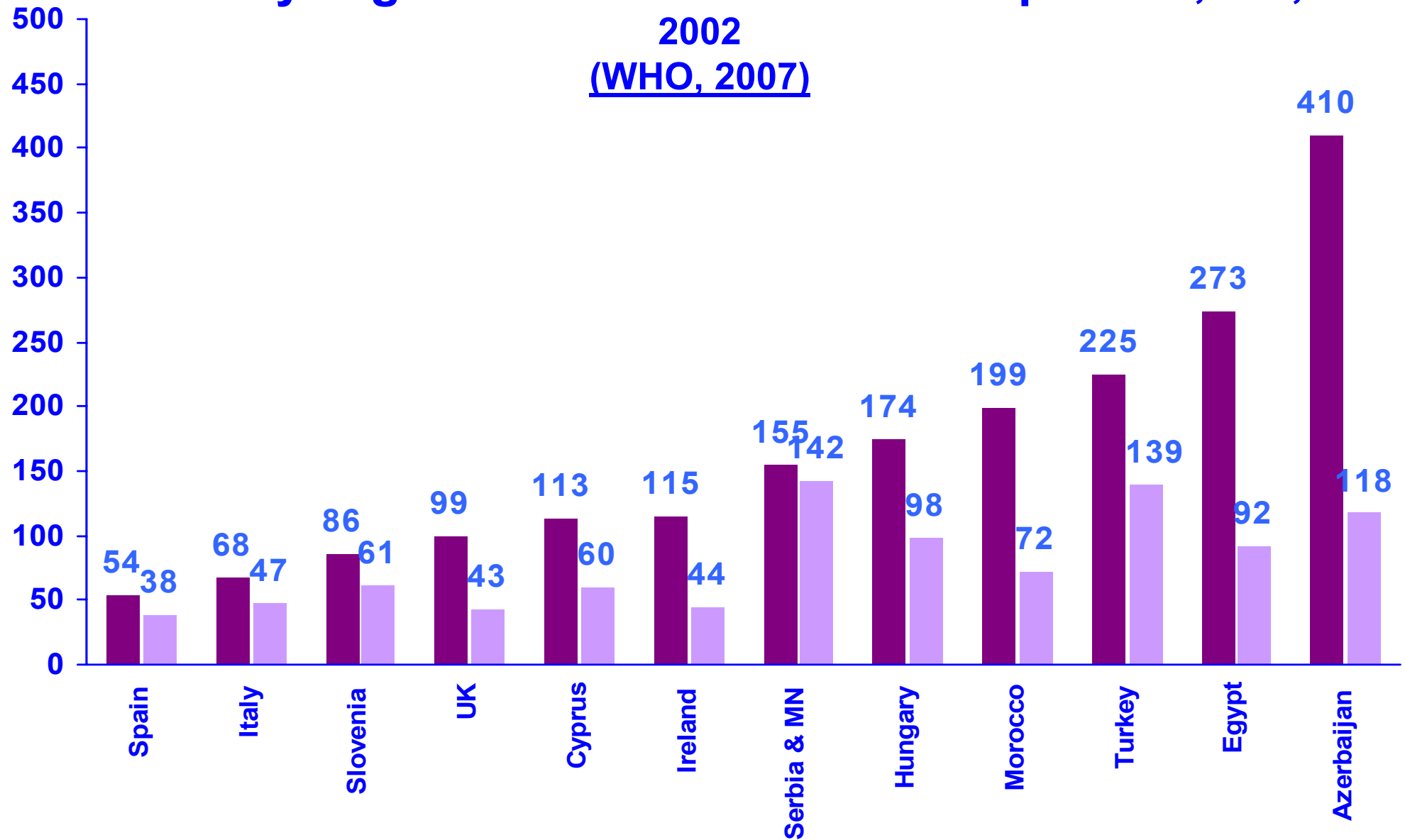
Mortality: Death rate per 100,000, 2002

(WHO, 2007)



■ Ischaemic heart disease ■ Cerebrovascular disease

Mortality: Age standardized death rate per 100,000, 2002 (WHO, 2007)



■ Ischaemic heart disease ■ Cerebrovascular disease

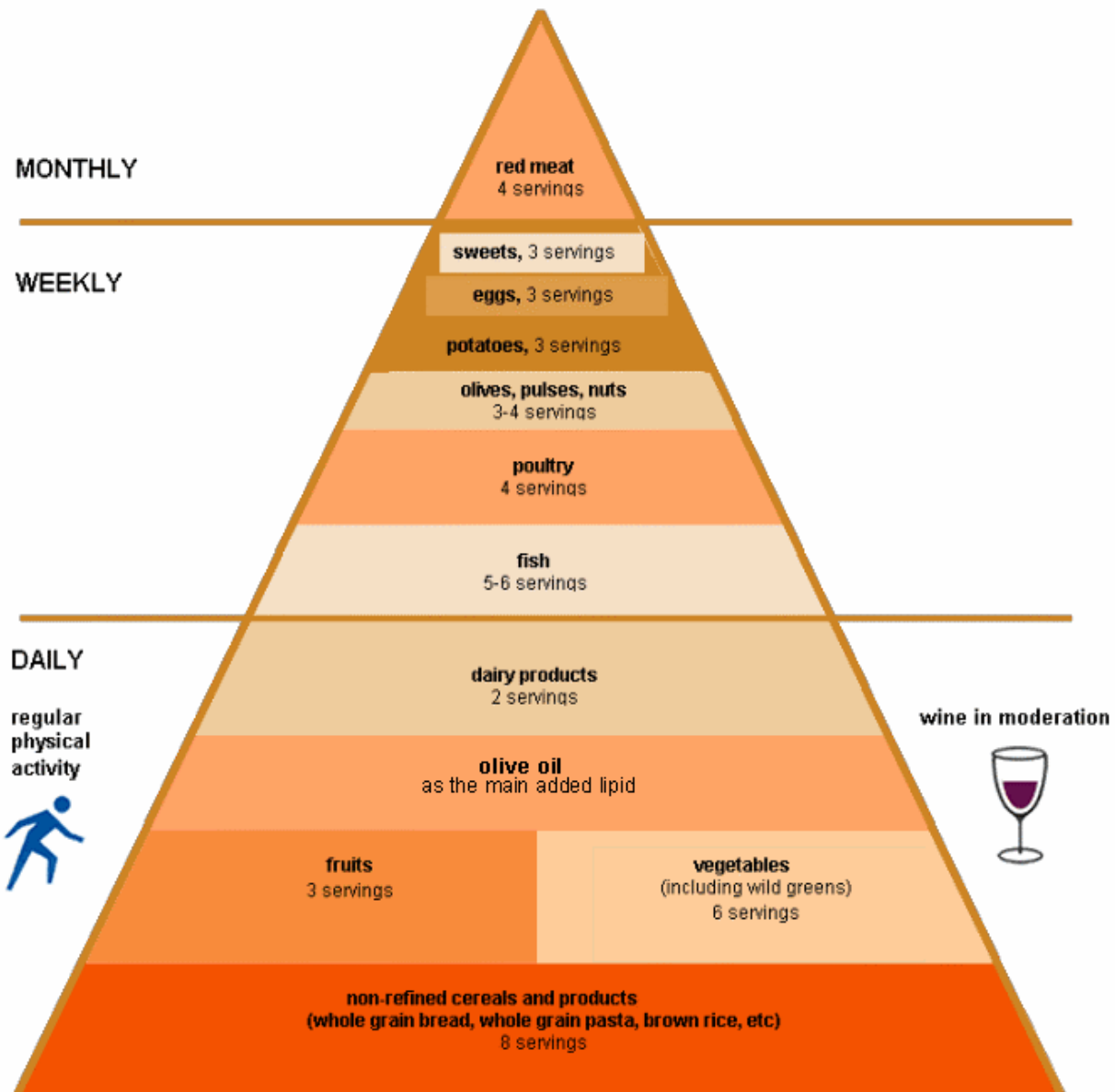
Outline

1. Meats supplies: past, present & future
2. Meat in Nutrition and health
3. Health problems in the region
4. Role of meat in a balanced diet
5. Conclusions & Recommendations

Recommendations of FAO/WHO on diet and chronic diseases

- **Limit fat to 15-20% of total energy**
- **Limit saturated fat to less than 10% of total fat**
- **Carbohydrates should provide 55-75% of energy**
- **Limit free sugar intake to < 10% of energy**
- **Protein: 10-15% of energy**
- **Limit salt to < 5 grams/day**
- **Fruits & vegetables > 400 grams/day**
- **Physical activity: 1hr/day moderate intensity.**

MEDITERRANEAN DIET



One serving equals approximately one half of the portions as defined in the Greek market regulations (portions served in restaurants)

Also remember to:

- drink plenty of water
- avoid salt and replace it with herbs (e.g. oregano, basil, thyme, etc)

Source: Supreme Scientific Health Council, Hellenic Ministry of Health

Balanced diet

- ✓ Lean meat in moderate amount
- ✓ Starchy carbohydrates (esp. whole grain foods)
- ✓ Plenty of fruits and vegetables
- ✓ Moderate amount of milk & dairy products

Outline

1. Meats supplies: past, present & future
2. Meat in Nutrition and health
3. Health problems in the region
4. Role of meat in a balanced diet
5. Conclusions & Recommendations

Conclusions

- **Meat consumption in the Mediterranean rim is still to grow (in response to population and income growth)**
- **This growth is desirable to improve dietary quality, especially its protein and iron content**

However,

- **Due to the growing epidemic of obesity, cardiovascular diseases and cancer among the region population**
- **Benefiting from industrialized countries past experience**
 - ★ **Caution should be made to prevent a too high increase in meat intake**

Recommendations

- ✓ **The Mediterranean diet should be the basis for designing national dietary guidelines, in which meat has some role to play**
- ✓ **The diversification between red meat, poultry and fish is desirable**
- ✓ **The production sector should be geared toward the production of good nutritional quality meat, i.e. through promoting traditional grazing systems**
- ✓ **The meat industry should gear its production towards diversified cuts to increase availability of low fat meats.**



Thank you for listening

Email: jelloune@yahoo.com