

Agro-Food Industry

Based on Dicken 2011, Ch.9
Weber, K. 2009, *Food Inc.* New York: Participant Media

Features and Production circuits

Two Sets of Processes

- Standardised, specialised production processes
 - efficiency and competitiveness
 - → Industrial Food System
- Localised, specialised production processes
 - environmental, nutritional and health qualities
 - → Organic, Fair-trade

Industrial Food System

Agri-business

- Giant companies dominate
 - What food is produced, how it is produced, who produces it, and how it is marketed and distributed to final consumers
- **Leading 10 companies control**
 - **2/3 of the world seed market**
 - **90% of pesticide**
 - **26% of packaged food market**
- 100 food retailers account for 35% of total world grocery sales
 - Top three produce half of the total revenue of the top 10
- M&A
 - Philip Morris: General Food (1985)+Kraft (1988)=Kraft General Foods (1989) + Nabisco (2000) → all sold and became the world's third largest food company
→ acquired Cadbury

Top 10 seed companies		\$m sales 2007
1. Monsanto	US	4,964
2. DuPont	US	3,300
3. Syngenta	Switzerland	2,018
4. Groupe Limagrain	France	1,226
5. Land O'Lakes	US	917
6. KWS AG	Germany	702
7. Bayer Crop Science	Germany	524
8. Sakata	Japan	396
9. DLF-Trifolium	Denmark	391
10. Taikii	Japan	347

Top 10 pesticide companies		\$m sales 2007
1. Bayer	Germany	7,458
2. Syngenta	Switzerland	7,285
3. BASF	Germany	4,297
4. Dow AgroSciences	US	3,779
5. Monsanto	US	3,599
6. DuPont	US	2,369
7. Makhteshim Agan	Israel	1,895
8. Nufarm	Australia	1,470
9. Sumitomo Chemical	Japan	1,209
10. Arysta Lifescience	Japan	1,035

Top 10 food & beverage companies		\$m sales 2007
1. Nestlé	Switzerland	83,600
2. Pepsi Co.	US	39,474
3. Kraft Foods	US	37,241
4. Coca-Cola	US	28,857
5. Unilever	UK/Netherlands	26,985
6. Tyson Foods	US	26,900
7. Cargill	US	26,500
8. Mars	US	25,000
9. ADM Co.	US	24,219
10. Danone	France	19,975

Top 10 food retailers		\$m sales 2007
1. Wal-Mart	US	180,621
2. Carrefour	France	104,151
3. Tesco	UK	72,970
4. Schwarz Group	Germany	58,753
5. Aldi	Germany	55,966
6. Kroger	US	52,082
7. Ahold	UK	50,556
8. Rewe Group	Germany	49,651
9. Metro Group	Germany	49,483
10. Edeka	Germany	45,397

Figure 9.9 Dominant firms in the global agro-food industries

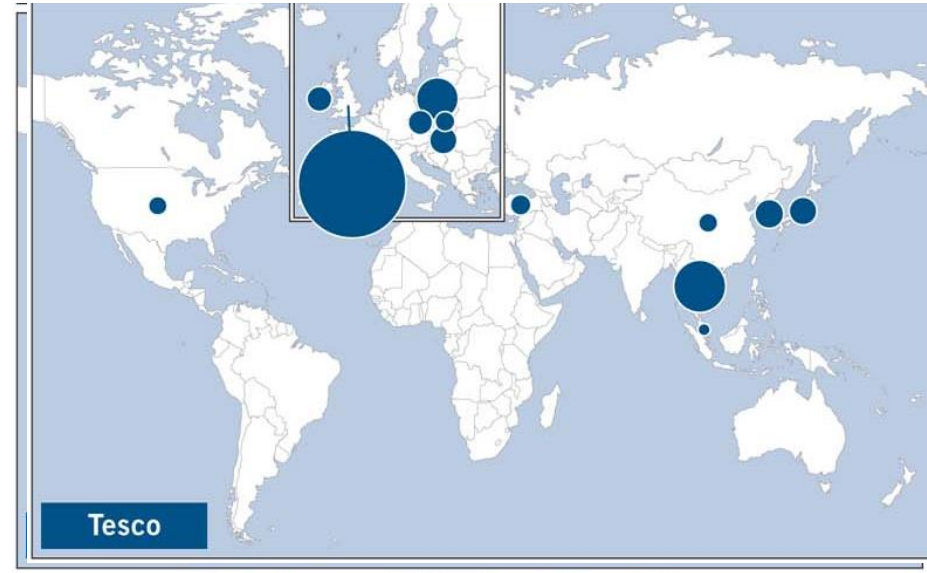
Source: based on data in ETC Group, 2008

Big producers and Big retailers

- Big food manufacturers need big supermarket chains to get their products on to the shelves
- Big supermarket needs big manufacturers
 - Mass produced food: vast, uniform quantities
 - Processed food standard, regular product into every store nationwide
 - does not require specialist handling
 - Industrial food lends itself to supermarket's heavily centralised, highly mechanical distribution systems

Supermarkets

- Major retailers dominate supply networks
 - forcing suppliers to meet their demands on price, delivery and quality
 - Delaying payments → financial gains to retailers
- Challenges for transnational supermarkets
 - Geographic dispersion – dealing with local competitors and local tastes
 - From whom and from where its products are sourced



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E.g. US chicken(broiler) production

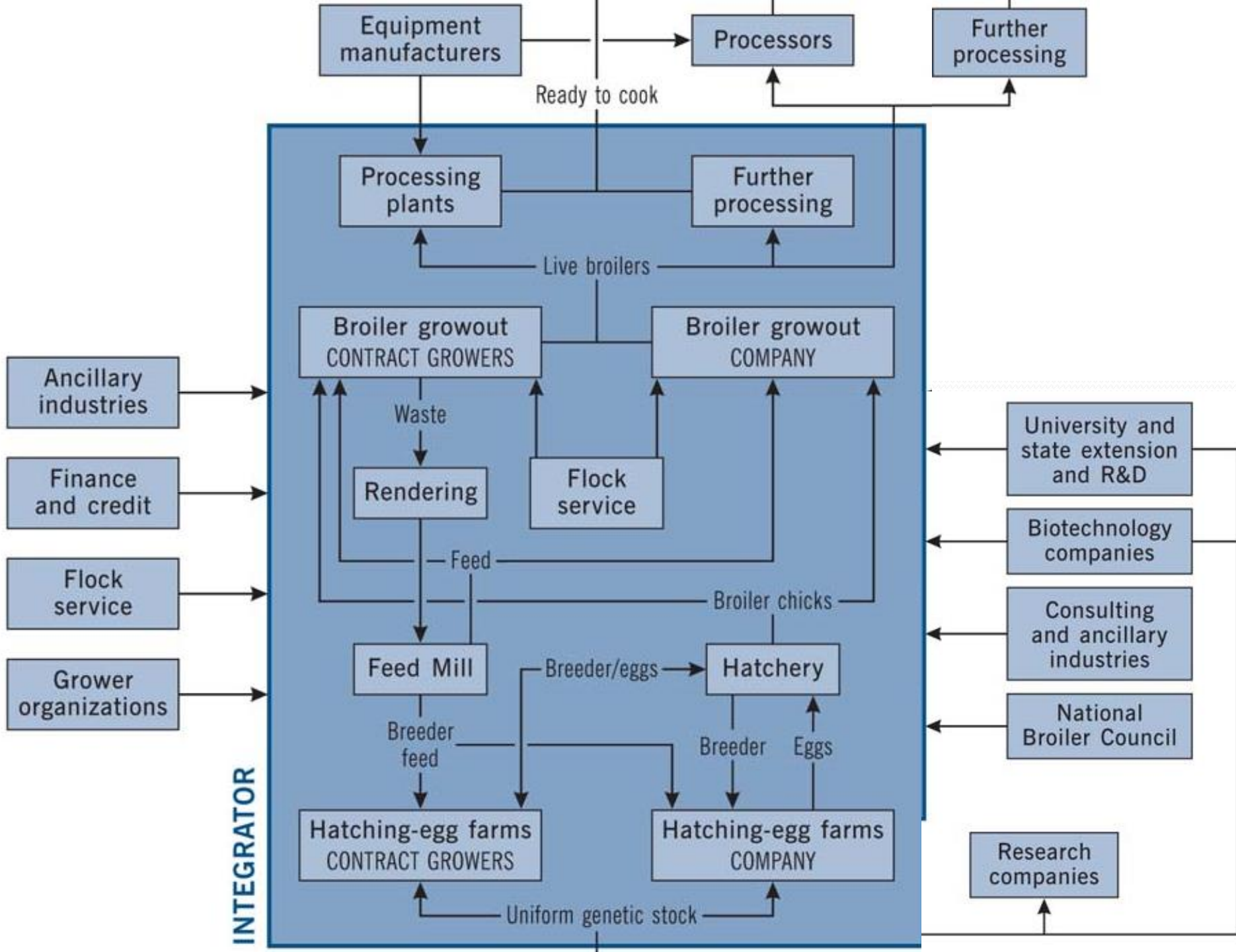
- Dominated by very large integrated producers (e.g. [Pilgrim's Pride](#), [Tyson](#))
- Benefits of integration
 - Coordination of chicken raising processes
 - as much as 'just-in-time' system as that in automobile production
 - Closer control over product quality and food safety
- See also
 - US Environmental Protection Agency ([EPA](#))
 - US Department of Agriculture ([USDA](#))
 - UN Food and Agriculture Organization ([FAO](#))





Figure 9.4 Global production of chickens

Source: FAO Statistical Yearbook, 2009: Table B11



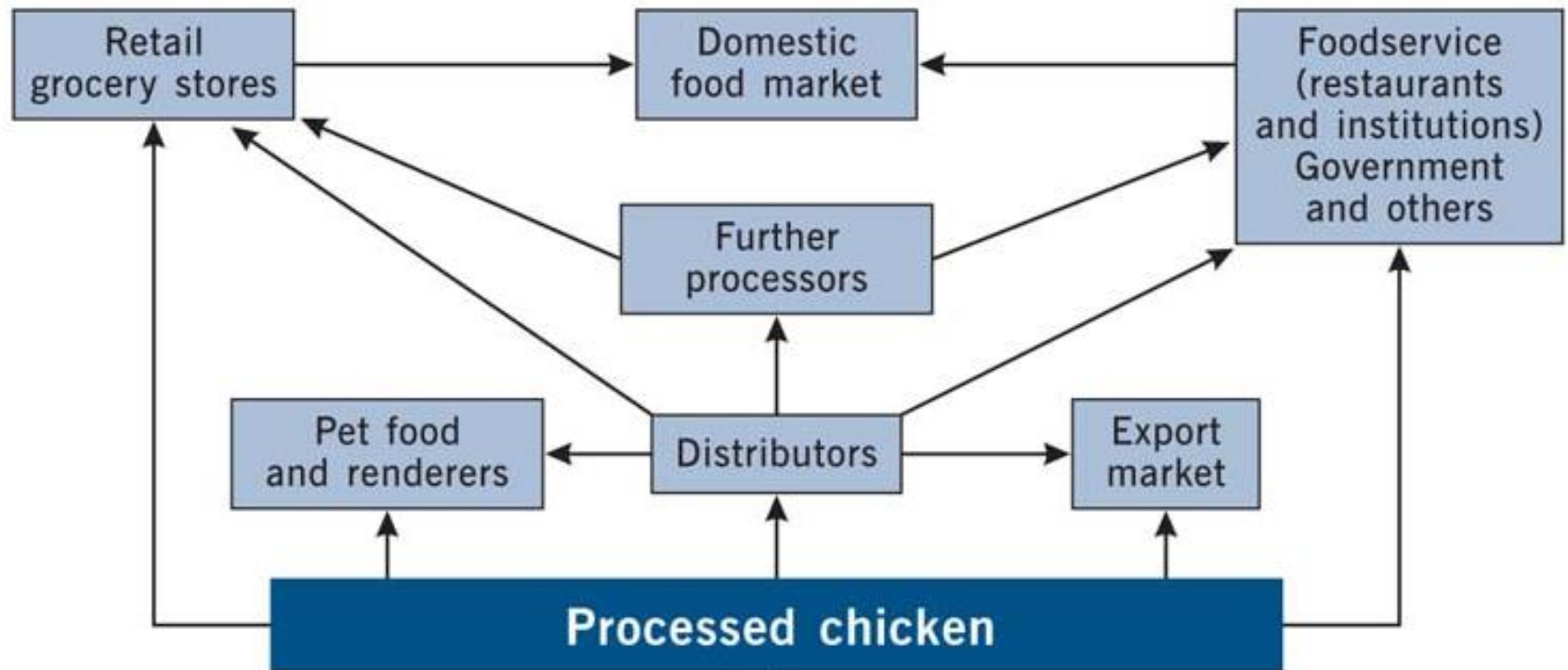


Figure 9.1 The US chicken production circuit

Source: based on Boyd and Watts, 1997: Figure 8.4



Fresh Fruit and Vegetable

- Driven by the large supermarket chains, rather than by the producers of the crops themselves

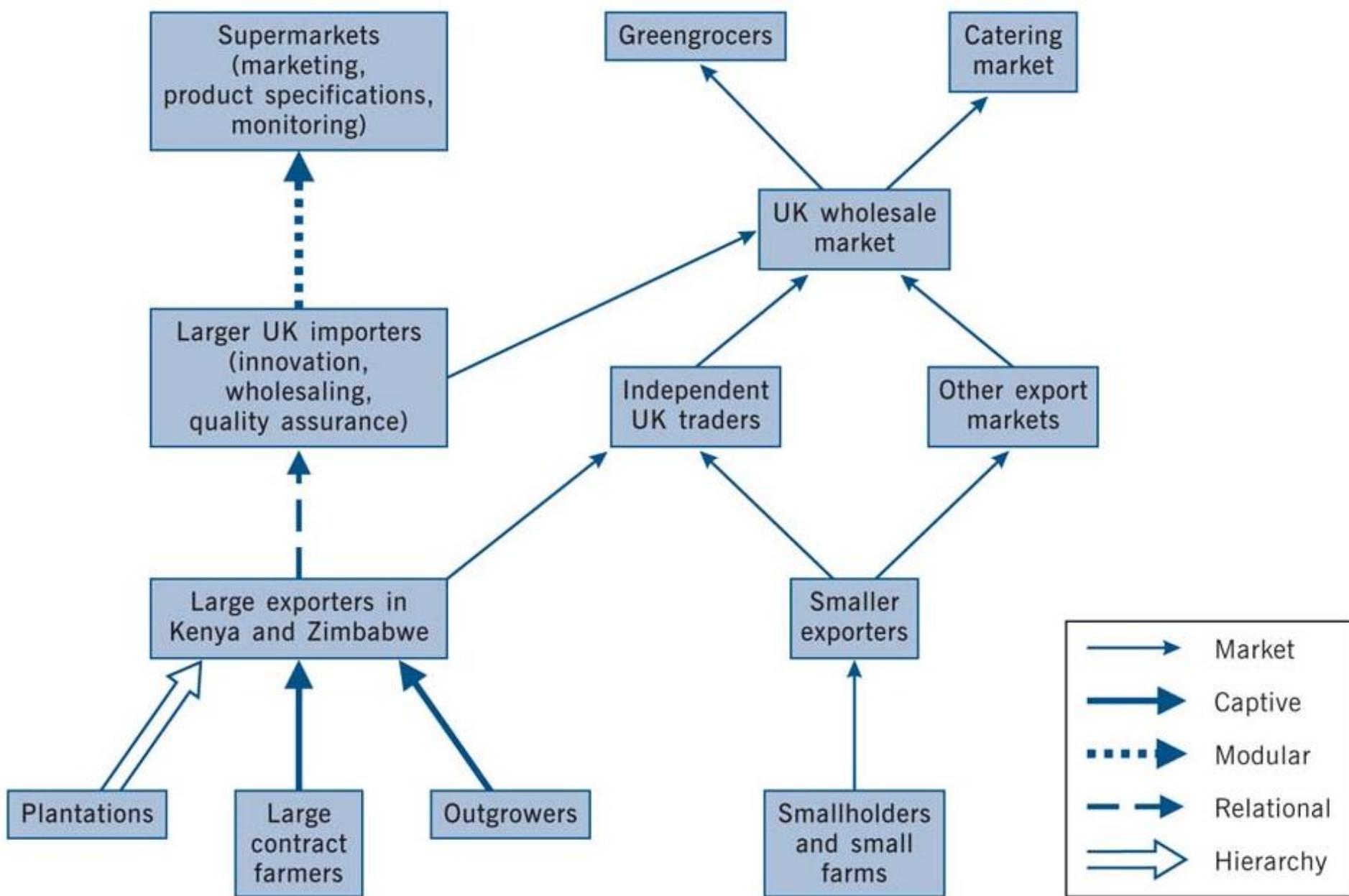


Figure 9.2 The fresh vegetable production circuit

Technologies

- Production: Biotechnology
 - Fertilisers, pesticides, herbicides
 - Genetic Modification (GM)
 - to increase resistance to disease and to herbicides, to increase yields, and to improve nutritional value.
 - Can only be afforded by big biotechnology and agro-food companies → patenting seeds needed to produce the next generation crops.
 - '**terminator seeds**' – cannot be reproduced by the user
- Distribution and storage : Global cool chains
 - Refrigeration and food-freezing technologies
 - Controlled atmosphere (CA) technologies
 - Increasing carbon footprint of food?

Sustainability

Sustainability

- Sensitive problems:
 - excessive exploitation,
 - chemical fertilizers and pest controlling agents,
 - genetically modified (GM) seeds, plants and animals to 'patent life',
 - transportation of HVFs over vast geographical distances,
 - BSE ('mad cow disease'), foot and mouth disease, avian flu, swine flu, E-coli
- Consumer resistance

Industrialisation and Food Safety

- Industrialisation leads to the loss of some of the desirable qualities of taste, texture, colour. . .
 - encourage use of food additives: preservatives, antioxidants, emulsifiers, flavourings, colourings.
- Hormones used to promote growth and production of milk could cause cancer
 - 10% of all US dairy cows receive rBGH injection
- Mad Cow Disease – nerve system tissues mixed in animal feed; could be from “poultry litter”
- Unsanitary conditions → Diseases and contamination
- Use of antibiotics to promote growth and to pre-empt outbreaks of disease
 - more than 8 times the amount used to treat diseases in human
 - long exposure to low level of antibiotics → Bacteria could become immune

. . . Food Safety and GM

- GM products have the potential to be toxic
 - E.g.) Showa Denko (Japan's 3rd largest chemical company) produced Genetically modified L-tryptophan
 - 1989 EMS (eosinophilia-myalgia syndrome) out break in the US:
killed 36 and disabled over 1,500
- Antibiotic Resistance Marker Gene (ARM) could lead to antibiotic resistant harmful bacteria
 - incurable salmonella, E. coli . . .
- Genetic pollution
- GM seeds only benefit big companies
 - Make farmers subordinate to agri-business
 - Reducing genetic pool
 - Counter to the social practise of 'seed sharing'

Industrialisation and Workers

- Largest user of casual labour of all modern industries.
- The seasonality of agricultural processes → movement of workers within and across borders.
- Big supermarkets led to . . .
 - Cheap food – US citizens spent 10% of their income on food – lowest in history
 - Deteriorating income for farmers
 - Farmers received
 - Fresh Veg. 34% (1982) → 19% (2004)
 - Fresh Fruits 33%(1982) → 20% (2004)

Workers

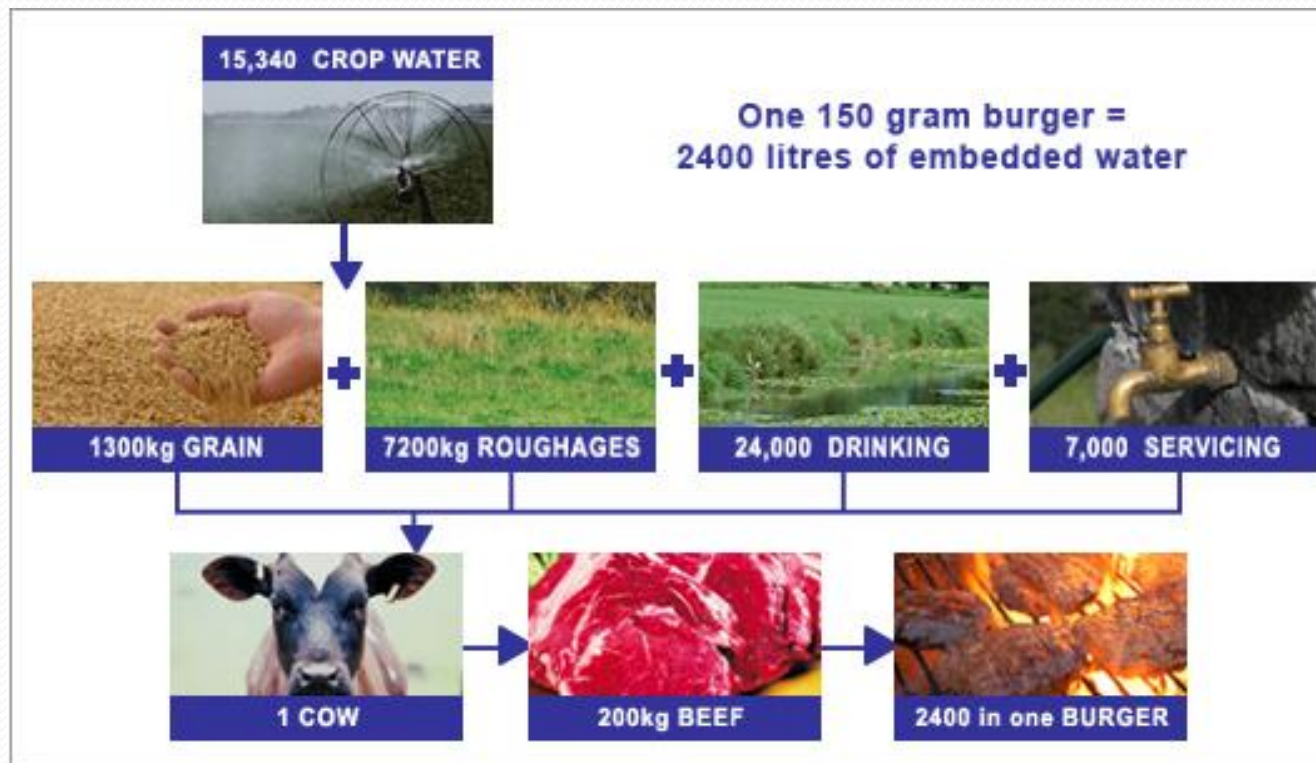
- US - 'Sweatshops in the fields'
 - Majority of workers are Hispanic (some undocumented or illegal)
 - Lowest income just above dishwasher (annual average household income at \$13,000 – official poverty level: \$21,000)
 - 300,000 suffering pesticide poisonings each year
 - 'agricultural exceptionalism' – exemption of agriculture from labour and other laws → government has done little to protect agricultural labourers
 - Minimum wage now applies in most cases but overtime provisions do not
 - Age limit for agriculture 12 (all other industries – 14)
- In India 25,000 farmers committed suicide in 2007

Consumer

- Demand for food has changed dramatically with the increasing income and urbanisation
- What we choose to eat:
 - Taste, culture, religion, health concerns, ethical position, lifestyle, income
- Highly segmented market
 - Huge diversity of products sold through the major supermarkets and, especially, their provision of all-year-round perishable foods from across the globe.
 - Chilled convenience food
 - Lifestyle drinks . . . Latte revolution
 - Organic food
 - Vegetarian, vegan
 - Fast food
 - Convenience foods
 - Well-being food

Rising meat consumption

- Embedded Water
 - <http://www.waterfootprint.org/?page=files/home>
 - <http://www.igd.com/index.asp?id=1&fid=1&sid=5&tid=157&foid=85&cid=326>



Carbon Footprint of a Beef Burger

300,000,000	citizens
* 150	burgers/year
* 4.35	kilograms of CO ₂ -equivalent per burger
/ 1000	kilograms per metric ton
= 195,750,000	annual metric tons of CO ₂ -equivalent for all US burgers

195,750,000 annual metric tons of CO₂-equivalent for all US burgers
/10 metric tons of CO₂-equivalent per SUV
=19.6 million SUVs

- http://openthefuture.com/cheeseburger_CF.html
- <http://www.guardian.co.uk/environment/2007/jul/19/climatechange.climatechange>
- <http://www.foodcarbon.co.uk/index.html>

Consumer resistance

- McDonalds
- GM Food
- Nestle – the longest boycotted brand (since the 1970s)
 - <http://blogs.guardian.co.uk/businessinsight/archives/2005/09/01/branded.html>
 - <http://www.babymilkaction.org/boycott/prmachine05.html>

Role of the state

Regulating Agro-Food Industries

- Food safety as a major concern:
 - US – Food and Drug Administration (FDA)
- Codex Alimentarius
 - International code set within the Food and Agricultural Organisation (FAO) and World Health Organisation (WHO)
 - over 200 standards, 40 codes and guidelines for food production and processing
 - Maximum levels for about 500 food additives and 2700 maximum-residue limits for pesticide residues in food and food crops
 - But the biggest funder of the establishment of the Codex was the US food industry
- Difficulties
 - Continuing proliferation of new products that cross the boundaries between food and medicine
 - + strong lobby from Agribusiness

Subsidies

- National emotions to food security
- US started in the 1930s under New Deal
- EU's Common Agricultural Policy: the largest single share of the EU's total budget

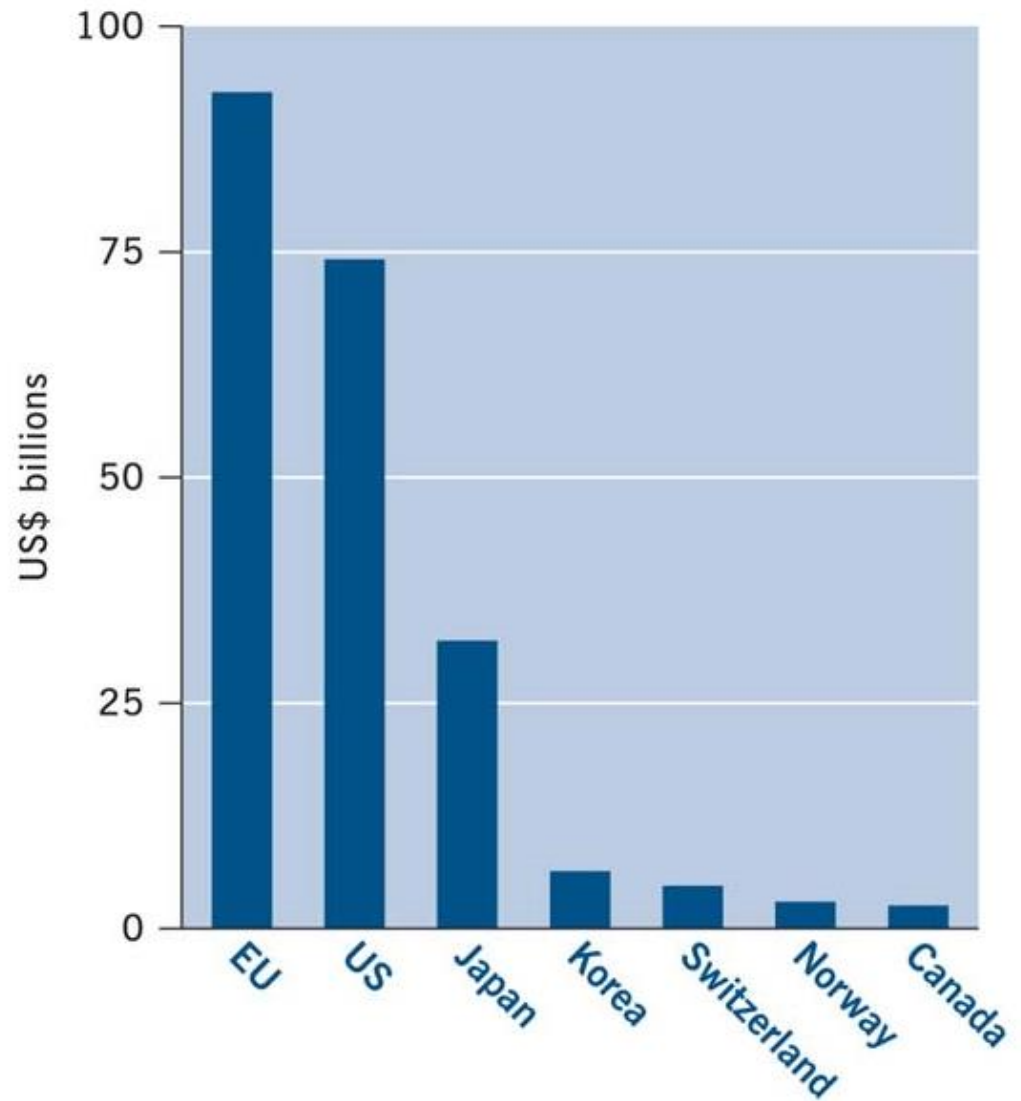


Figure 9.8 Agricultural subsidies

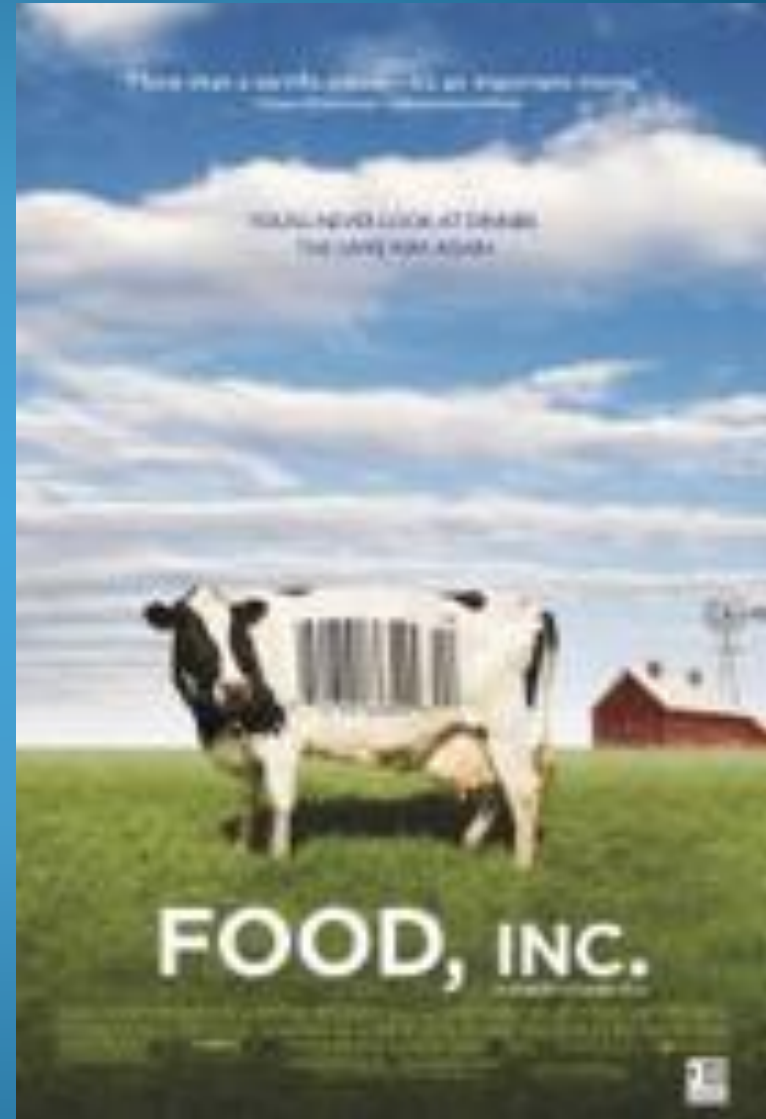
Source: WTO data

State land grabs

- Wealthy countries acquiring lands in developing countries for food
 - South Korea – 700,000 ha in Sudan,
 - Saudi Arabia – 500,000 ha in Tanzania
 - India – lent money to companies to buy 350,000 ha in Africa

Food Inc.

A Film by Robert Kenner (2008)



While watching, take notes on . . .

- the **roles** played by the following actors **in support of the industrial food system (IFS)**.
- the **impacts of industrial food system** on the following actors.
 - Government
 - Corporation
 - CSOs
 - Farmers (Labourers)
 - Consumers
- How sustainable is the **industrial food system (IFS)**?

Read the following before our discussion on Monday

- Paarlberg, R. (2013) 'Agribusiness, Supermarkets and Fast Food'. Ch.11 of *Food Politics: What Everyone Needs to Know*, 2nd ed. New York: OUP.
- And think about. . .
 - To what extent is industrialised food system unsustainable?
 - What can be done (by whom) to improve the situation?
- You can also read chapters 9 and 10. . .



Alternatives?

Alternative Circuits: Fair Trade

- Fair Trade
- Food quality, safety and fairer treatment of farmers/growers in developing countries
 - Redistribute value through the network against the logic of bulk commodity production
 - Reconvene 'trust' between food producers and consumers
 - Rearticulate new forms of political association and market governance
- Growing re-localisation