The agri-food system

- A system that embraces all elements and activities that relate to production, processing, distribution and marketing, preparation and consumption of food,
- and acknowledges the interactions between natural resources/ecosystems services, primary food, food processing, packaging, logistics, marketing, retail, food services, **consumption** and waste management/recycling
- and the many feedback loops between them, which together defines the degree of complexity.

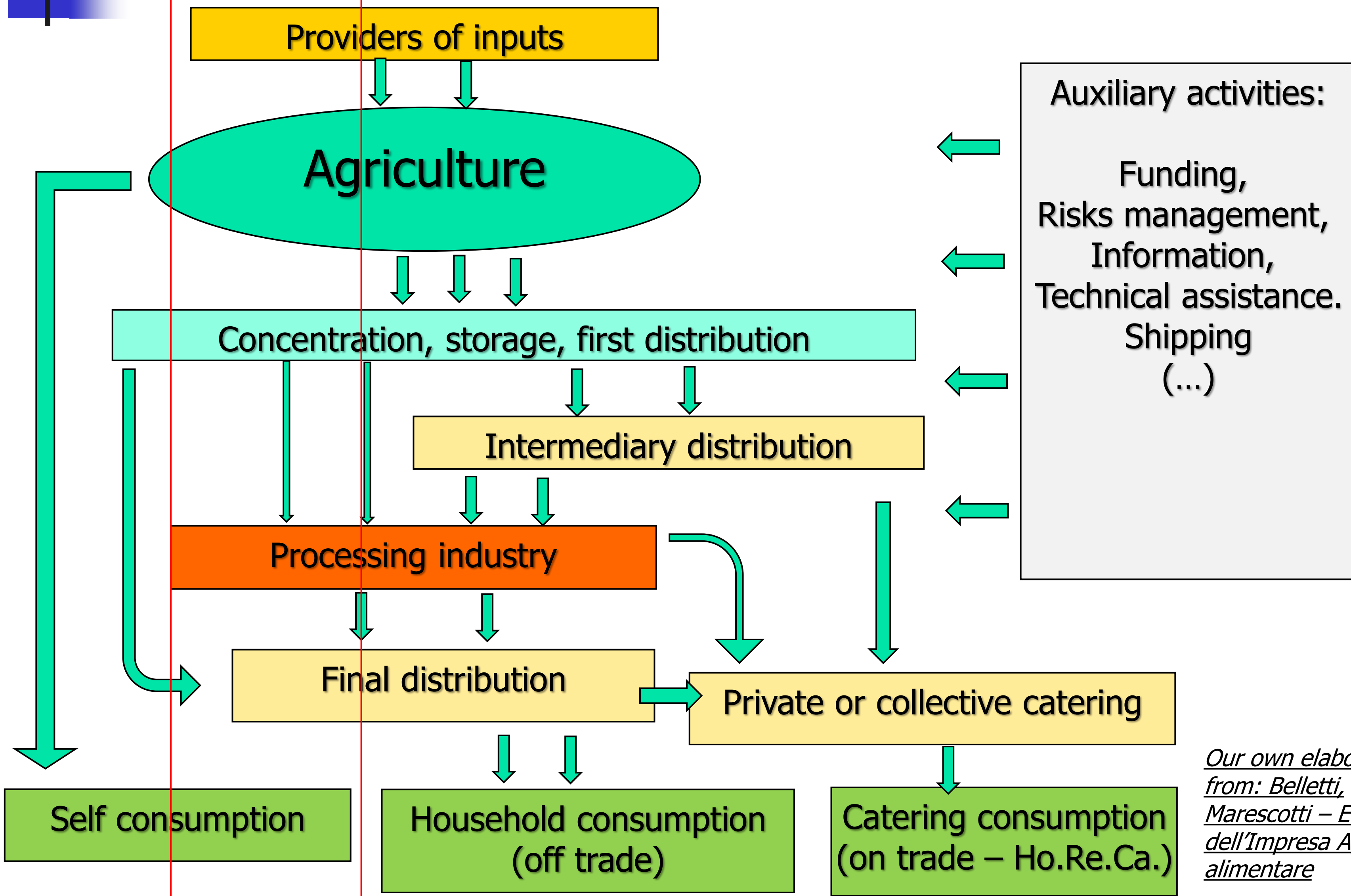
The food system: Farm to Fork strategy

The food system: Farm to Fork strategy

The Farm to Fork Strategy aims to accelerate our transition to a sustainable food system that should:

- have a neutral or positive environmental impact
- help to mitigate climate change and adapt to its impacts
- reverse the loss of biodiversity
- ensure food security, nutrition and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food
- preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade

The agri-food system



Our own elaboration from: Belletti, Marescotti – Economia dell'Impresa Agro-alimentare

The agri-food chain

- The agrifood chain is a vertical section of the agri-food system
- Agrifood chains are the linked events in the agricultural production of food – the process being a chain of events - from production to processing, trading, distribution and consumption. Literally "from field to fork" (FAO).
- The combination of agents
- The series of processes by which food is grown or produced, transformed, sold, and eventually consumed.
- The functions carried out in an agricultural food chain: business functions (developed at different levels of the agricultural food chain), physical functions (i.e. stocking, transformation, shipping, etc.), and facilitative functions (i.e. funding, assumption of risks, information, etc…)
- We can identify two approaches:
  - a) product chain (output-input), starting from a final product (or group of products). From downstream to upstream.
  - b) production chain (input-output), starting from the agricultural product (raw material). From upstream to downstream.

See: https://www.bankpedia.org/index_voce.php?lingua=en&i_id=85&i_alias=a&c_id=23126-agricultural-food-chain-encyclopedia

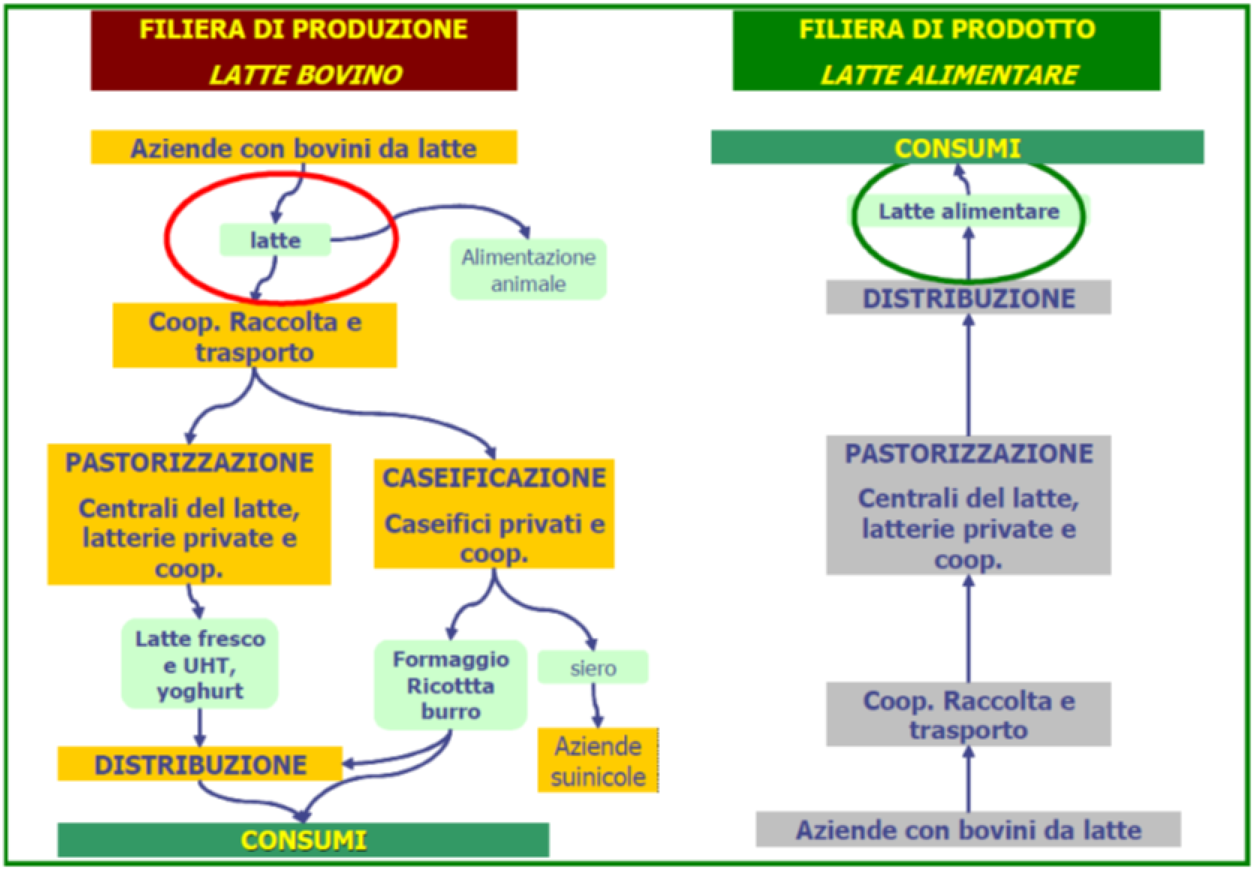
The agri-food system

Articolazione VERTICALE (*FILIERA*)	FILIERA OLIVICOLA	FILIERA VITICOLA	FILIERA FRUMENTO	FILIERA ORTOFRUTTA FRESCA
Articolazione ORIZZONTALE (*SETTORE*)				
Produzione di fattori (input)	industria meccanica, chimica, sementiera, ecc.			
AGRICOLTURA	**olivicoltura**	**Viticoltura**	**frumenticoltura**	**ortofrutticoltura**
Primo ingrosso e con-dizionamento	raccoglitori, commercianti	raccoglitori, grossisti, import-export	Commercianti, stoccatori	raccoglitori, grossisti, mercati alla pro-duzione, ecc.
....	....	....	....	....
Prima trasformazione	Molitura	Vinificazione	Molitura	Condizionamento
Secondo ingrosso	grossisti	Grossisti	Grossisti	grossisti
Seconda trasformazione	raffinazione, miscelazione, confezionamento	invecchiamento, imbottigliamento	panificazione, pastificazione	IV gamma V gamma
....	....	....	....	....
Distribuzione finale al dettaglio	vendita diretta, GDO, HORECA, piccolo dettaglio,			
Attività ausiliari	credito, formazione, trasporti, servizi vari			
CONSUMO	Modelli di consumo alimentare			
OUTPUT	oli d'oliva	vini	Pane, pasta,	ortofrutta fresca

Source: Belletti, Marescotti – Economia dell'Impresa Agro-alimentare

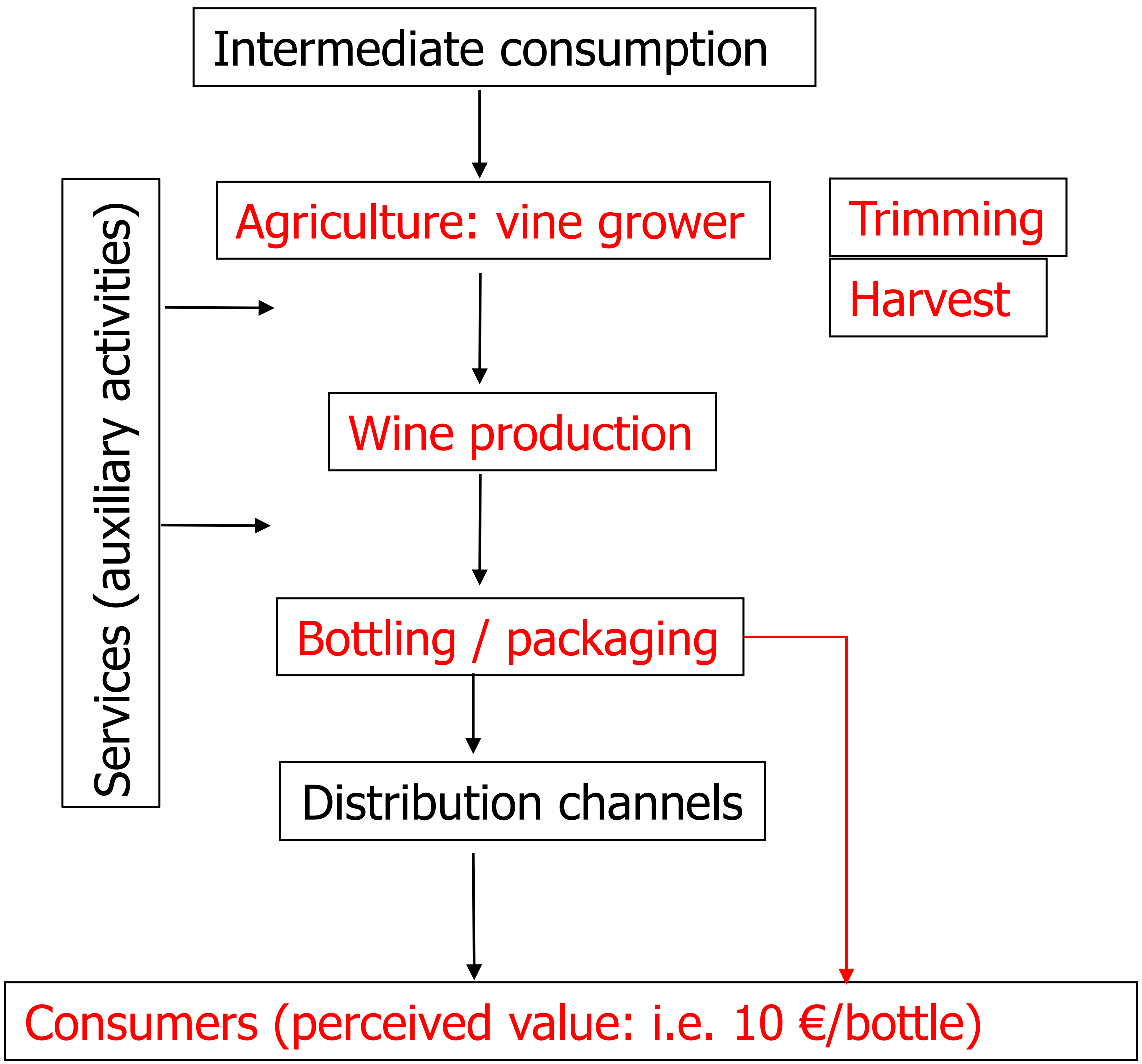
The agri-food chain

Production and product chain



Source: Belletti, Marescotti – Economia dell'Impresa Agro-alimentare

The wine supply chain

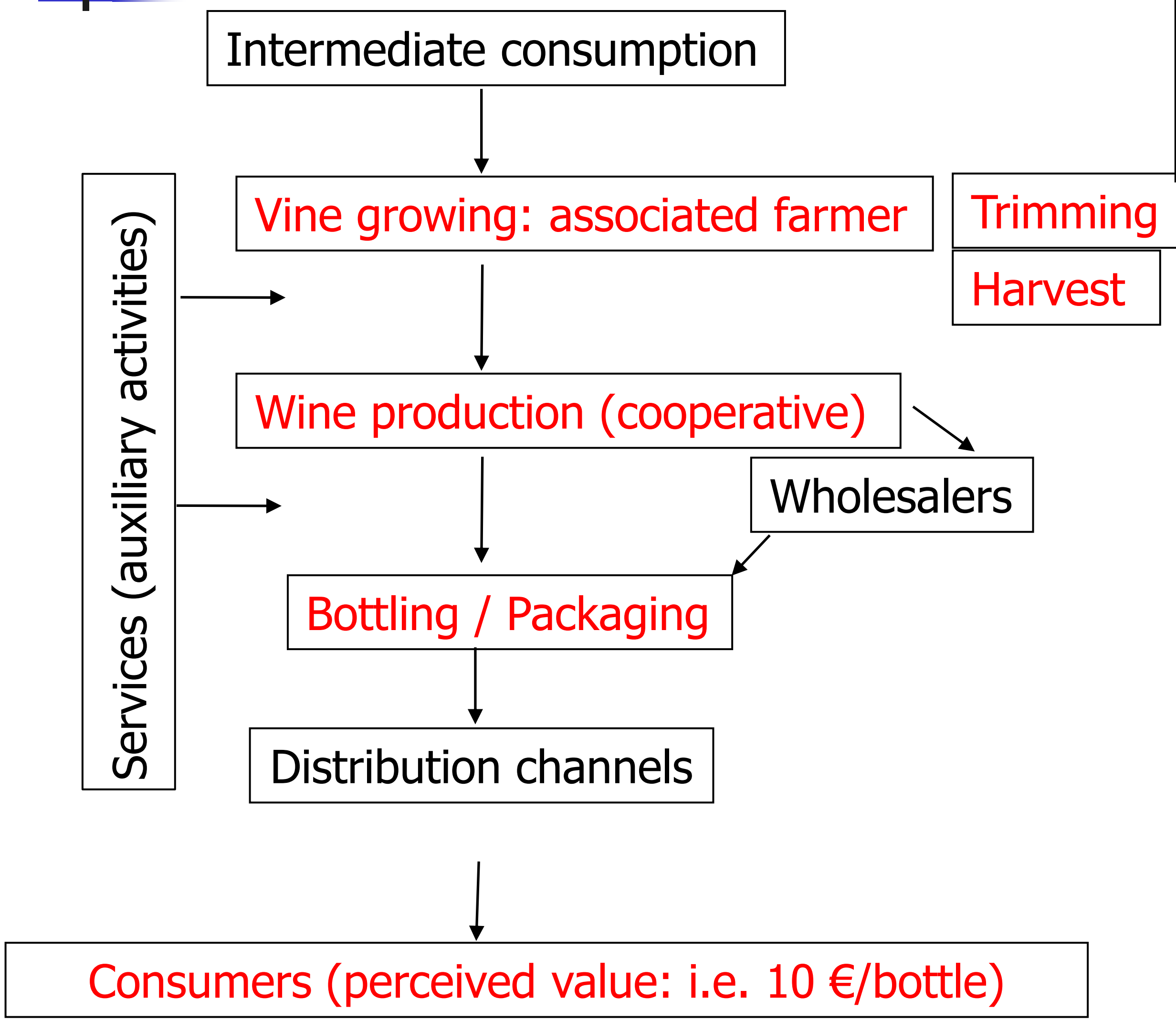


Wine grower/producer => Vertically integrated chain

Key aspects=>

- Added value
- Limited economies of scale (higher costs)
- Outsourcing of some phases of the production

The wine supply chain



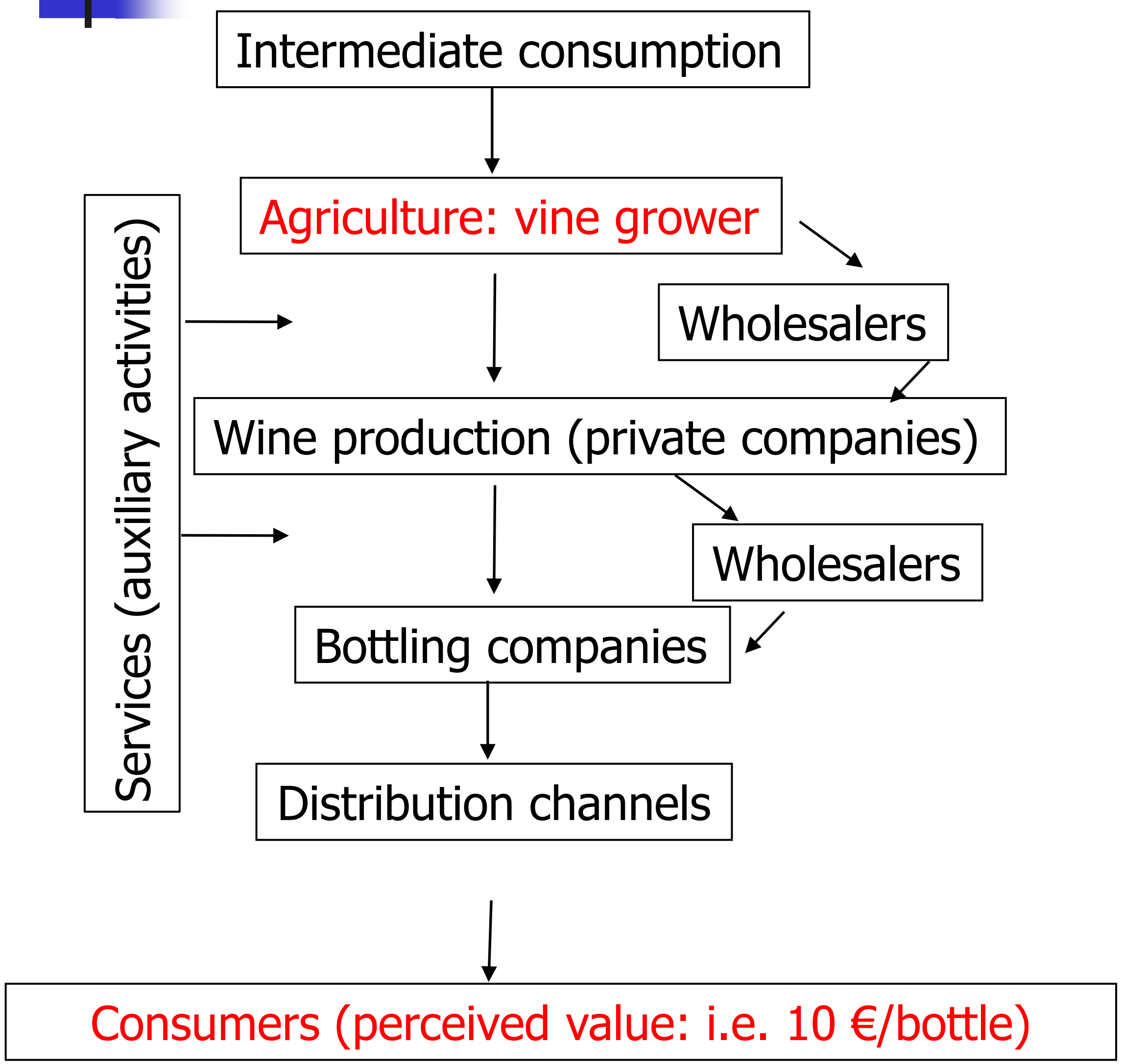
Cooperatives => Vertically integrated chain

Key aspects=>

- Winegrowers associated in the cooperative
- Value distribution among different coordinated companies
- Higher quantities
- Economies of scale (efficiency)
- Difficulties in managing the bottling phase
- Second level cooperatives

The wine supply chain

Not integrated chain



Key aspects=>

- Winegrowers sell the grapes in the market (weakness in the value distribution)
- interprofessional agreements.
- Important role of intermediate markets (both grapes and wine)
- Economies of scale in production and bottling

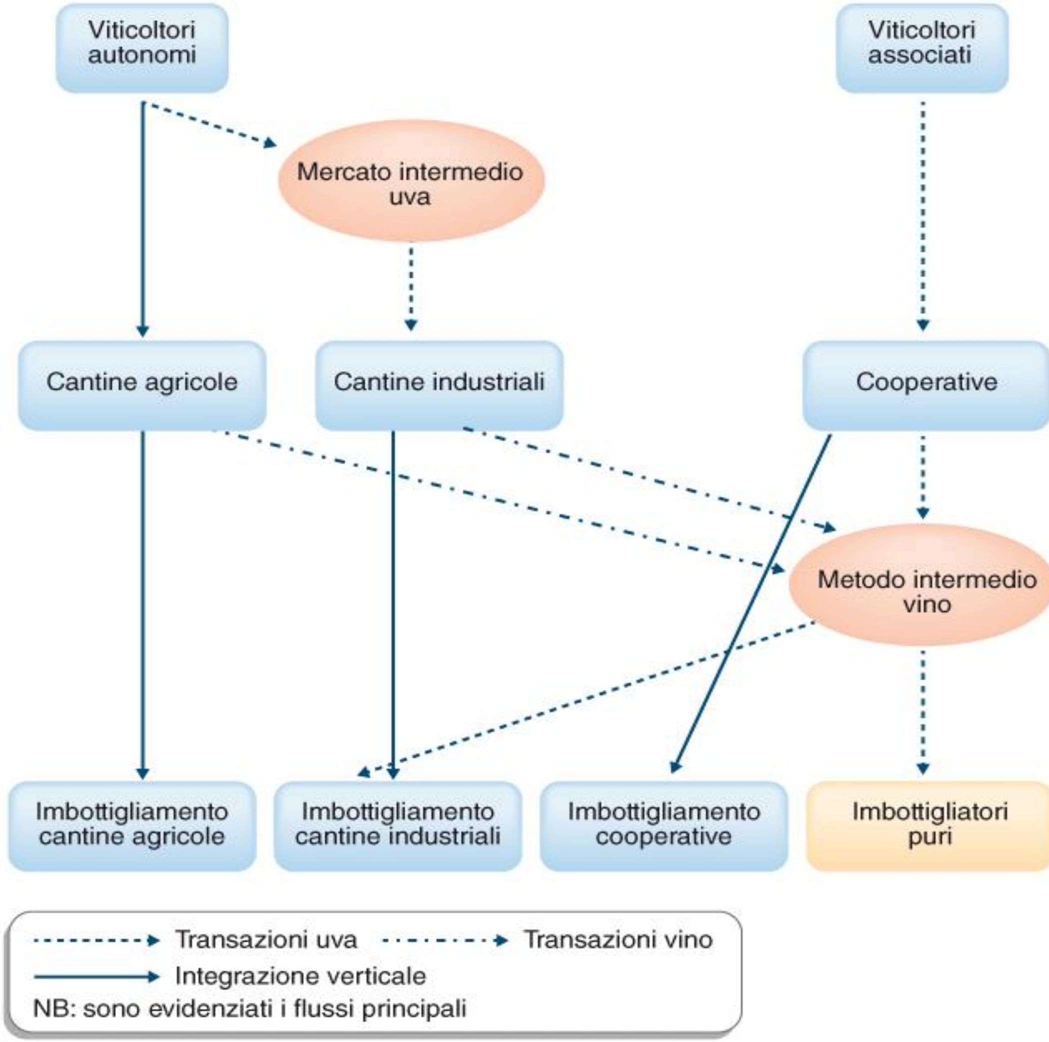


Figura 1.11
Unità tecniche, flussi e mercati intermedi nella filiera del vino italiano.
Fonte: ns. elaborazioni da Malorgio et al., 2011.

13 Mld di € FATTURATO COMPLESSIVO

50 Mln di hl PRODUZIONE (+3% rispetto al 2020)

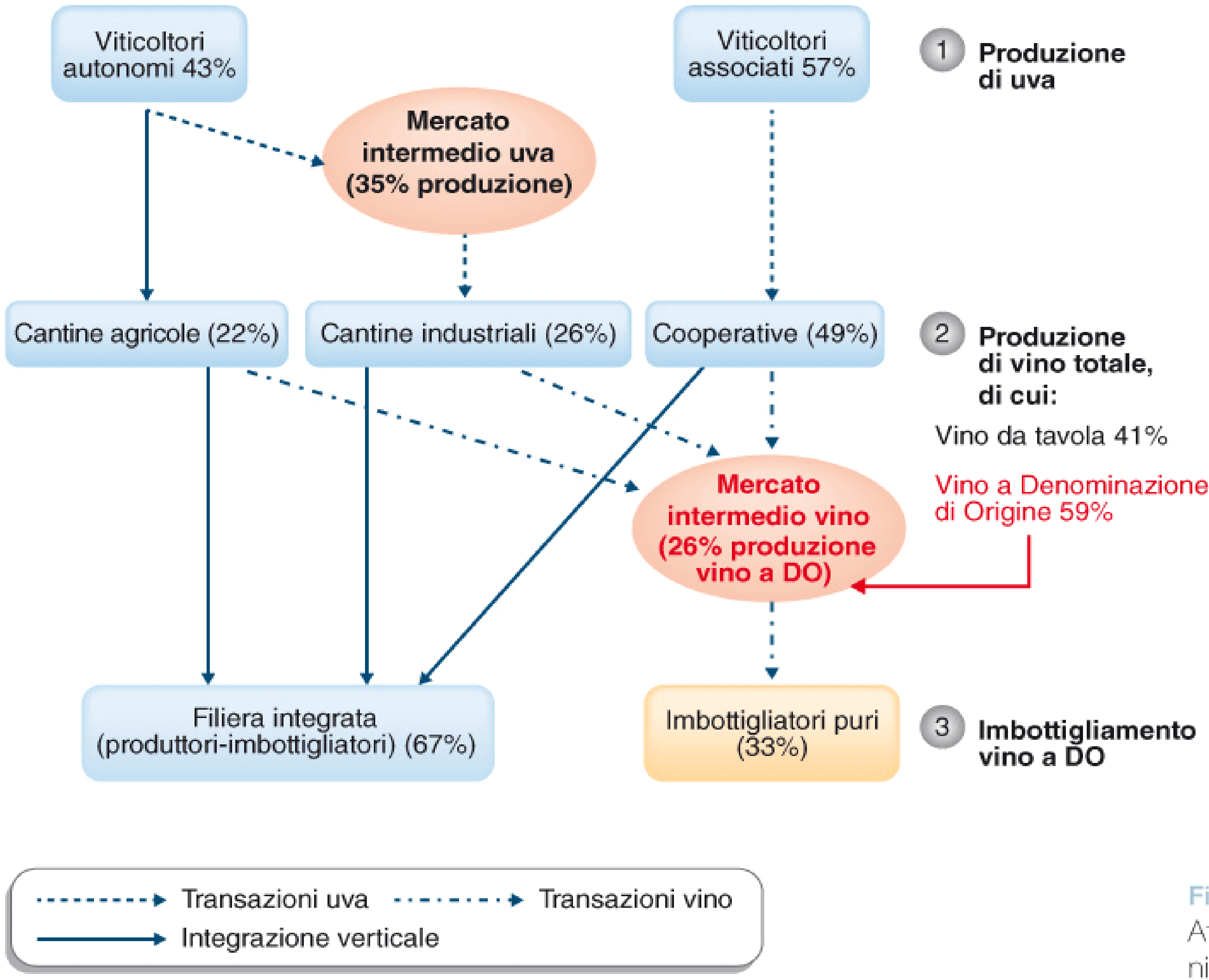


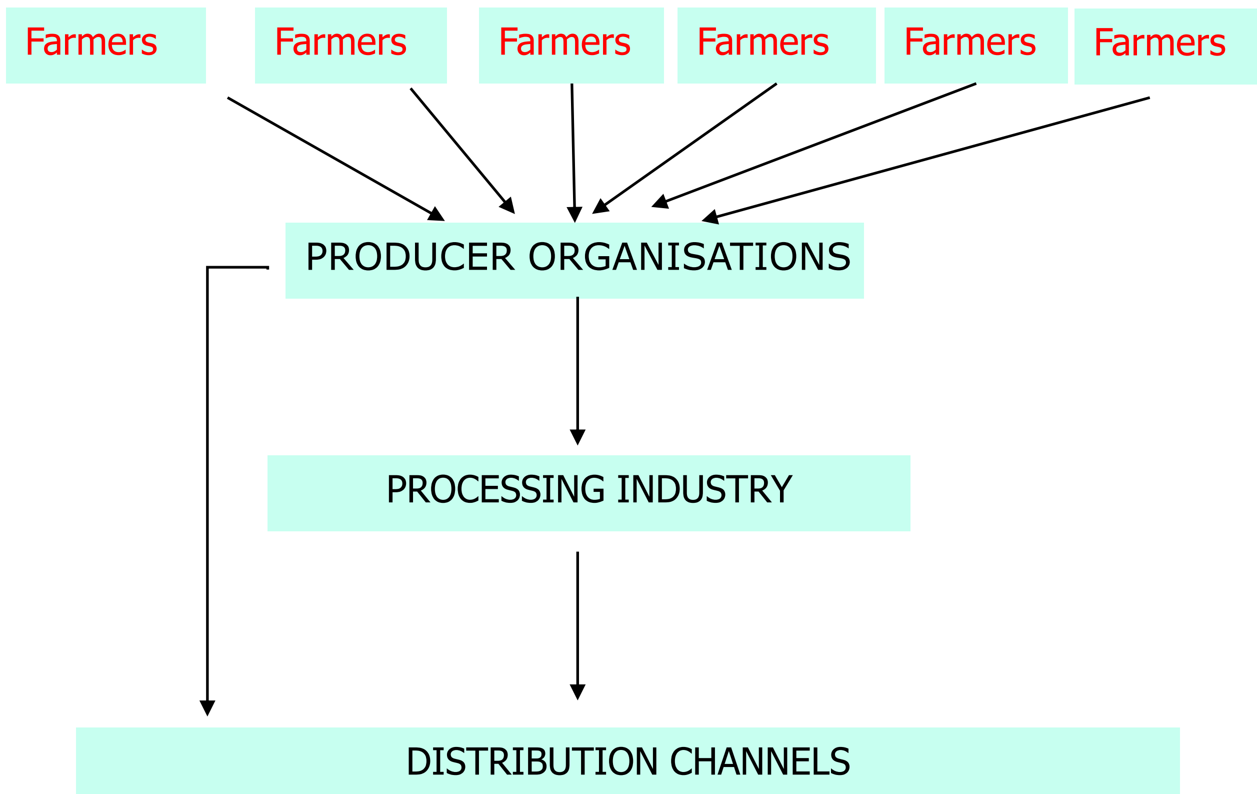
Figura 3.1
Attori e flussi della filiera vitivinicola in Italia.

310 mila
N. IMPRESE VITICOLE

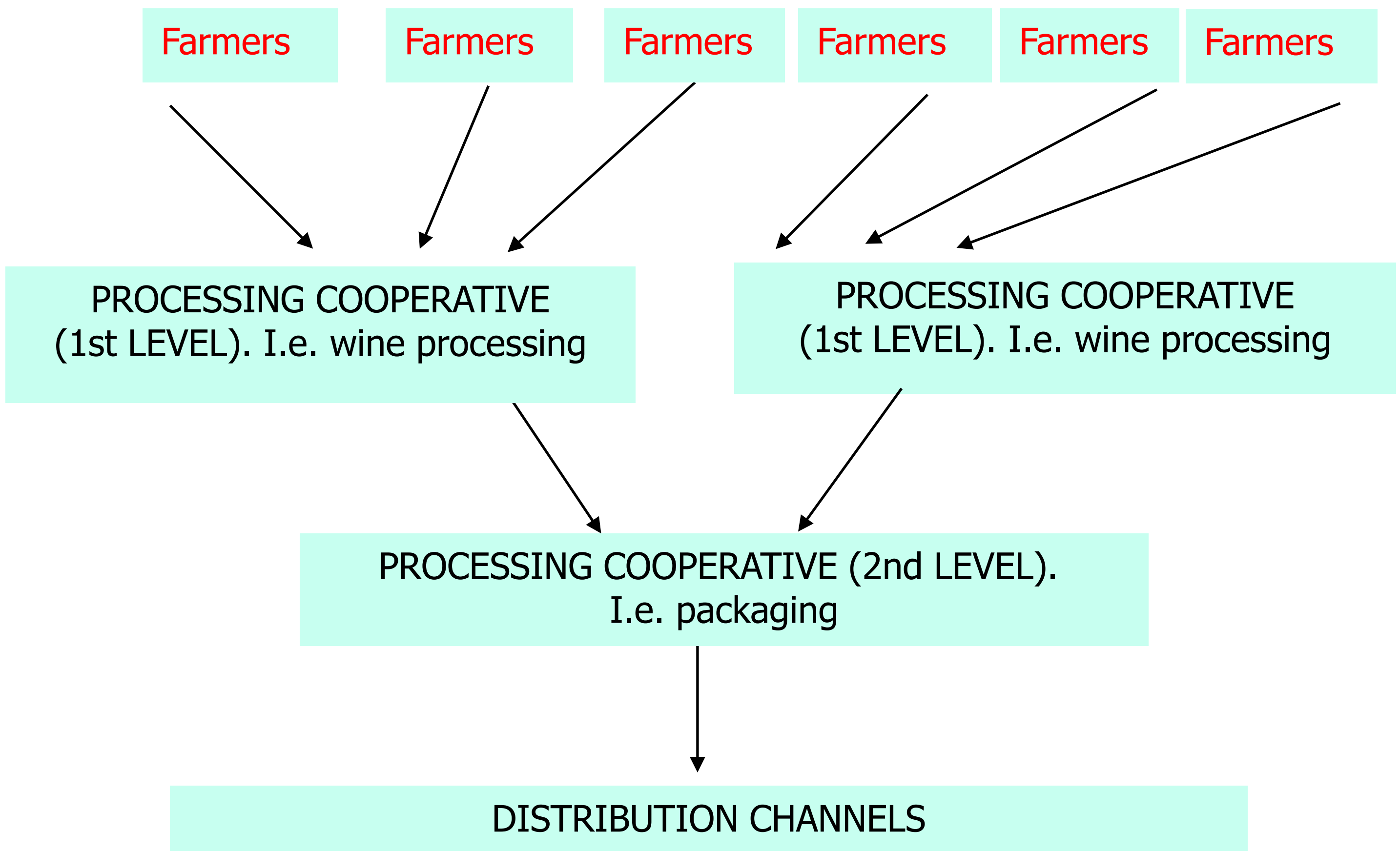
674 mila ha
LE SUPERFICI INVESTITE

38 mila
LE AZIENDE VINIFICATRICI.
>55% vino cooperative

Coordination of the chain



Coordination of the chain

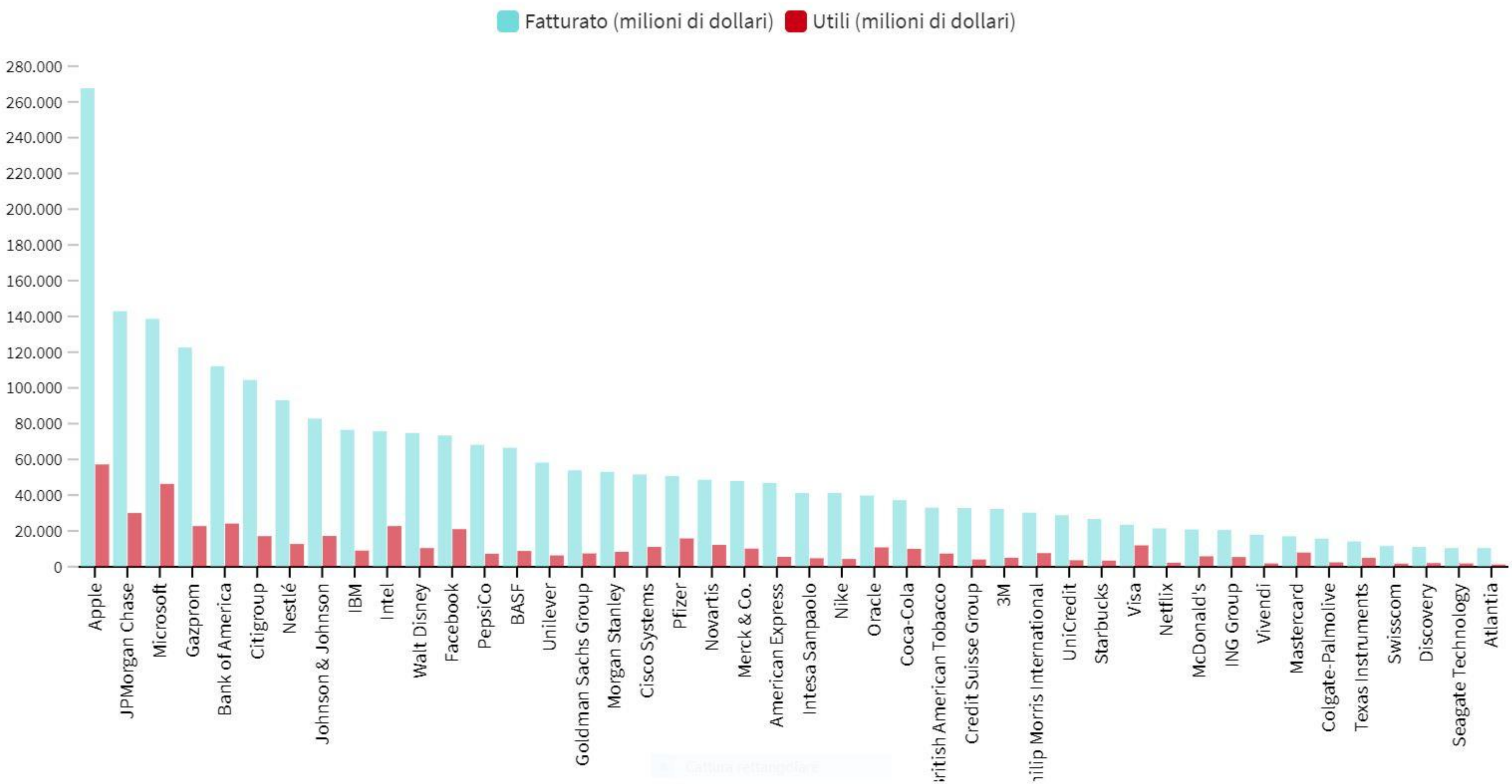


		Fatturato (miliardi di euro)	Sede centrale	Attività prevalente
1	Nestlé	82,6	Svizzera	multiprodotto
2	AB InBev	39,2	Belgio	birra
3	Unilever	23,0	Paesi Bassi/Regno Unito	multiprodotto
4	Danone	22,4	Francia	lattiero-caseario, acqua, alimentazioni infanzia
5	Heineken	20,6	Paesi Bassi	birra
6	Lactalis	16,5	Francia	lattiero-caseario
7	Diageo	14,1	Regno Unito	bevande alcoliche
8	FrieslandCampina	11,3	Paesi Bassi	lattiero-caseario
9	Arla Foods	10,3	Danimarca	lattiero-caseario
10	Ferrero	9,6	Italia	dolciario
11	Carlsberg	8,8	Danimarca	birra
12	Pernod Ricard	8,6	Francia	bevande alcoliche
13	Associated British Foods	8,4	Regno Unito	zucchero, amido, preparati
14	Danish Crown	7,9	Danimarca	carne
15	DSM	7,7	Paesi Bassi	multiprodotto
16	Agrokor	6,5	Croazia	multiprodotto
17	Parmalat	6,4	Italia	lattierocaseario, succhi di frutta
18	Kerry Group	6,1	Irlanda	multiprodotto
19	Südzucker	5,7	Germania	zucchero, multiprodotto
20	Barry Callebaout	5,6	Svizzera	cioccolato
21	Oetker Group	5,1	Germania	multiprodotto
22	Vion	4,6	Paesi Bassi	ingredienti a base di carne
23	LVMH	4,6	Francia	multiprodotto
24	Savencia	4,4	Francia	lattierocaseario
25	Tereos	4,2	Francia	zucchero, multiprodotto
26	Glanbia	3,7	Irlanda	lattierocaseario
27	Barilla	3,4	Italia	pasta, prodotti da forno
28	Tate & Lyle	3,2	Regno Unito	multiprodotto

Fonte: CREA (2017)

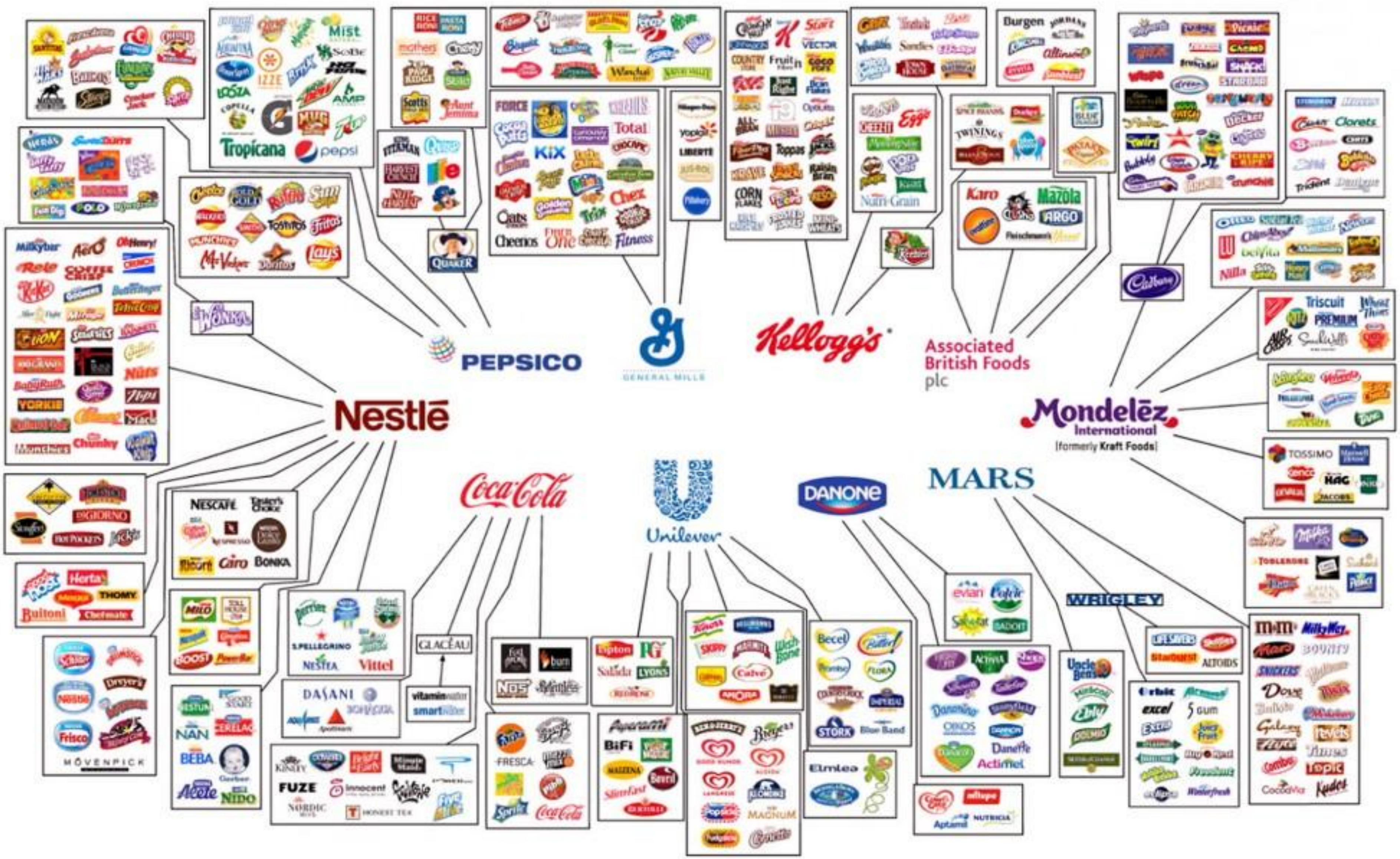
Fonte: elaborazioni su dati FoodDrinkEurope.

International companies (in the agri-food sector)



Fonte: Forbes

International companies in the agri-food sector



Aggregation strategies

Issues relating to the agricultural sector:

- Many farmers work on relatively small family farms which operate independently of each other:
- Difficulties in the efficient management of the resources
- Supply atomisation
- perishable nature of the products and preservation costs
- Asymmetry of bargaining positions makes it difficult for farmers to defend their interests when negotiating with other actors in the supply chain (higher concentration amongst both processors and retailers).

Coordination mechanisms (aligning the productive processes, facilitating transactions and increasing efficiency)

- **Horizontal coordination**
- **Vertical integration**

Aggregation strategies

Horizontal coordination:

- Efficiency objectives:
  - investments with a high minimum threshold of capital
  - economies of scale and scope
  - product supply concentration (quality and quantity)
  - increase of the range of offered products
  - economies of costs: transaction costs, supply of inputs (seed, fertilizer, fungicides, pesticides, etc.).

- Power objectives: negotiating better terms of exchange
  - Increase of the bargaining power towards upstream and downstream operators
  - Increase of the lobbying power towards public and private institutions

Aggregation strategies

Producer and interbranch organisations

Producer organisations (POs) or associations of producer organisations (APOs) help farmers reduce transaction costs and collaborate when processing and marketing their products. Producer organisations strengthen the collective bargaining power of farmers by (for example):

- planning the production in relation to the demand (quality and quantity)
- concentrating supply and marketing directly the products
- providing technical and logistical assistance to their members
- helping with quality management
- transferring knowledge.

Objective: to strengthen farmers' collective bargaining power

Source: https://ec.europa.eu/

Aggregation strategies

Producer and interbranch organisations

The EU acknowledges the special role played by producer organisations and, as a result, they can ask for recognition from the EU country they are based in. POs can take different legal forms, including agricultural cooperatives. Recognised POs can benefit from:

- exceptions from EU competition rules for certain activities, such as collective negotiations on behalf of their members, planning of production or for certain supply management measures;
- in the fruit and vegetables sector, access to EU funding within 'operational programmes', for example, to support collective investment in logistics to the benefit of their members.

Source: https://ec.europa.eu/

Aggregation strategies

The cooperative system in Italy

- In Italy 5 thousand cooperatives in the agri-food sector (75,5% agriculture, 14,8% processing industry, 11,7% wholesalers)

- 35 billions euro of revenues (27% agriculture production; 23% agri-food sector)

- 742 thousand members

- North: 45% companies, 81% revenues

- Center: 13% companies, 7% revenues

- South: 42% companies, 12% revenues

Aggregation strategies

The cooperatives specificity:

A cooperative is "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned enterprise".

The profit maximisation is not the objective of the company but it is the **common economic interest** of the members.

The cooperative members could be:

- **customers**
- **raw materials suppliers**
- **providers of production means**

Aggregation strategies

Cooperative typologies:

- collective purchasing (seed, fertilizer, fungicides, pesticides, etc.: horizontal integration)
- Agricultural products selling (i.e. PO)
- agricultural service cooperatives (i.e. purchase of mechanical equipment)
- worker cooperatives
- land management cooperatives
- agricultural products processing and selling

1st level cooperatives (members: farmers; *prevalently mutual cooperatives*)

2nd level cooperatives (members: cooperatives)