Research on food security

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Research on food security

2021

Risks of ag-input availability

2023

Risk management of food manufacturers

Critical inputs of food manufacturers

2023

2024

Logistics and distribution

Agricultural inputs

Agriculture

Food and drink industry

Food retail

Food service

Food consumption

2012 ->

Import I, II, III Research series on import dependency

2024

Protein self-sufficiency

Import dependency of the food supply chain

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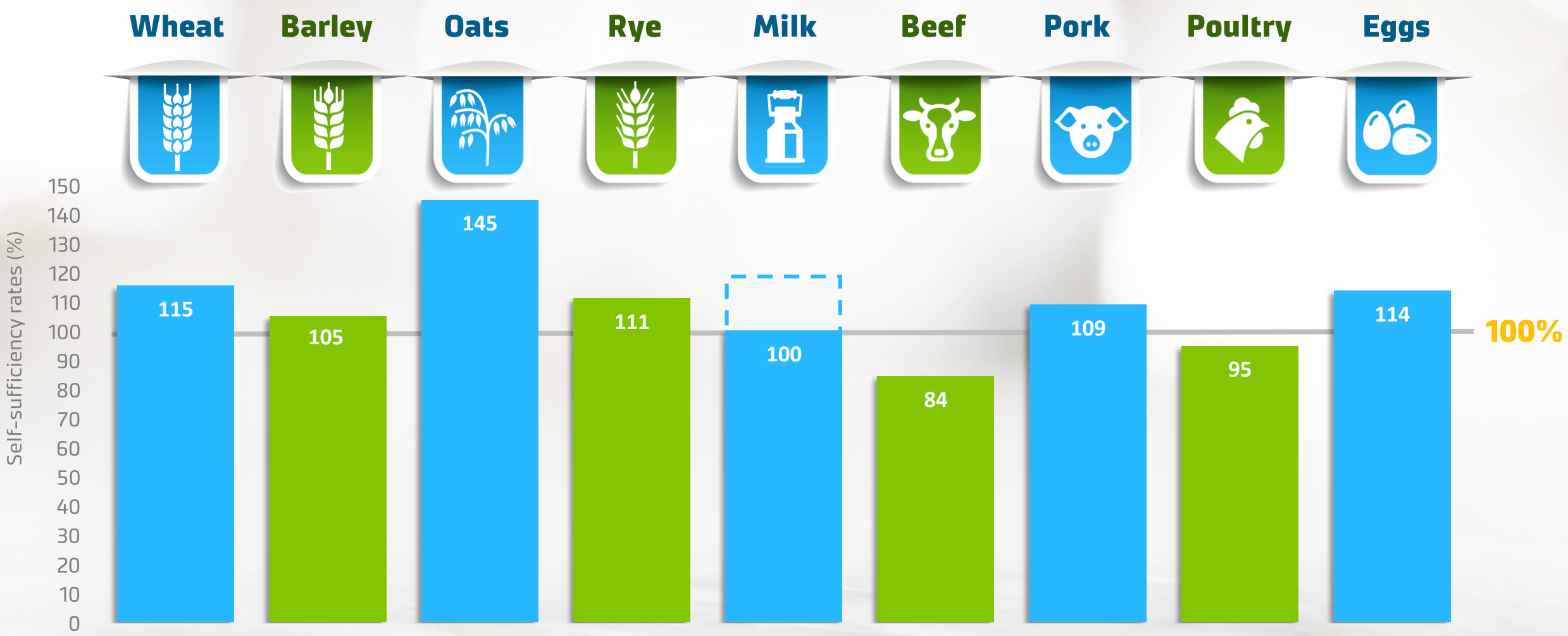
Self-sufficiency of agricultural products in Finland



Source: own calculations from data of Natural Resources Research Finland (Luke) and Kantar TNS Agri. Note: calculation formula of SSR = production/(production + imports – exports). Rates indicate the average of recent three years available. The self-sufficiency rate (SSR) of milk varies between 100–115% depending on the method of milk equivalent calculations.

Self sufficiency of agricultural inputs

Self-sufficiency rates of agricultural inputs

35%
of primary energy

0-99%
Vegetables 0%; grass 60-65%; special crops 92%, grains 99%

under 20%
nitrogen 0%,
kalium below 15%,
fosphorus over 100%

0%

20%-110%
Complementary protein feed 20%,
feed grain ~110%

45%-98%
Field vegetable farms 45%;
greenhouse farms 65%; pig farms 85%;
poultry farms 93%; milk farms 97%;
grain farms 98%

Critical production inputs in the food industry

Factory employees, foreign labour force

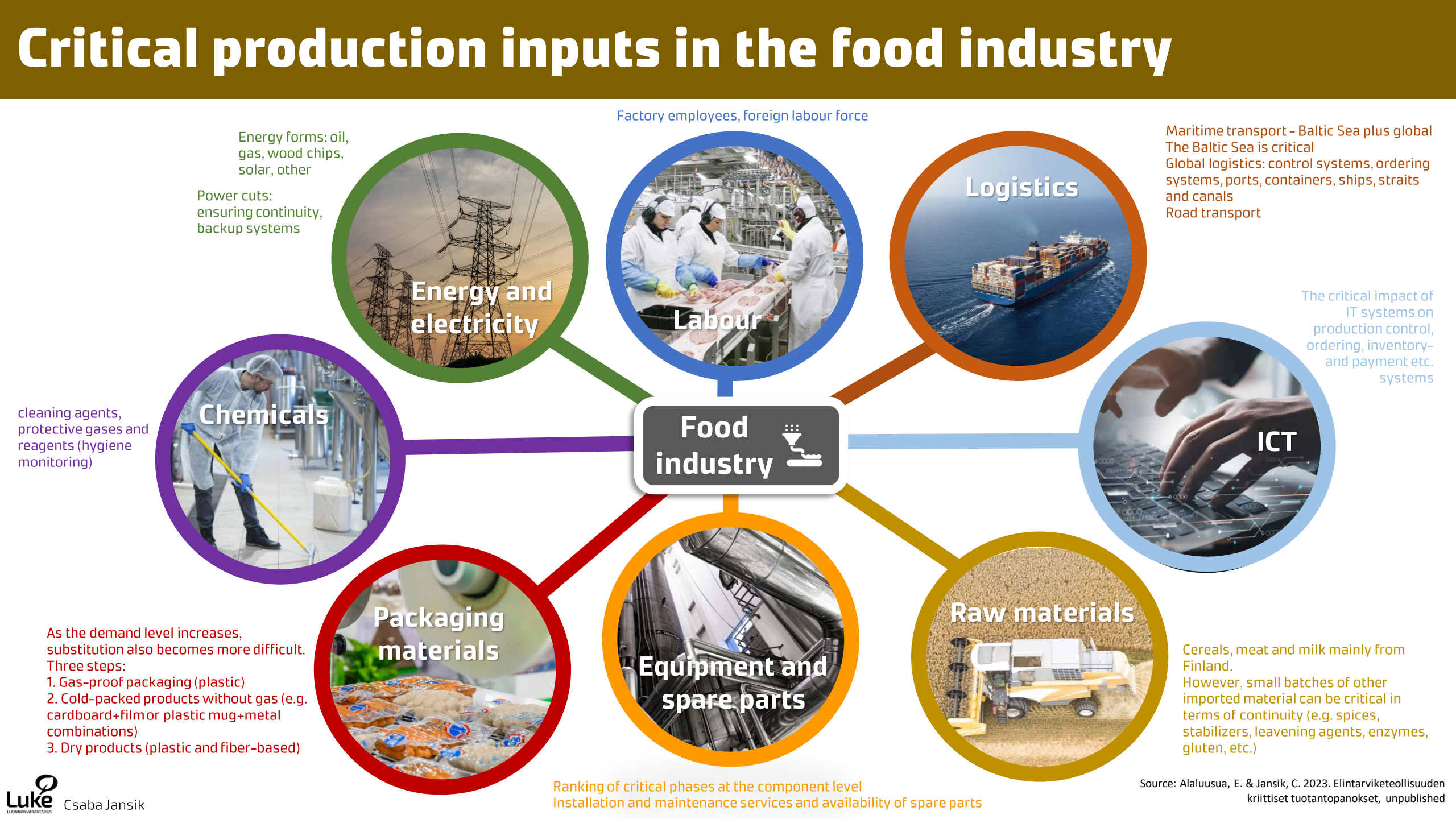
Energy forms: oil, gas, wood chips, solar, other

Power cuts: ensuring continuity, backup systems

Maritime transport – Baltic Sea plus global
The Baltic Sea is critical
Global logistics: control systems, ordering systems, ports, containers, ships, straits and canals
Road transport

The critical impact of IT systems on production control, ordering, inventory- and payment etc. systems

cleaning agents, protective gases and reagents (hygiene monitoring)



As the demand level increases, substitution also becomes more difficult.
Three steps:
1. Gas-proof packaging (plastic)
2. Cold-packed products without gas (e.g. cardboard+film or plastic mug+metal combinations)
3. Dry products (plastic and fiber-based)

Cereals, meat and milk mainly from Finland.
However, small batches of other imported material can be critical in terms of continuity (e.g. spices, stabilizers, leavening agents, enzymes, gluten, etc.)

Ranking of critical phases at the component level
Installation and maintenance services and availability of spare parts

Source: Alaluusua, E. & Jansik, C. 2023. Elintarviketeollisuuden kriittiset tuotantopanokset, unpublished

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Critical inputs for food wholesale and retail

The retail sector is a major employer, pandemics, strikes etc.

Power cuts: ensuring continuity, backup systems, backup systems for cash registers and payment systems

Maritime transport – Baltic Sea plus global
The Baltic Sea is critical

Global logistics: control systems, ordering systems, ports, containers, ships, straits and channels
Road transport

Food Wholesale- and retail

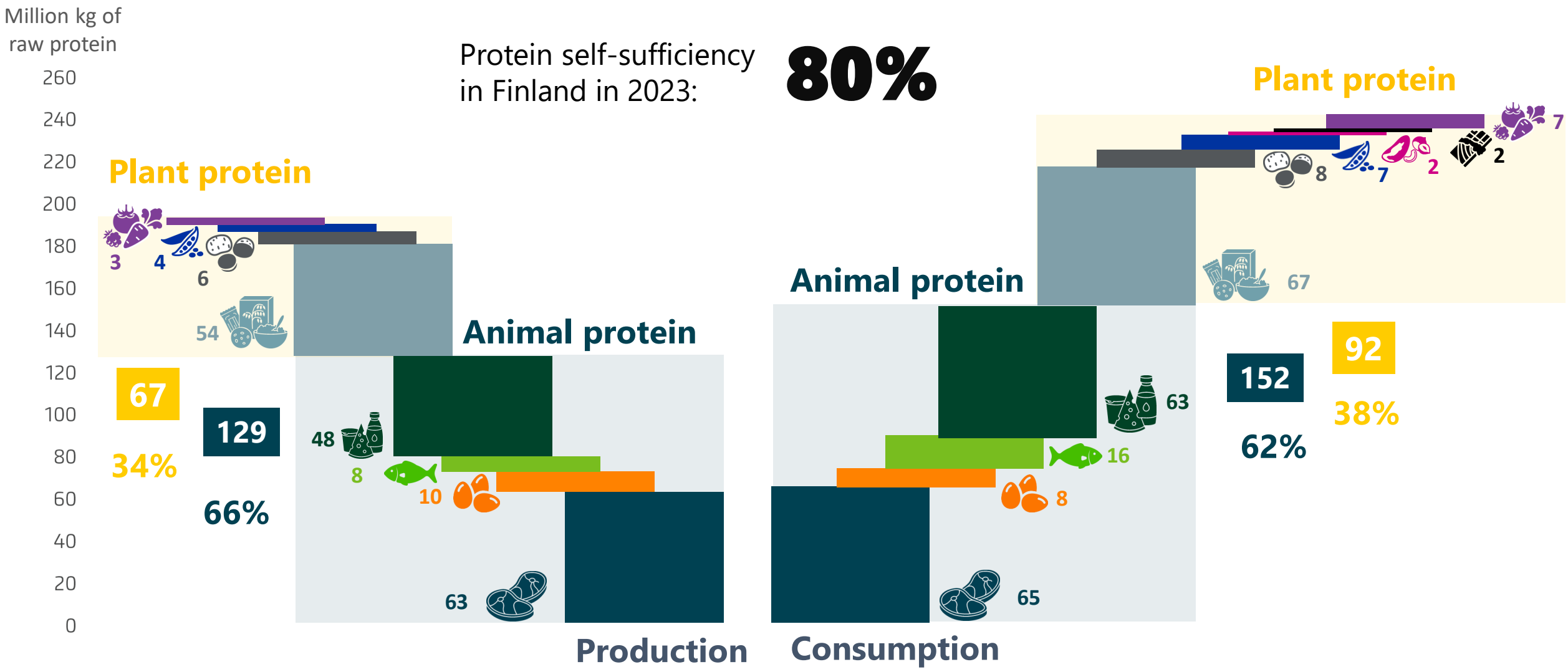
Roll cages, internal transport equipment, packaging handling, cash registers, cooling equipment, payment systems

Fresh products mainly from domestic suppliers
Dry industry products and fruit and veg are imported. Provisions have been made for import delivery difficulties by increasing stock levels, narrowing the selection and proactive orders.

The critical impact of IT systems on production control, ordering, inventory- and payment etc. systems

Self-sufficiency of food protein by food groups

Food protein production, consumption and self-sufficiency was calculated the first time in Finland in a report published in September 2024



Source: own calculations based on various datasets among others from Luke and Finnish Customs

https://jukuri.luke.fi/handle/10024/555188

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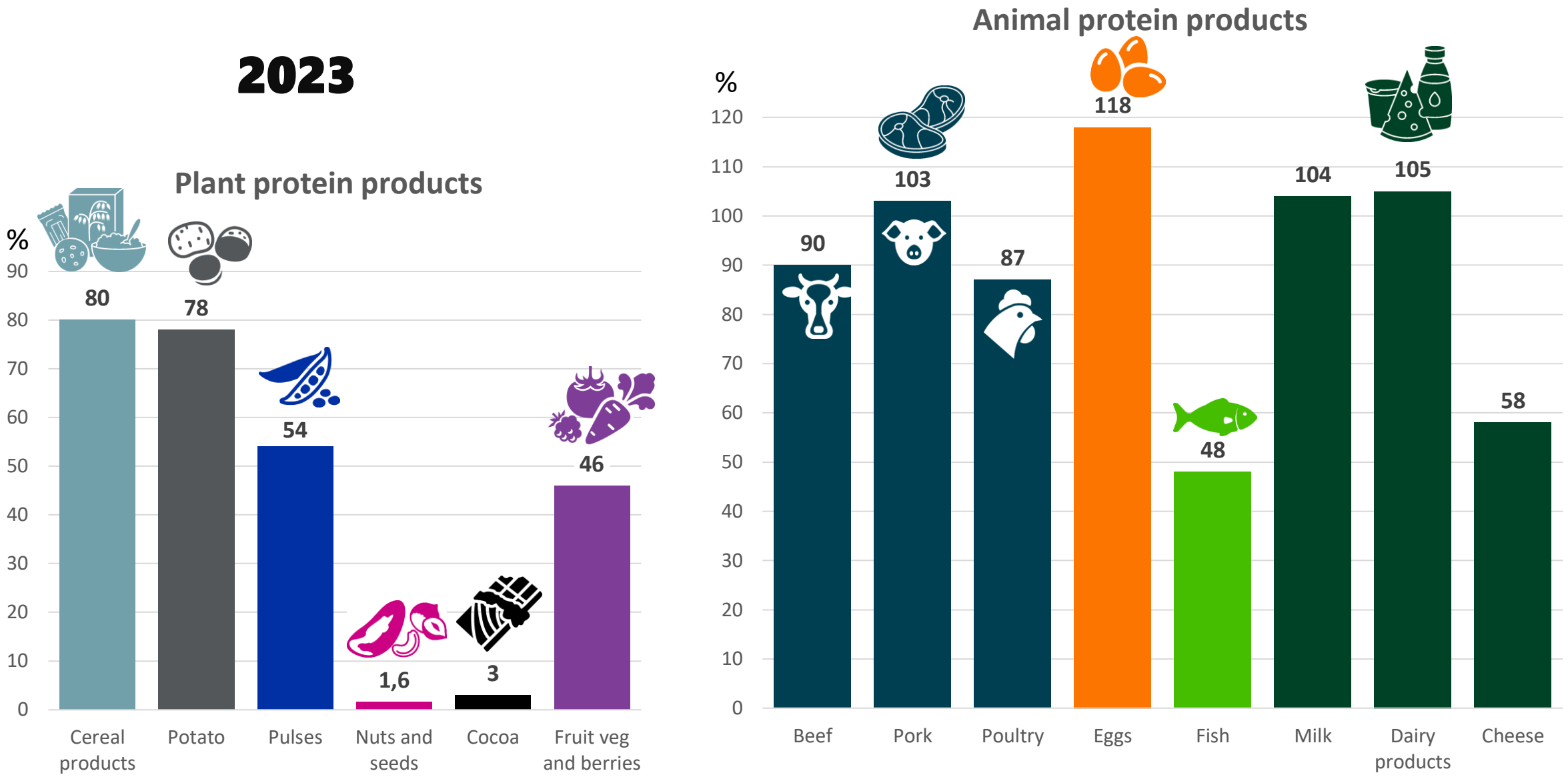
Self-sufficiency rates of food protein by food groups



Source: own calculations based on various datasets among others from Luke and Finnish Customs https://jukuri.luke.fi/handle/10024/555188

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Links to research reports

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