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Dutch Cows Under the Mediterranean Sun: Friesian Cattle and the Formation of a Dairy Herd in Spain, 1865-1936

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Presentation outline

1. Highlights of the European Dairy Sector, 1865-1930s
2. Why dairy cows in Spain?
3. Spanish Cattle and the European context
4. New Breeds for a New Sector
5. Conclusions

1. Highlights of the European Dairy Sector, 1865-1930s

Causes of the Increase Production of Milk in Europe since 1860s-70s

- Economic and industrial development
- Agrarian crisis: Livestock promotion
- Urban demand: meat, eggs, butter
- Institutions: trade agreements and customs unions
- Railroads
- Science: veterinary, nutrition, biology, physiology

- Before 1900: high specialized European Dairy regions
  - Butter: Denmark, Switzerland, North of France
  - Cheese: Netherlands

1. Highlights of the European Dairy Sector, 1865-1930s

Market penetration of liquid milk:

A. Commercial: ↑ incomes

B. Non commercial:

- urban population, new patterns of consumption (coffee, cocoa, tea)

- institutions: army, schools, hospitals

- advertising, trade marks

- by-product (whey, buttermilk)

2. Why dairy cows in Spain?

- **Focus of previous research on the Spanish Dairy Sector**:

  -Chronology: 1920s-1930s (First Official Data)

  -Dairy industry:
  1. **Nestlé, 1905: La Penilla, (Santander)**
  2. **Danone, 1919 (Barcelona)**
  3. **Letona, 1925 (Barcelona)**

  -Spain: <u>Low consumption of milk up to the Civil War</u>

2. Why dairy cows in Spain?

Table 1. Cows milk consumption in European countries, 1865-1930.

	1865	1900	1910	1920	1930
Switzerland	226	231	266	243	258
Netherlands	73	81	93	105	131
Denmark	67	98	116	104	130
Germany				107	120
France	71	82	92	103	104
Great Britain		53	77	83	89
Spain	15			44	47
Italy			31	30	35

Sources: Annuaire Statistique de la Suisse (1930), pp. 143 y 153; Froidevaux (1957), p. 164; INSEE (1946), pp. 93-94; Institut International d'Agriculture (1941), pp. 126-129; Junta General de Estadística (1868); Knibbe (1993), pp. 264-265; Ministerio de Agricultura (1934); Mitchell (1988), pp. 202-203 y 211-212; Mitchell (1998), pp. 379-383; Pirtle (1926), pp. 233 y 277; Danmarks Statistisk (1906-1935); Taylor (1976), pp. 588 y 596; Toutain (1975), p. 1951.

2. Why dairy cows in Spain?

Questions:

1. Why this low consumption of milk?

- **Spain: low comer in the food transition**
- **Low economic growth/industrialisation ► less protein consumption**

2. Cow's milk has always been a staple food?

- **Medicine**
- **Milk by products / substitutes**
- **Environmental / cultural conditions**

2. Why dairy cows in Spain?

3. Was Spanish cattle able to meet a growing demand of cow milk?

- environmental and technological constraints
    - Meadows and Grass Land Vs cereal crops
    - Means of Transport and the conservation of the product: safety and healthy

- Biological constraints: Spanish cattle

    - Characteristics
    - Location
    - Functions
    - Breeds
    - Innovations (foreign cattle)

3. Spanish Cattle

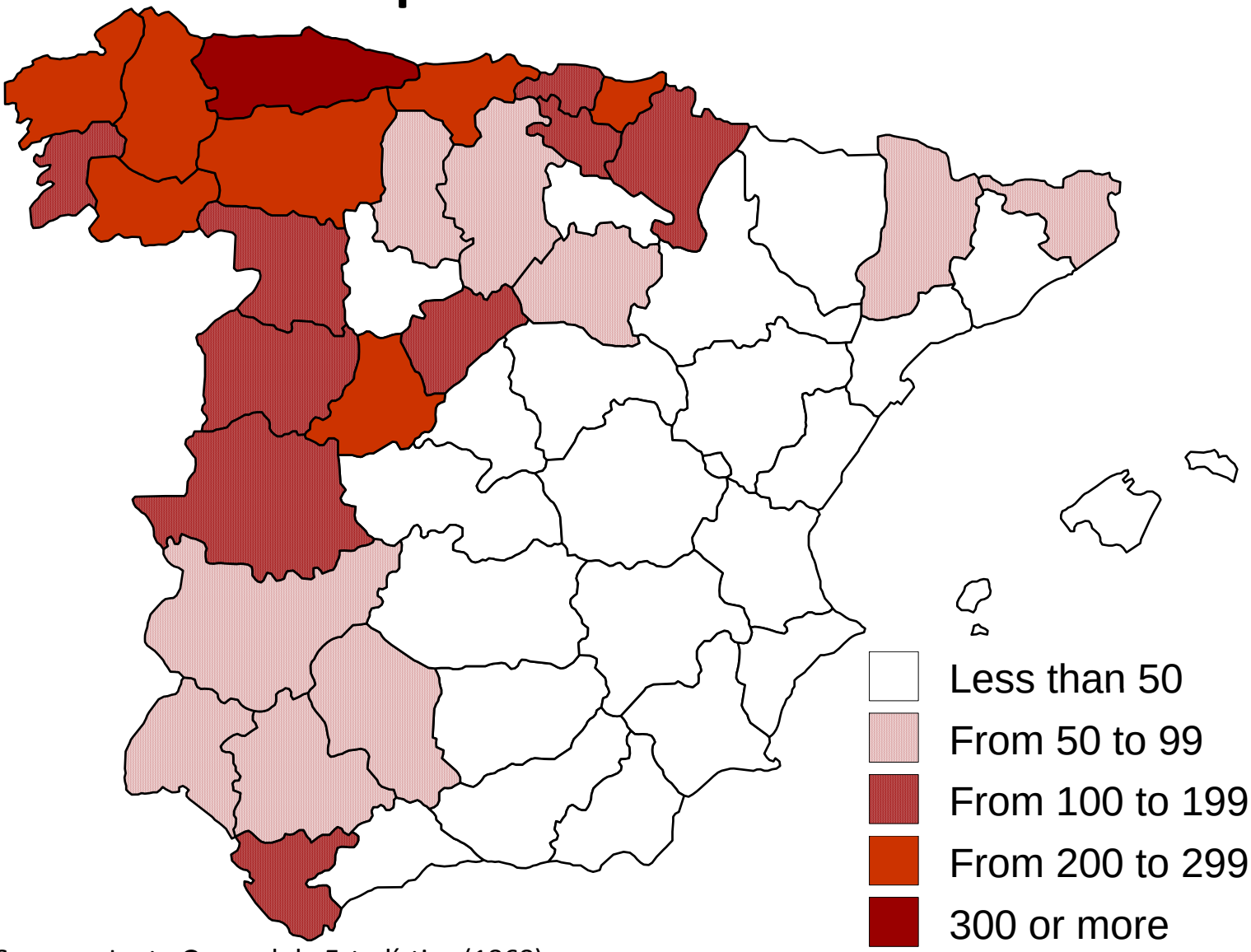
Cow numbers per 1.000 inhabitants in European countries

	Great Britain	France	Switzerland	Netherlands	Denmark	Spain
c. 1865	82	172	213	248	456	85
c. 1900	71	166	218	186	425	
c.1910	68	185	215	182	458	70
c.1920	69	195	198	156	401	90
c.1930	71	201	213	169	427	92

Sources: Annuaire Statistique de la Suisse (1930), pp. 143 y 153; Froidevaux (1957), p. 164; INSEE (1946), pp. 93-94; Institut International d'Agriculture (1941), pp. 126-129; Junta General de Estadística (1868); Knibbe (1993), pp. 264-265; Ministerio de Agricultura (1934); Mitchell (1988), pp. 202-203 y 211-212; Mitchell (1998), pp. 379-383; Pirtle (1926), pp. 233 y 277; Danmarks Statistisk (1906-1935); Taylor (1976), pp. 588 y 596; Toutain (1975), p. 1951.

3. Spanish Cattle

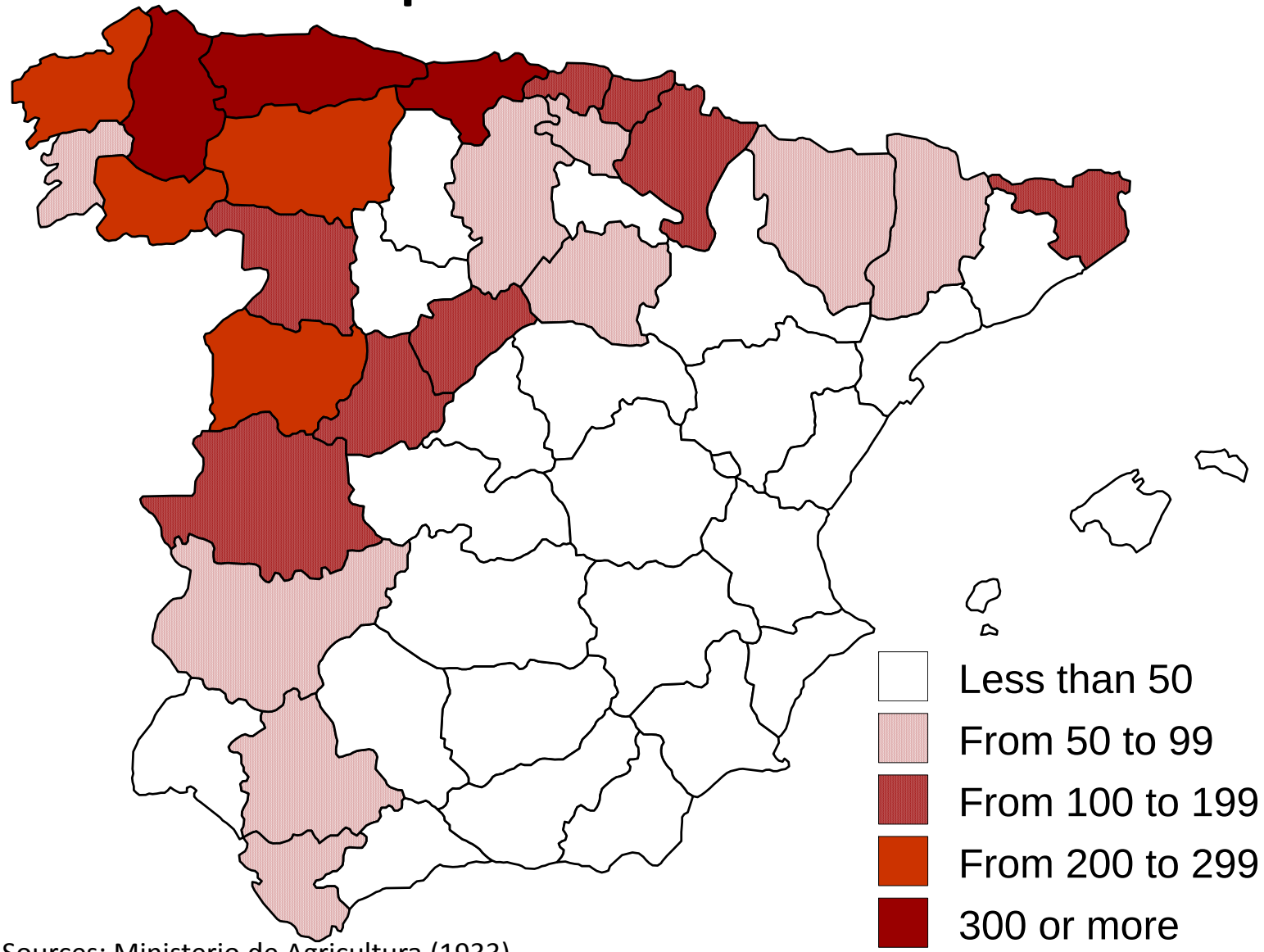
Number of cows per 1.000 inhabitants in 1865



Sources: Junta General de Estadística (1868).

3. Spanish Cattle

Number of cows per 1.000 inhabitants in 1933



Sources: Ministerio de Agricultura (1933).

3. Spanish Cattle

-Northern provinces: ↑ Availability of grassland and meadows

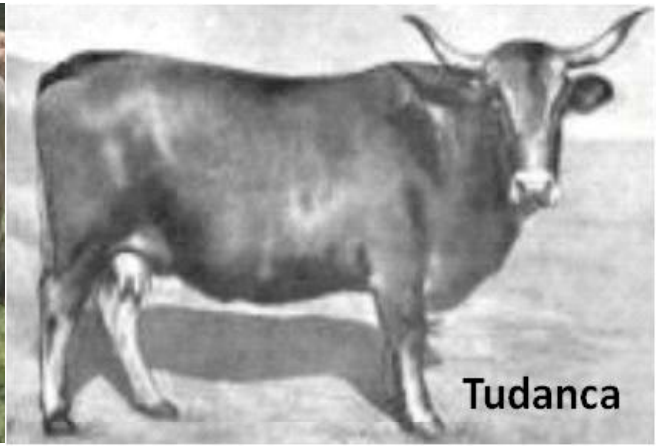
-Far from main urban centers

-Centre And South: cereal and bush crops (olive tree, vineyard): less pasturage availability for cattle raising

-Prevalence of other kind of livestock in most of central and southern provinces (sheep, goats)

3. Spanish Cattle

Native breeds of cattle



3. Spanish Cattle

Milk yielding of native cows in different provinces, c.1890

Province	Area	Breed/description	Litres / Day
Badajoz	**Centre-West**	Native (País)	**5**
Barcelona	**North East**	Native (País)	**3,5**
Cádiz	**South West**	Native (País)	**3,5**
Ciudad Real	**Centre-La Mancha**	Native (País)	**2,5**
Cuenca	**Centre-La Mancha**	Iberian	**5**
Guipúzcoa	**North**	Native (País)	**7**
Huesca	**North-Pyrenees**	Best native	**5**
La Coruña	**North West**	Gallega dairy exclusive	**5,5**
La Coruña	**North West**	Gallega work	**2,5**
León	**North West**	Native work	**2**
León	**North West**	Native	**3,5**
Lleida	**North East-Pyrenees**	Mountains	**6**
Lleida	**North East**	Native	**3**
Lugo	**North West**	Native	**2,5**
Madrid	**Centre**	Native	**11**
Orense	**North West**	Vianesa	**6**
Santander	**North**	Tudanca	**6**
Santander	**North**	Campurriana	**8**
Santander	**North**	Pasiega	**10**
Soria	**Centre**	Native	**4**
Vizcaya	**North**	Native	**3,5**

Source: Junta Consultiva Agronómica (1892) Vol. 1, 2 i 3.

3. Spanish Cattle

Function of cattle and milk use at the end of the 19th century

Girona: "**At the most cows are milked few days after weaning of calves, and even this is unusual**".

Burgos: "Native cows are milked only accidentally or by commitment"

Huesca: "Native cattle has no specific aptitude to produce milk, meat or as drought animals"

Teruel: "Cow's milk is not used. Cattle is used as drought animals and to rear calves so milk is used only to feed them".

Ciudad Real: "Cows from la Mancha are not dairy at all. All milk is sucked by calves."

Zamora: "There is no cattle intended for milk or meat production"

Badajoz: "Cow's milk is sucked by calves, so the amount of milk for human consumption is very small. Even less is the milk used to produce butter or cheese: both products are almost unknown in the market"

Source: Junta Consultiva Agronómica (1892) Vol. 1, 2 i 3.

3. Spanish Cattle

Andalucia: “They are **not good milkers**, and produce beef which, at its best, is only mediocre. On the other hand they are very cheaply kept, requiring hardly any shelter or care of any kind. That American breeders should **import Andalusian stock** is **only conceivable** in the somewhat remote contingency **of our people developing a taste for bull fighting**. (…) **Milk is rarely collected**”.

Catalunya: “Milch cows: **Entirely from Switzerland** at high prices”

Source: United States Consular Reports (1888) *Cattle and Dairy Farming*. Washington, Government Printing Office, pp. 384-388.

3. Spanish Cattle

The use of Spanish Cattle until 1900

-Low specialization of native breeds

-Main use: meat and work

-↓ production of milk

-↓ exploitation of milk

- Calves

- Transformation of milk:
local, handcrafted, concentrated

4. New breeds for a new sector

What changed in Spanish cattle since the end of the 19th century?

4. New breeds for a new sector

Urban cowsheds (vaquerías):

- ↑ since the end of the 19th century

Urban cowsheds in Barcelona and Madrid

	1840's-50's	1887	1895	1905	1915	1925	1935
Madrid	44	66	177	241	350	335	432
Barcelona	15	180	273	368	650	--	520

Sources: Anuario Bailly-Balliere; AVM 6 / 60 / 38; GENERALITAT DE CATALUNYA (1937), pp. 57-58; MAS ALEMANY (1935), p. 28; VILA (1979), p. 119-128.

- Importation: cows and fodder

- High yields requirement: high costs (feed, cleaning, urban taxes…)

4. New breeds for a new sector

Ways of improving national cattle

- **Inbreeding**
- **Crossbreeding**
- **Importation**

Choosing the best breed: the discussion on a suitable dairy cow for Spain

-Physical characteristics

-Acclimatization

-Dairy reputation

-High yielding requirements (urban cowsheds)

4. New breeds for a new sector

Brown Swiss: milk and acclimation

-Origin: Swiss Alps

-End 18th century/beginning 19th: selection and cross breeding

-Triple purpose: meat, milk and work

-Exportation:

  -Before 1850s: north of Italy, France, U.K.

  -From 1860s: all Europe, North America (USA 1868), Russia, Spain (1870s-80s)

-Herd Books: 1880 in Switzerland

4. New breeds for a new sector

BROWN SWISS

-Support of regional councils since 1870s: Basque country, Navarre

-Triple purpose

-Crossbreeding with native cattle (Pyrenean)

-Easy keeping: environmental conditions

-Specialists preference: Pyrenean and Cantabrian provinces

Problems:

-Not accepted in other provinces (Galicia)

-Not better than native breeds: environmental conditions

-More costs

4. New breeds for a new sector

Friesian: the dairy cow

-Origin: Friesland (Netherlands)

-Beginnings 19th century: selection by color

-↑Exportations: from 1850s-60s to Europe, North America, Russia, Japan, Argentina (Spain 1880s-90s)

-Herd Books:

- -USA: 1872
- -Netherlands: 1875
- -United Kingdom: 1910

4. New breeds for a new sector

FRIESIAN

Problems:

-Poor performance under environmental conditions of most of provinces

-Poor results of crossbreeding with native cattle

-Expensive: feeding

Success:

-Support of urban cow keepers

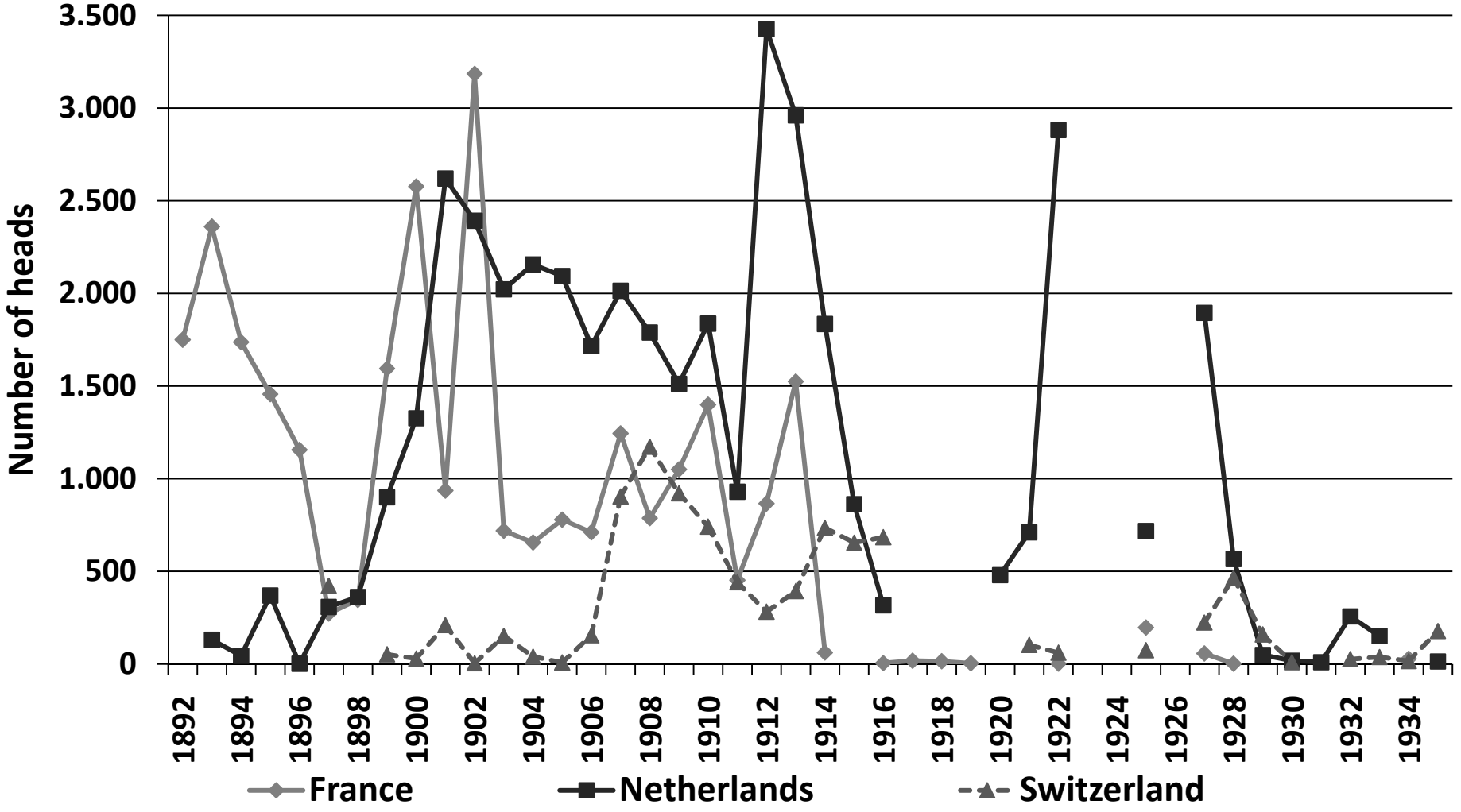
-Support of dairy companies: Nestlé in Cantabria

-High yielding

-Year Amount of milk balances feeding costs

4. New breeds for a new sector

Importation of cows by country of origin, 1865-1930.



Sources: Estadísticas del Comercio Exterior de España (1890-1936).

4. New breeds for a new sector

Producció lletera de diferents varietats a Espanya, 1920s

Breed	Length of lactation	Average milk yield		Fat content
		Day	Year	
	Days	*Litres*	*Litres*	*%*
Tudanca	210	5	1.000	4 - 4,5
Campoo	210	8	1.700	4,9
Galician of the Mountains	180	5	900	4-6
Galician of the Valleys	180	6	1.200	4-6
Asturian of the Mountains	180	5,5	800-1.000	s.d.
Asturian of the Valleys	180	10	1.700-1.900	s.d.
Pyrenean (Basque country)	180 - 240	4-5	720-1.200	3,7
Pyrenean (Catalonia)	150-180	8	1.200-1.400	4
Brown Swiss	300	7	2.500	3,5 - 4
Holstein-Friesian	350	8	3.000	3 - 3,5

Sources: Asociación General de Ganaderos (1925); García Bengoa (1923); Junta Consultiva Agronómica (1920); Rosell i Vilà (1923); Santiago Enríquez (1922).

4. New breeds for a new sector

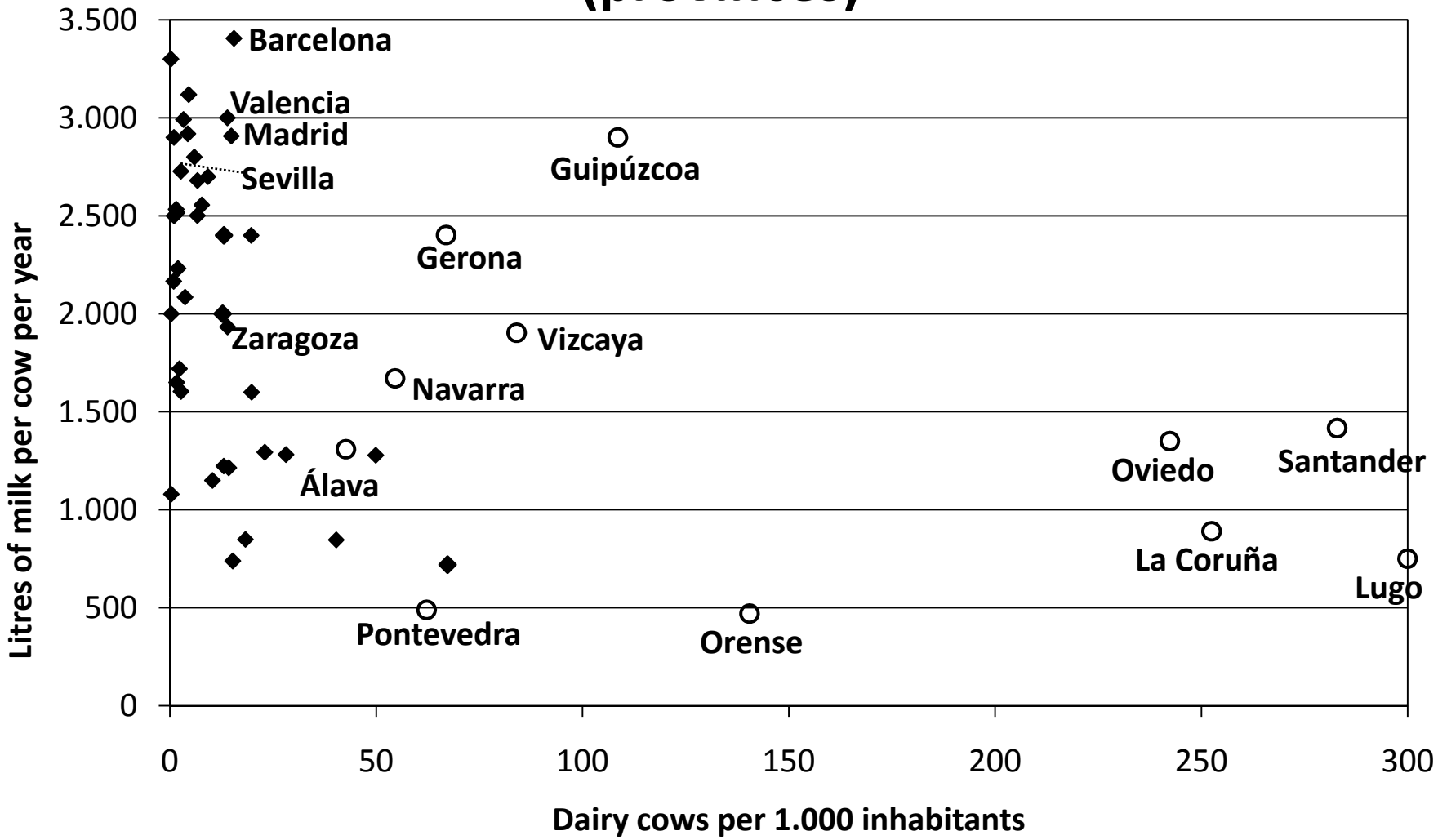
Average milk yielding per cow in different european countries, 1865-1930.

	Great Britain	France	Switzerland	Netherlands	Denmark	Spain
c. 1865	1.590	1.222	1.938	2.350	1.553	592
c. 1900	2.135	1.291	2.350	2.659	2.428	
c.1910	2.540	1.434	2.893	2.632	2.670	
c.1920	2.550	1.647	2.588	2.528	2.736	1.123
c.1930	2.603	1.694	2.877	3.239	3.216	1.278

Sources: Annuaire Statistique de la Suisse (1930), pp. 143 y 153; Froidevaux (1957), p. 164; INSEE (1946), pp. 93-94; Institut International d'Agriculture (1941), pp. 126-129; Junta General de Estadística (1868); Knibbe (1993), pp. 264-265; Ministerio de Agricultura (1934); Mitchell (1988), pp. 202-203 y 211-212; Mitchell (1998), pp. 379-383; Pirtle (1926), pp. 233 y 277; Danmarks Statistisk (1906-1935); Taylor (1976), pp. 588 y 596; Toutain (1975), p. 1951.

4. New breeds for a new sector

Milk yielding and dairy cows per 1.000 inhabitants, 1933 (provinces)



Sources: Asociación General de Ganderos (1925).

5. Conclusions

-Introduction of dairy breeds (specially Friesian) strongly related with urban growth and concentration of milk demand in the cities

-Urban cowsheds required high yielding cows

-Spanish cattle not able for dairy production

-Selection and improvement of native cattle: high costs and time

-Faster solution: importation of foreign breeds

-Provinces with important urban areas in the 1930s showed higher yields per cow than in Northern/cattle raising provinces

-Faster substitution of native cattle by Friesians in low specialized regions

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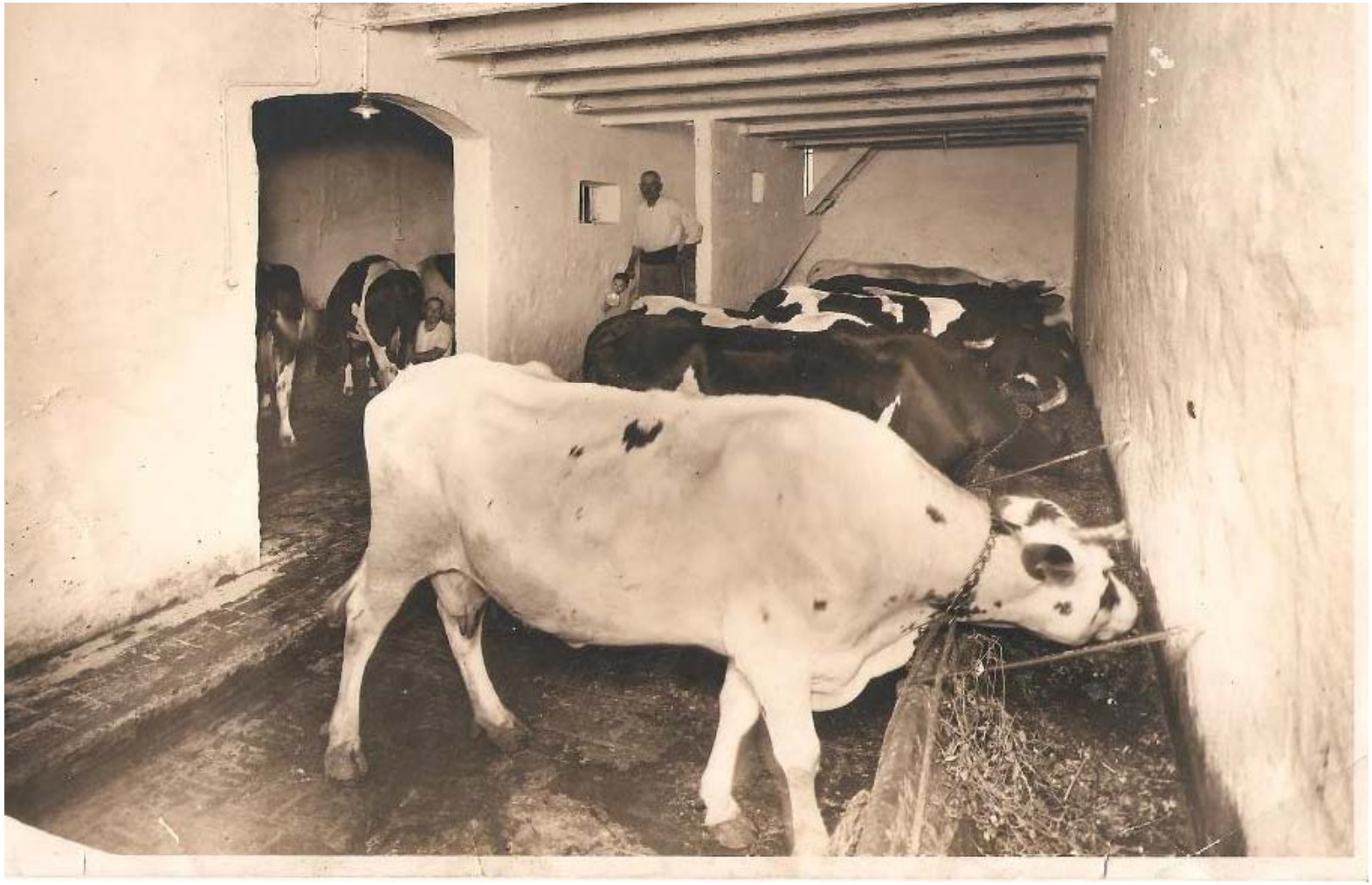

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