

GAME MANAGEMENT UNDER RANCHING AND FARMING CONDITION IN THE CZECH REPUBLIC AND EUROPE



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Coevolution of humans and deer



...at least in good direction for humans.

History of deer farming

- In Europe is found evidence of „farmed“ deer from Stone Age- antlers used as tools (Fletcher, 2003).

Early deer husbandry- from Upper Paleolithic time described as winter fodering (Barker, 1985)



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- During Middle Age evidence of farmed deer in England and Scotland (Birrell, 1991).



Middle Age on British Islands

(1066 – 1485)

1,000 – 3,000 of deer
fenced parks,

Only 1-5 mill. humans

Why? (Fletcher, 2006)



History of deer farming

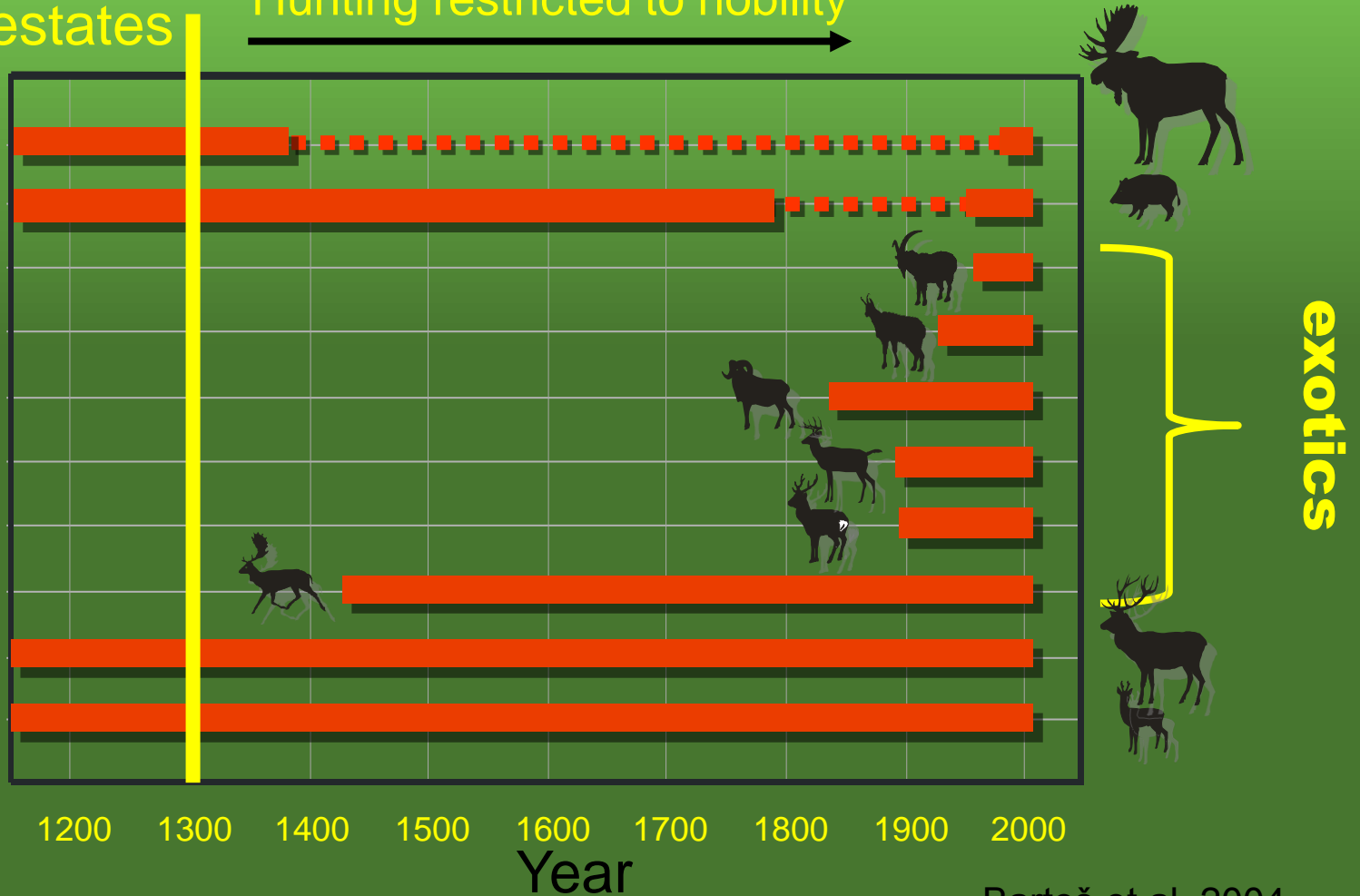
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- since 1970s modern deer farming industry has expanded in New Zealand and Europe.



History of occurrence of large game in the Czech Republic

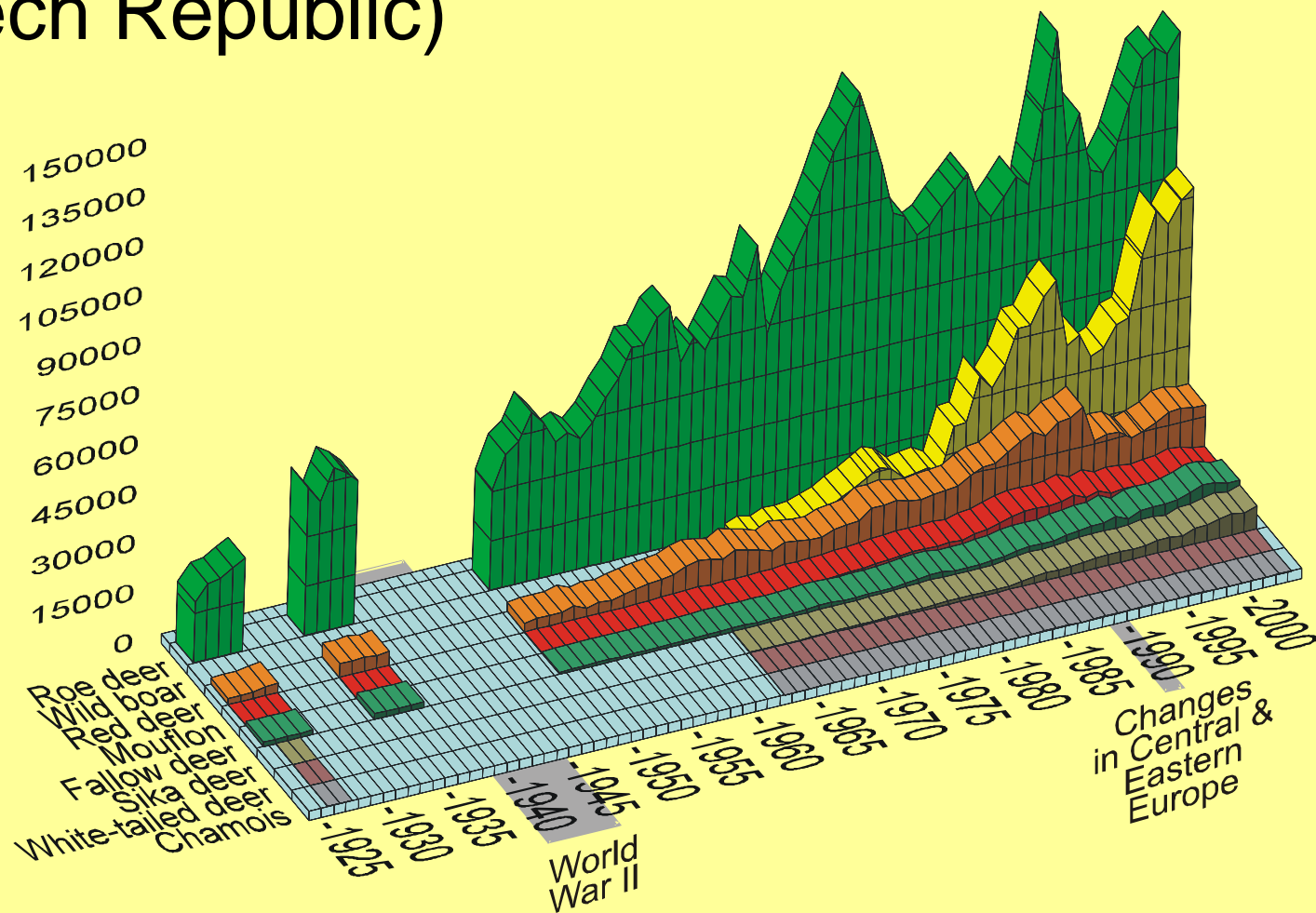
First fenced hunting estates

Hunting restricted to nobility



Bartoš et al, 2004

Development of gunting bag for large game (Czech Republic)



Bartoš et al, 2004



**Federation of Associations for Hunting
and Conservation of the EU**

- Founded in 1997
- Represents 36 European countries (27 EU + 9)
- Membership of 7 mill. hunters for conservation in Europe, but ↑ damages to crop and forests- overpopul.
- Estimated wild game population (farms excluded)

Roe deer (*Capreolus capreolus*): 10 mill. spec. (Lecocq, 2011)

Red deer (*Cervus elaphus*): 2-3 mill. spec.

Wild boar (*Sus scrofa*): 10-15 mill. spec.



- Established in 1990
- Represents 17 European countries.
- Membership of roughly 10,000 European farmers keeping stock of 280,000 deer- mainly red and fallow deer (*Dama dama*).

If we include Spain with fenced game estates- plus 3,000 operations with 600,000 large game spec.

- Europe is not self sufficient- limited production

Ideal intensive farm

Large paddocks for breeding groups of 40 to 60 females. Driving lines between paddocks-connected to to handling area



Ideal intensive farm

Handling facilities and restrain box



Ideal intensive farm

Processing unit



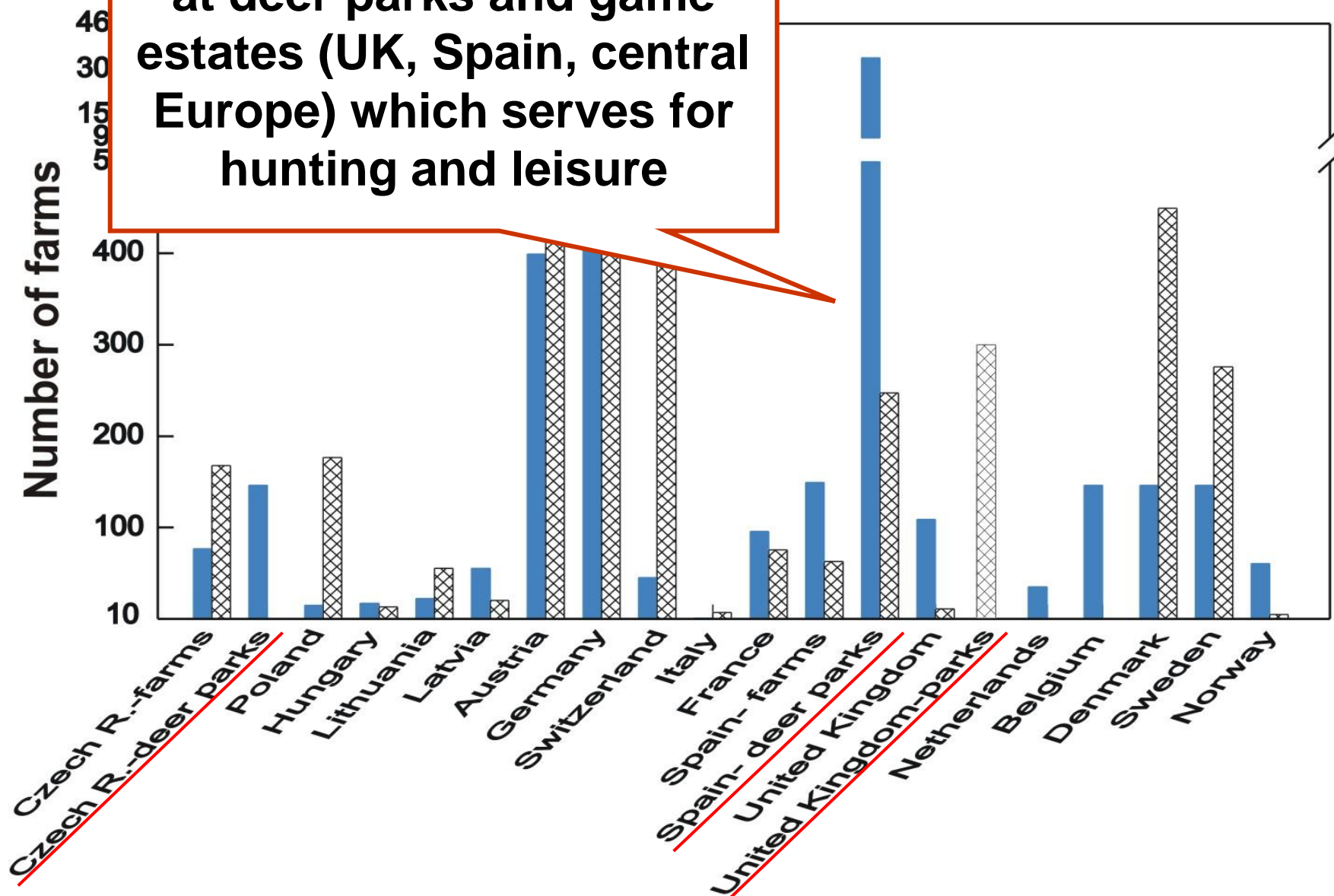
Ideal fenced game estate



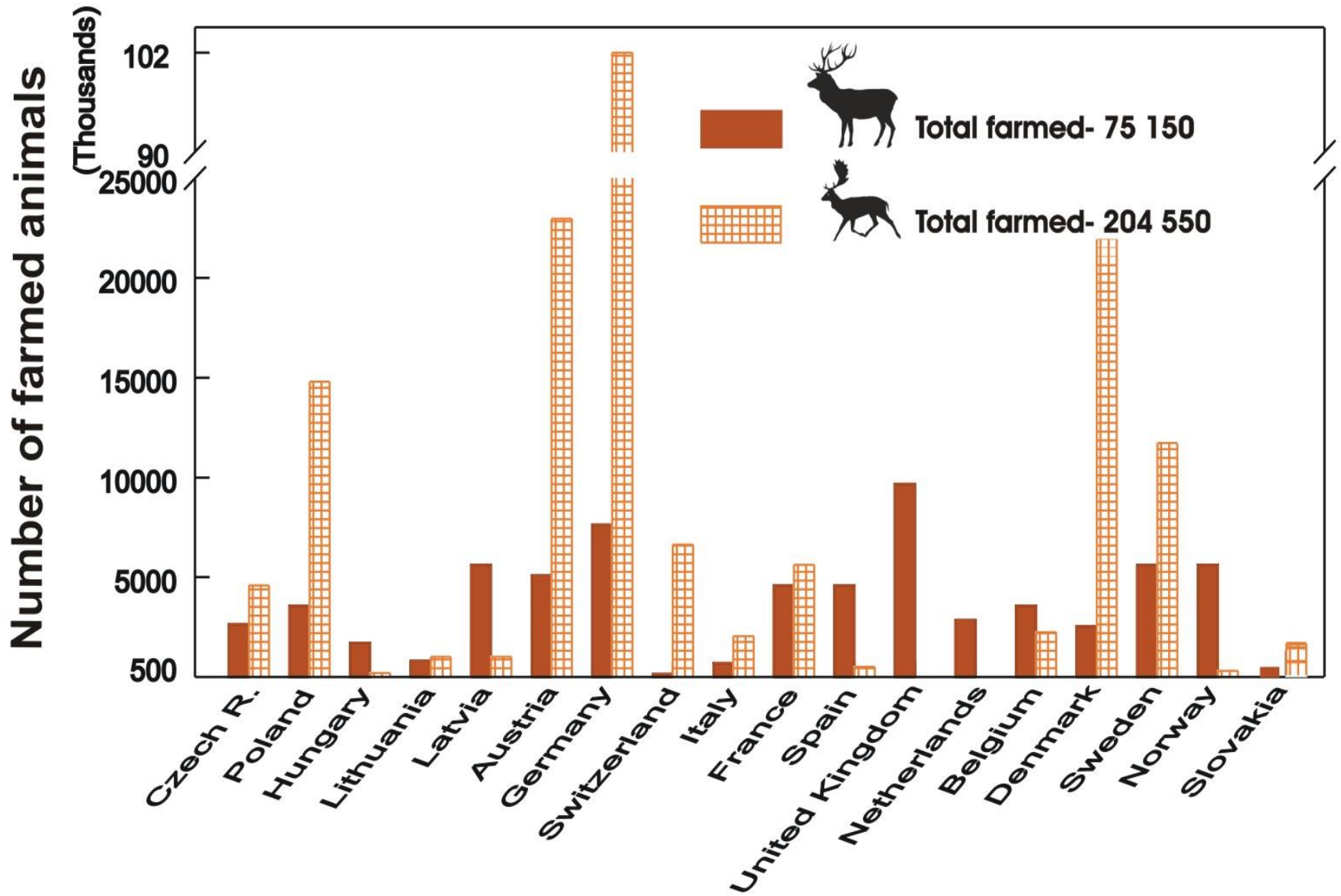
Has intensive part for game selection and extensive for breeding, visitors and hunting.

Number of deer farms and game estates- by countries

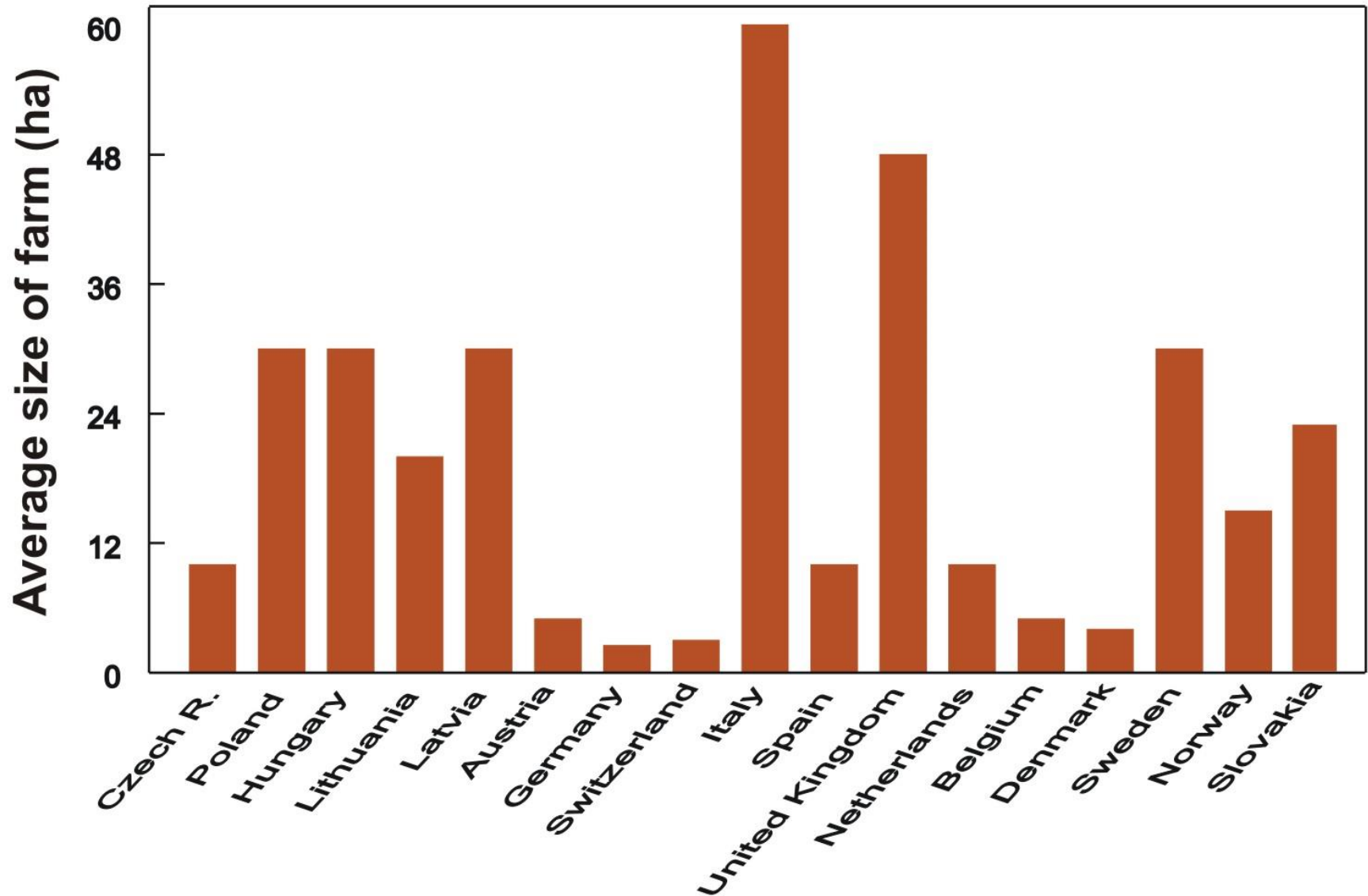
... but fenced deer is also at deer parks and game estates (UK, Spain, central Europe) which serves for hunting and leisure



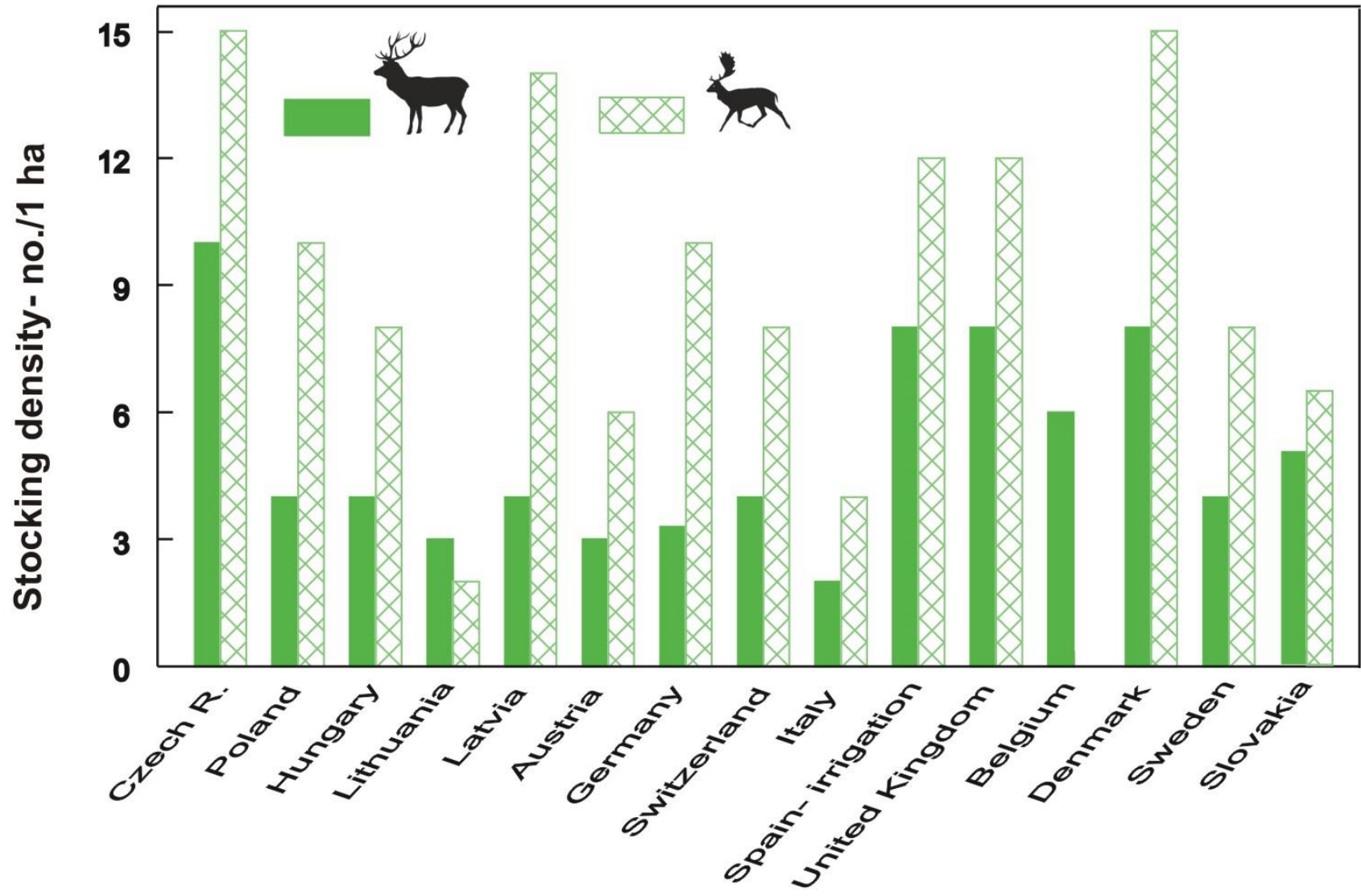
Number of farmed deer in Europe (2010)



Average size of farm (2010)



Stocking density (2010)



Incentives and goals of deer husbandry



... status symbol



... venison
production...

hunting...



oto: Didier Roques Roqery

Can we find differences in deer farming and ranching practise?

Deer farmers must follow the same rules for husbandry and slaughter as other **LIVESTOCK** farmers. At game estates animals are considered as **WILD** and in many countries treated as wild.



How deer farms differ across Europe?



Spring time close to Ciudad Real, Spain



Early spring in Prague, Czech Republic

Matter of
environmental and
climatic conditions...

... of various
vegetation cover...



Open meadows



Close forests



Indoor



Outdoor

... of overwintering
practice at farms...

... of slaughter, killing
practice...

Captive
farm

bolt at



Free bullet at farm and only



and cultural differences in attitude to game species...

Scale of deer farming industry worldwide-

estimated up to 5 mill. individuals



Why deer is farmed in Europe?

Austria	Venison (95%), trophy (5%)
Belgium, Denmark	Venison , hobby, agrotourism
Germany, Czech Rep.	Venison , to sell stock, hobby
Poland	To sell stock , subsidies
France	Venison , agrotourism
UK, Netherlands	Venison , to sell stock, trophy
Italy	Venison , hobby, trophy, agrotourism
Spain, Latvia, Lithuania	Trophy , to sell stock, represent., venison
Netherlands	Venison , to sell stock, trophy
Sweden, Norway	Venison
Switzerland	Venison , hobby
Slovakia	To sell stock , trophy, venison

Quality attributes and composition of meat from red deer (*Cervus elaphus*), fallow deer (*Dama dama*) and Aberdeen Angus and Holstein cattle (*Bos taurus*)

Daniel Bureš,^{a*} Luděk Bartoň,^a Radim Kotrba^a and Josef Hák^b

Chemical composition of beef and venison

	Angus <i>LSM</i>	Holstain <i>LSM</i>	Fallow deer <i>LSM</i>	Red deer <i>LSM</i>	<i>P</i> value
Dry matter (g/kg)	271.5 ^A	266.3 ^{AB}	255.6 ^C	257.3 ^{BC}	<0.0001
Crude protein (g/kg)	214.1 ^A	218.7 ^A	227.9 ^B	221.4 ^B	0.0013
Total fat (ether extract) (g/kg)	36.2 ^A	27.7 ^A	7.2 ^B	8.1 ^B	<0.0001
Total collagen (g/kg)	4.56 ^A	4.59 ^A	3.16 ^B	2.87 ^B	<0.0001
Soluble collagen (%)	24.89 ^A	22.31 ^A	40.32 ^B	39.16 ^B	<0.0001
Shear force (raw)	55.27	57.10	47.84	45.72	0.0429

A,B,C Values with different superscripts differ at P<0.05

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Fatty acid profiles, sums (mg/100g meat) of beef and venison

	Angus <i>LSM</i>	Holstain <i>LSM</i>	Fallow deer <i>LSM</i>	Red deer <i>LSM</i>	<i>P</i> value
SFA	1737.10 ^A	1430.05 ^A	534.10 ^B	708.68 ^B	<0.0001
MUFA	1348.57 ^A	1205.12 ^A	315.62 ^B	436.23 ^B	<0.0001
PUFA	287.64 ^A	275.41 ^A	356.62 ^{AB}	454.42 ^B	0,0159
SUMA n6	226.48	226.73	304.31	342.16	0,0617
SUMA n3	61.17 ^A	48.68 ^A	52.31 ^A	112.26 ^B	<0.0001
PUFA/SFA	0.17 ^A	0.21 ^A	0.68 ^B	0.81 ^B	<0.0001
MUFA/SFA	0.77 ^A	0.85 ^A	0.60 ^B	0.63 ^B	<0.0001
N6/N3	3.80 ^A	4.69 ^B	5.84 ^C	2.99 ^A	<0.0001

A,B,C

Values with different superscripts differ at $P < 0.05$

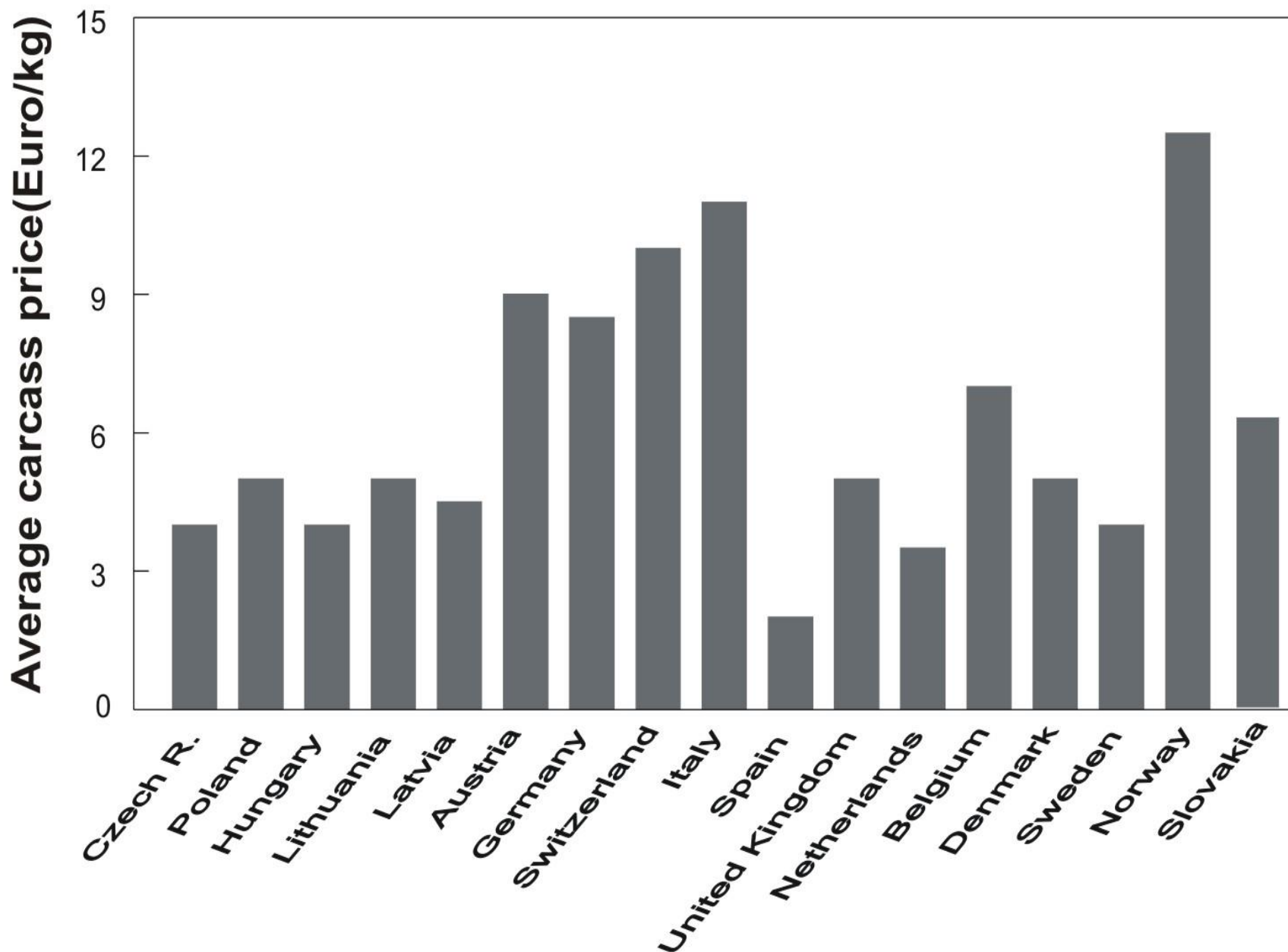
Not just composition, but also red and fallow deer meat was:

- more tender
- less chewy
- equally juicy

and generally better accepted (overall liking)
than beef of Angus and Holstain.

(Bureš et al, 2015)

Carcass prices of farmed deer (2010)



Challenges

Intensity and meat
production
competitiveness with
New Zealand?



Over 2,800 farmers farming approximately
1.1 million deer (DINZ, 2014)

Photo Tony Pearce

Table 1: Value of New Zealand deer product exports year ending September (NZD FOB)

	2012	2013(p)	% Change
Venison	\$198,063,483	\$183,254,984	-7%
Velvet	\$28,035,836	\$23,791,363	-15%
Co-products	\$19,564,130	\$21,455,745	10%
Leather	\$17,473,884	\$18,206,182	4%
Hides	\$5,396,747	\$6,342,587	18%
Total	\$268,534,080	\$253,050,861	-6%

Source: Statistics New Zealand

Table 2: Deer industry export volumes, year ending September

	2012	2013 (p)	% Change
Venison (kg)	15,271,490	15,428,241	1%
Velvet (kg)	178,866	187,260	5%
Co-products (kg)	4,396,292	4,781,624	9%
Leather (sq metre)	239,032	240,592	1%
Hides (num)	186,701	205,088	10%

Source: Statistics New Zealand

8 European countries form
76 % of total export of New
Zealand venison

Table 3:
September

year ending

				Volume (tonnes)		
				2013	% change	
Germany	\$66,320	\$61,700		5,414	5,284	-2%
Belgium	\$25,654	\$20,935		1,523	1,436	-6%
Netherlands	\$24,007	\$20,173	-16%	1,515	1,268	-16%
United States	\$16,780	\$16,793	0%	1,607	1,600	14%
Switzerland	\$15,024	\$15,893	6%	919	919	12%
United Kingdom	\$7,497	\$7,963	6%	879	879	26%
Sweden	\$4,893	\$6,211	27%	539	539	35%
Finland	\$8,556	\$6,020	-30%	1,119	898	-20%
France	\$9,156	\$5,952	-35%	593	435	-27%
Canada	\$2,835	\$4,214	49%	202	316	57%
Total	\$198,063	\$183,255	-7%	15,271	15,428	1%

Source: Statistics New Zealand

Challenges

Damages to crop and forrest stands-
overpopullated areas



Game quality- trophy value

NORTON II AT 7 YEARS



WARNHAM

Outstanding Sire of 2013 and sons
suggest he will be for 2015.



Sovereign II hard antler

Deer Industry New Zealand, 2014

Semen for sale from Sovereign II
\$300.00 + GST a straw
Sovereign II scored 741 when cut, 63 points, 30kg
Winner hard antler competition at 2013 Nationals



Opportunities- Game in agroforestry systems

Improvement of environment in agriculture and forest land- acts for biodiversity



Wildlife Estate Label- initiative by European Landowners' Organisation



Thank for your attention