



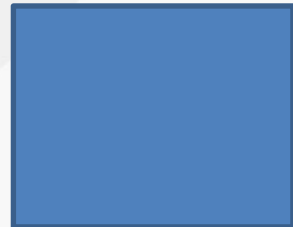
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Conservation and Sustainable Development of Murboden Cattle in Austria

B. Berger, S. Eaglen, J. Sölkner, B. Fürst-Waltl

beate.berger@raumberg-gumpenstein.at



Content

Introduction

breed history

Material & method

conservation program, Genebank

registration, recording, data set for breeding program

Results & discussion

population development, breeding program

marketing scheme

Conclusions

Murboden Cattle

Classic multi-purpose breed

Draught power

Beef - mainly from oxen

Milk - less important

1900 > 50.000 animals

1950 draught power not needed any more

1970 crossbreeding with German Frankenvieh



Genetic bottleneck

1972 Herdbook discontinued, re-established 1978

~ 200 supposedly purebred females

1982 < 500 breeding animals (incl. crossbreds)

1st conservation program

nucleus herd on state farm

2nd conservation programme (1995 – 2000)

collect all breeding animals „phenotypically Murboden“

collect as much pedigree information as possible

3rd conservation programme (2001 – 2006)

planned mating/use of genebank

material compulsory

Conservation, Genebank

4th conservation program

Avoidance of inbreeding, develop products

Genebanking started in 1997

Bull selection by breeding organisation
and genebank together

Bulls only rented for semen collection

Use of genebank material (64 bulls total)

18 to 35 AI-bulls/year used in conservation breeding
longtime storage



Registration, recording

Herdbook closed in 2000

Phenotypical assessment of all registered breeding animals compulsory!

Recording part of conservation program

Beef 4046 cows (2014)

Milk 285 cows (2014)

Data set

25.000 calvings (20% first calvings, up to 10 calvings/cow)

16.000 weighing data (200d)

2950 slaughterhouse data sets

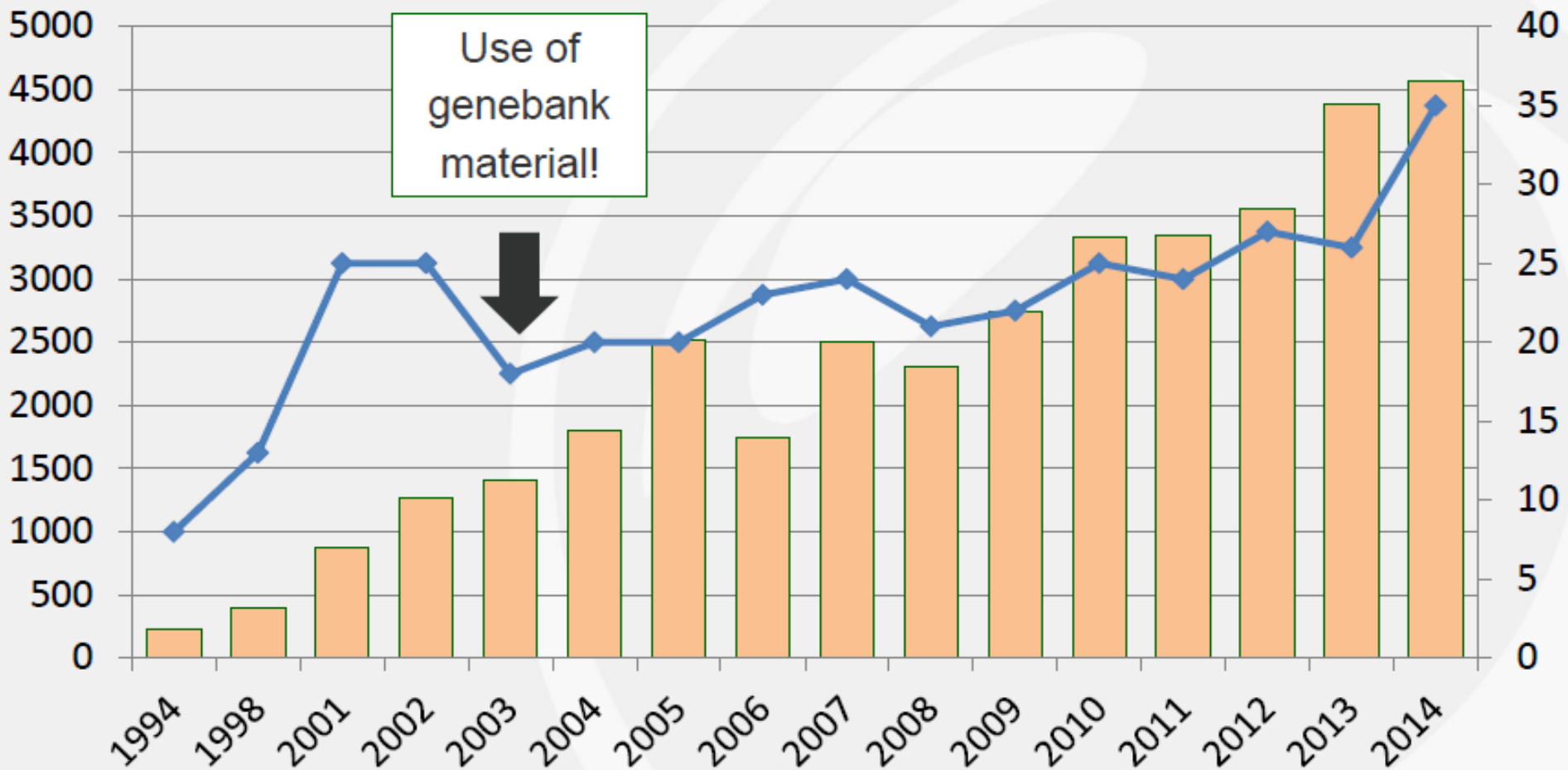
approx. 500 herds > 450 bulls



Population development AI bulls in program

n cows

n AI-bulls



Data: EFABIS



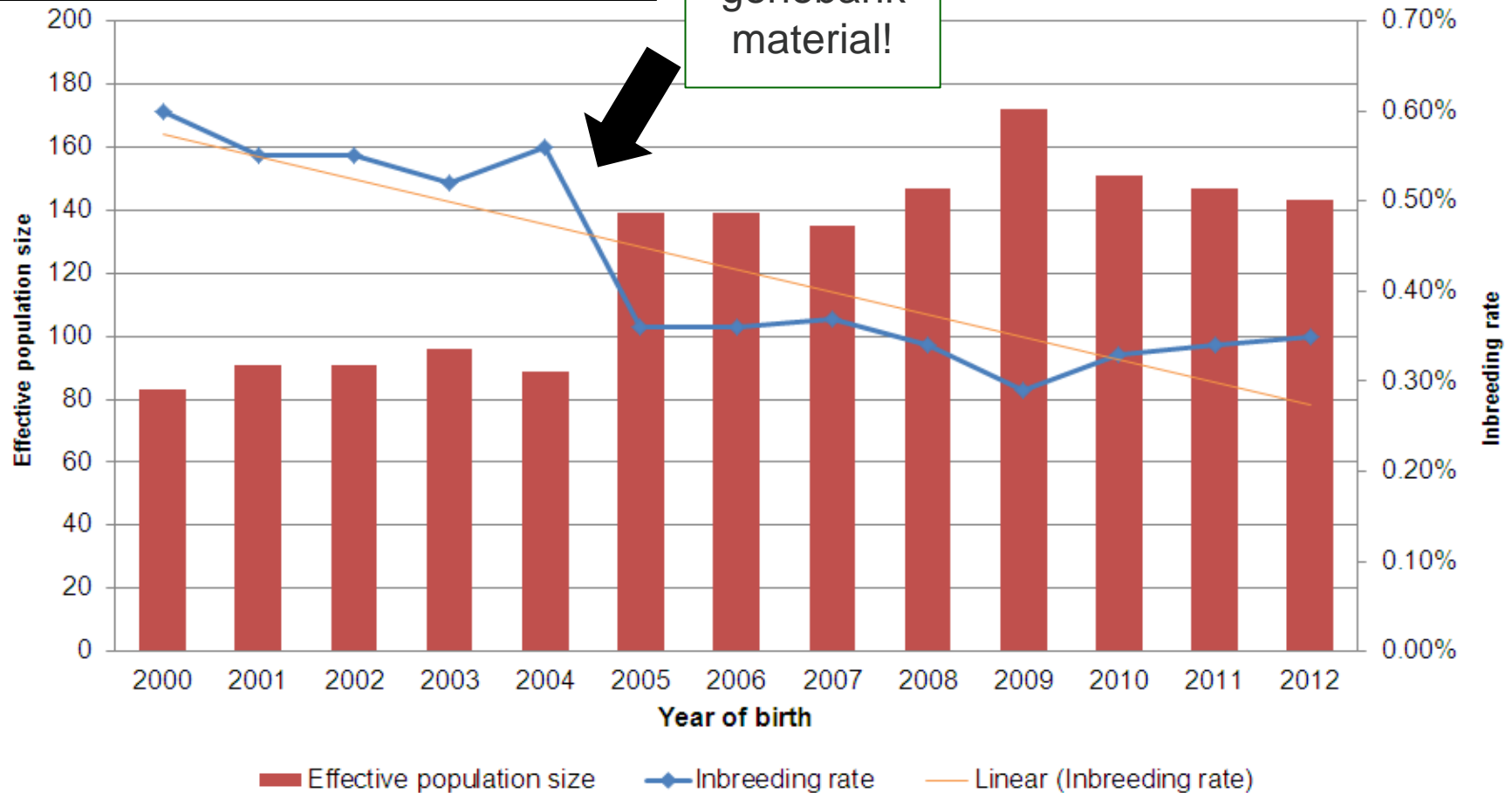
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Inbreeding rate (fd) effective population size

Generation equivalent 2014 = 4,5

Use of
genebank
material!



Breeding program 2015

Look for a method applicable in practical breeding!

Combination of classic breeding value and inbreeding control

Estimation of breeding values for easy calving, daily gain & carcass traits

Develop easy to use breeding value index for small populations

Integrate index into existing structures

Breeding program 2015

Estimation of genetic parameters

Easy calving

	direct	maternal
direct	$0,17 \pm 0,04^*$	
maternal	$-0,44 \pm 0,10^*$	$0,07 \pm 0,02^*$

* $p < 0,05$

Heritabilities high but not unusual!

- Recommend estimation of breeding value according to normal Austrian model

Marketing scheme

Marketing project since 2006



Murbodner association/marketing organisation/ big Austrian food retailer

Oxen from pedigree herds

Premium beef label „Murbodner Qualitätsochse“

Heifer and cow program since 2011 – product development

Sausage „The Murbodner“ – traditional type but pure beef

2015 products well established on market

Conclusion

Population highly endangered after severe genetic bottleneck

- Involve all stakeholders to shape program
- Use of genebank material to control inbreeding rate
- Recording of production traits
- Development of quality products for marketing

⇒ New sustainable breeding program

- Development of weighted index considering productivity and genetic diversity

Looking ahead....



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