



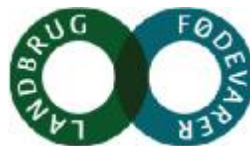
Managing the highly prolific sow and large litters

Italy 2014 27. march

Ellen Møller Hansen, cand. agro

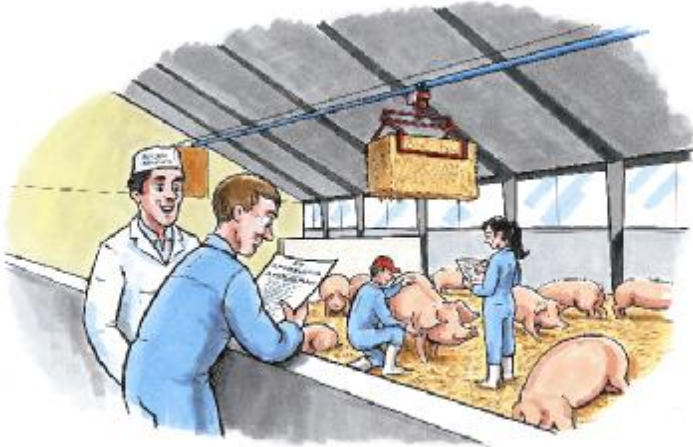


Danish Pig
Research Centre



My work description

Research in production herds or at the
research stations



Results stored in the
knowledge database
vsp.lf.dk

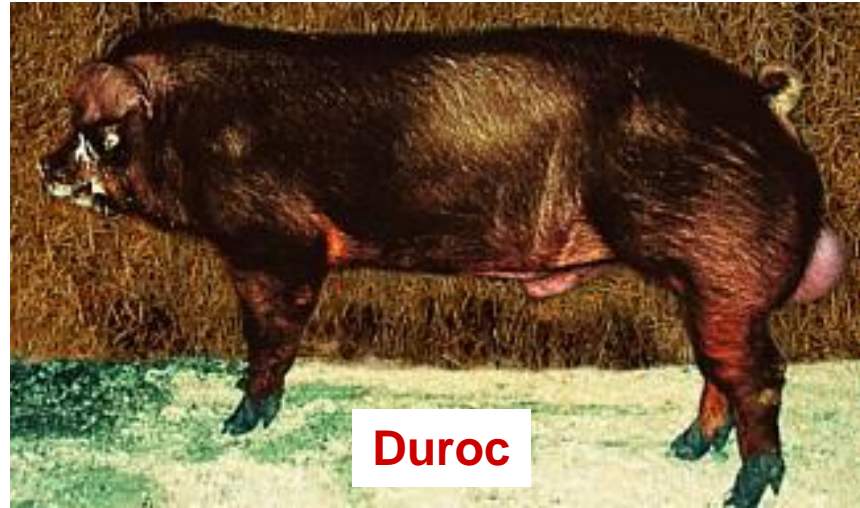


Will to do
Implementation



Danish pig breeds

LxY dams



LYxD piglets



Aim for Danish pig production

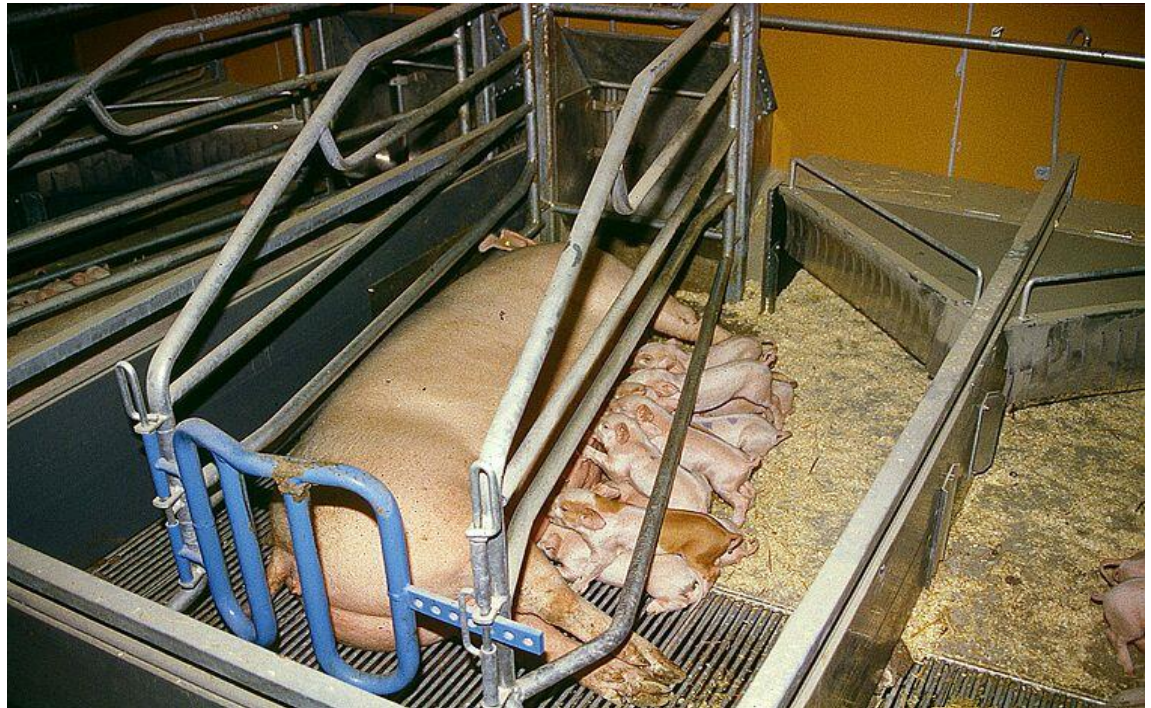
- High yield per sow
- High yield per manpower
- High yield per pen
- High yield per feed unit
- Good animal welfare
- Good environmental protection
- High meat quality



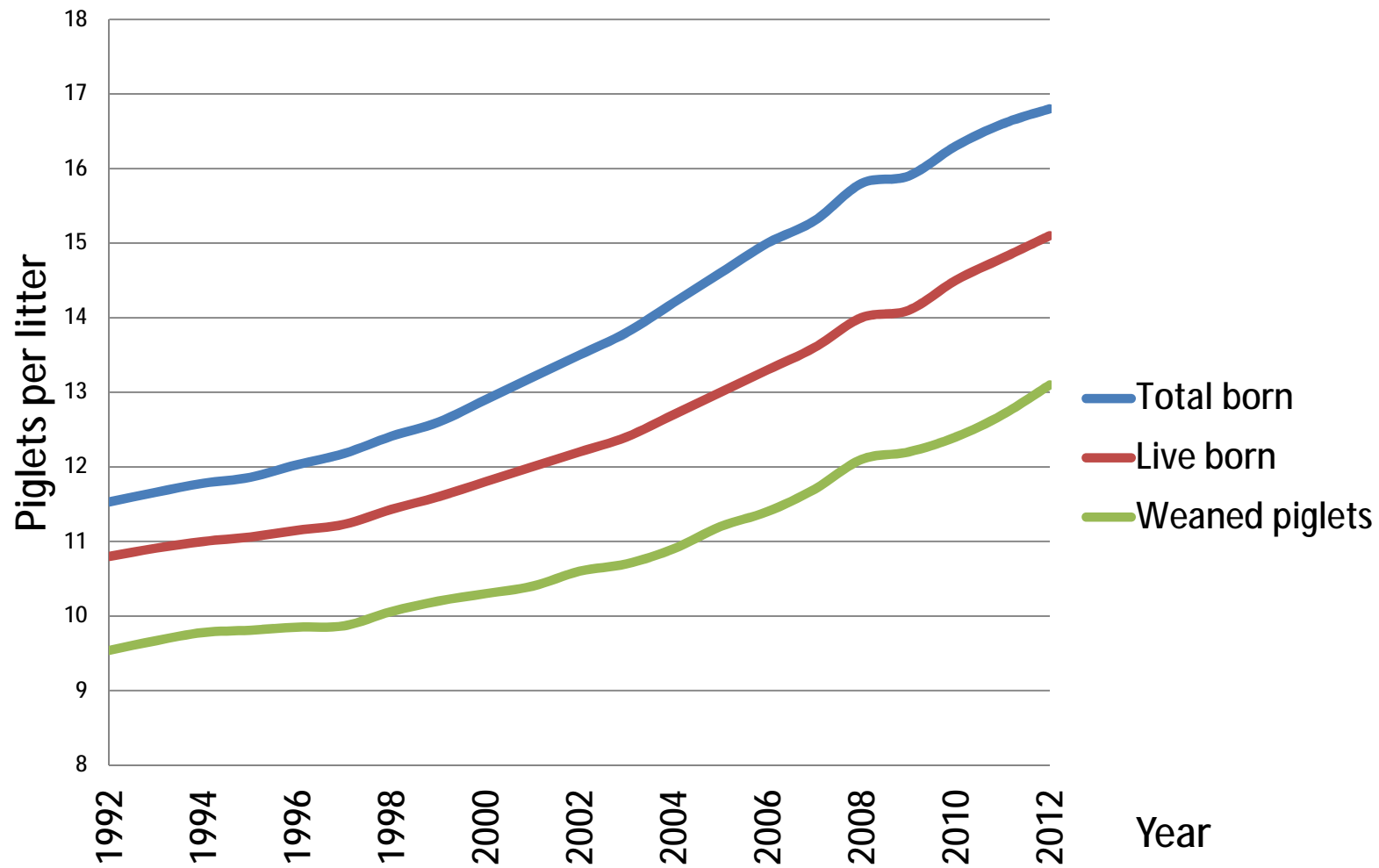
Aim: 35 piglets per sow per year

Danish average 2012

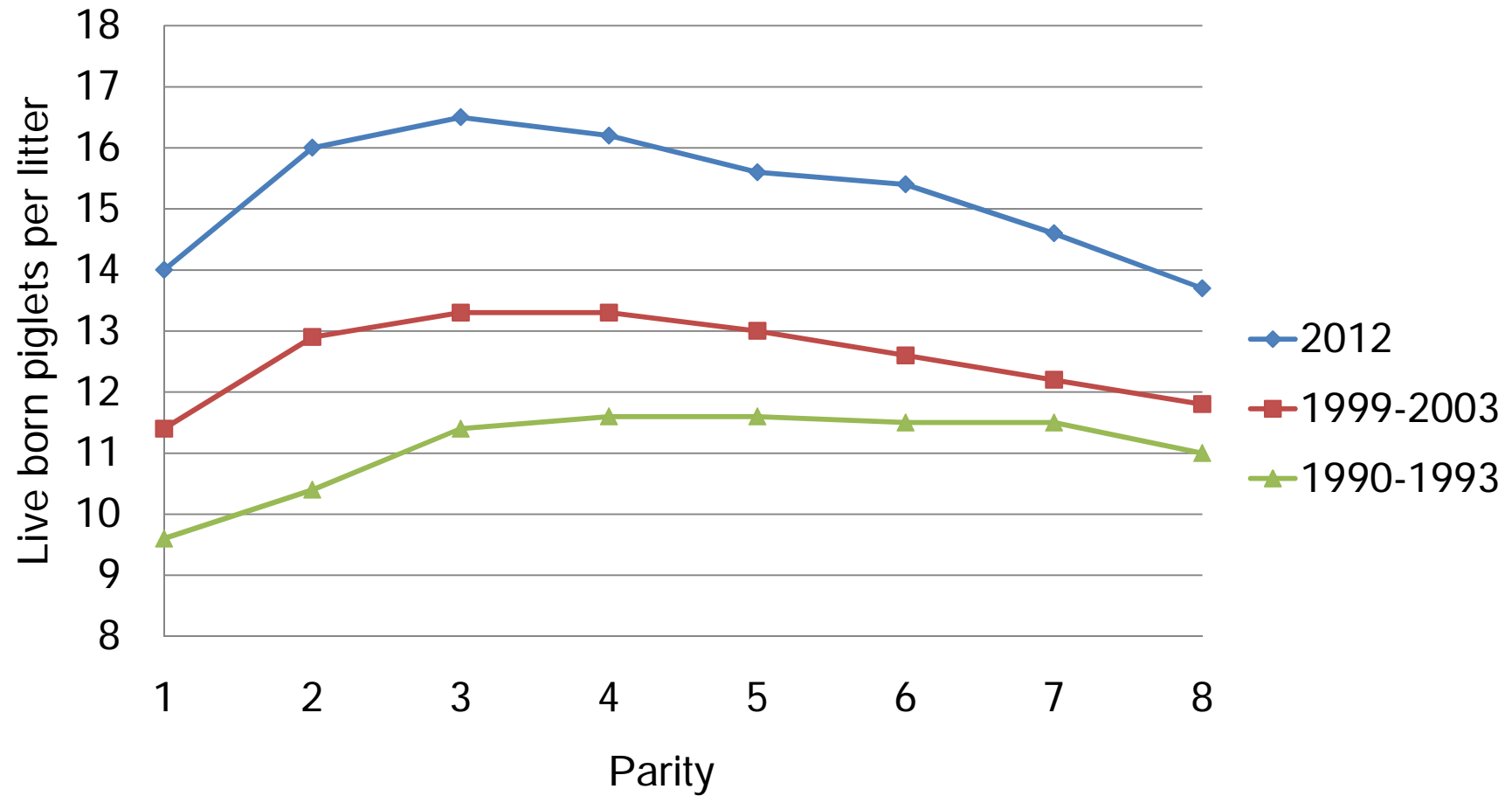
- 29,6 piglets per sow and year at weaning
- Increased by 0,7 piglet every year
- 13,1 piglets weaned per litter
- 2,26 litters per sow and year



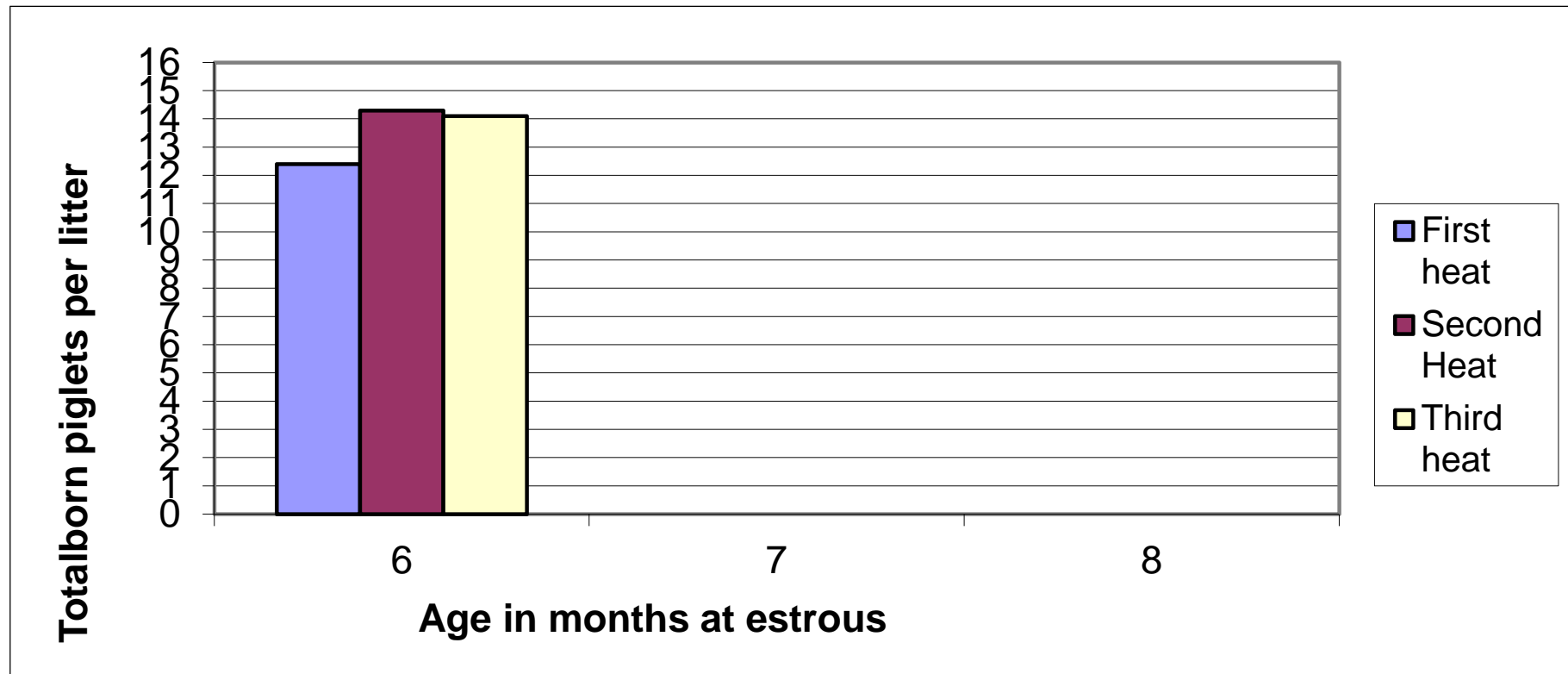
Development in litter size by genetic selection



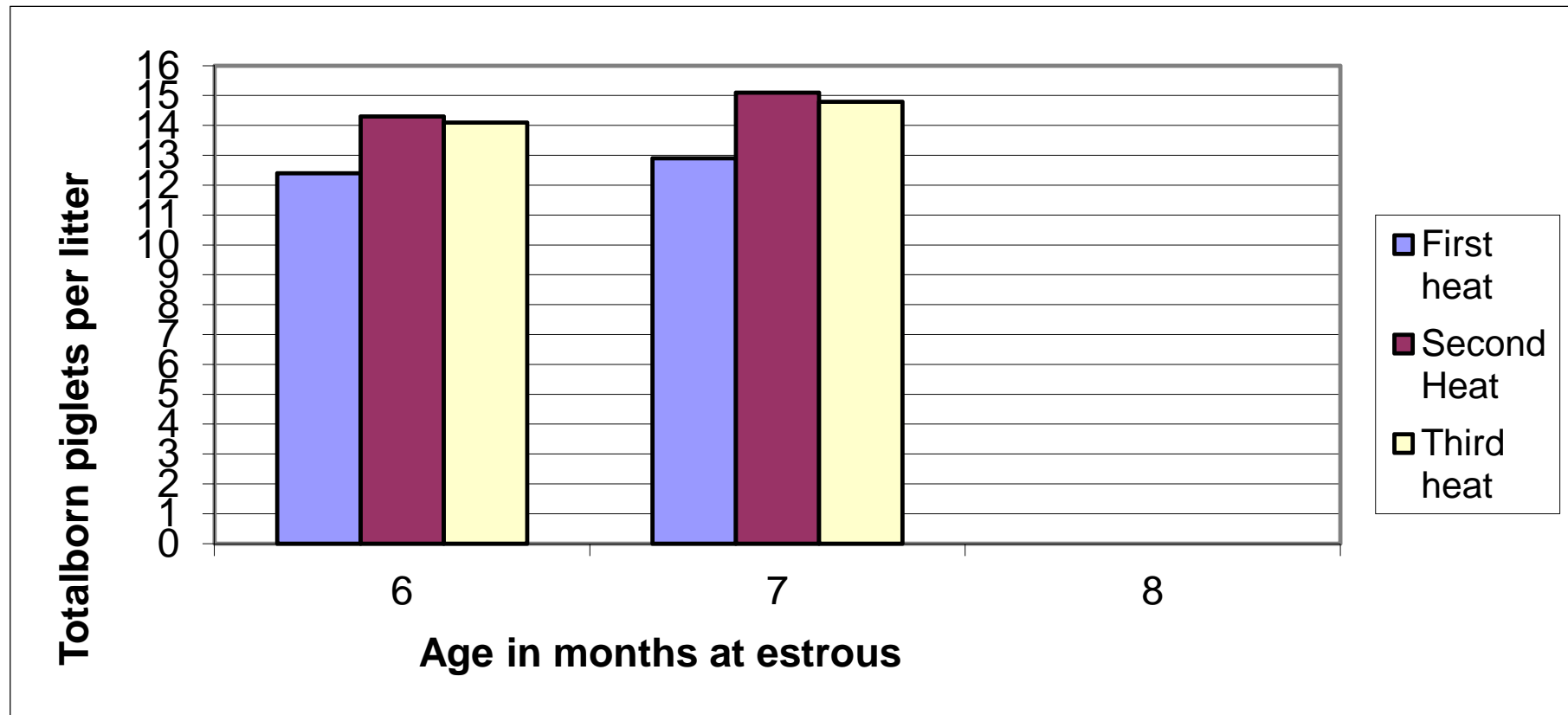
Live born piglets with parity



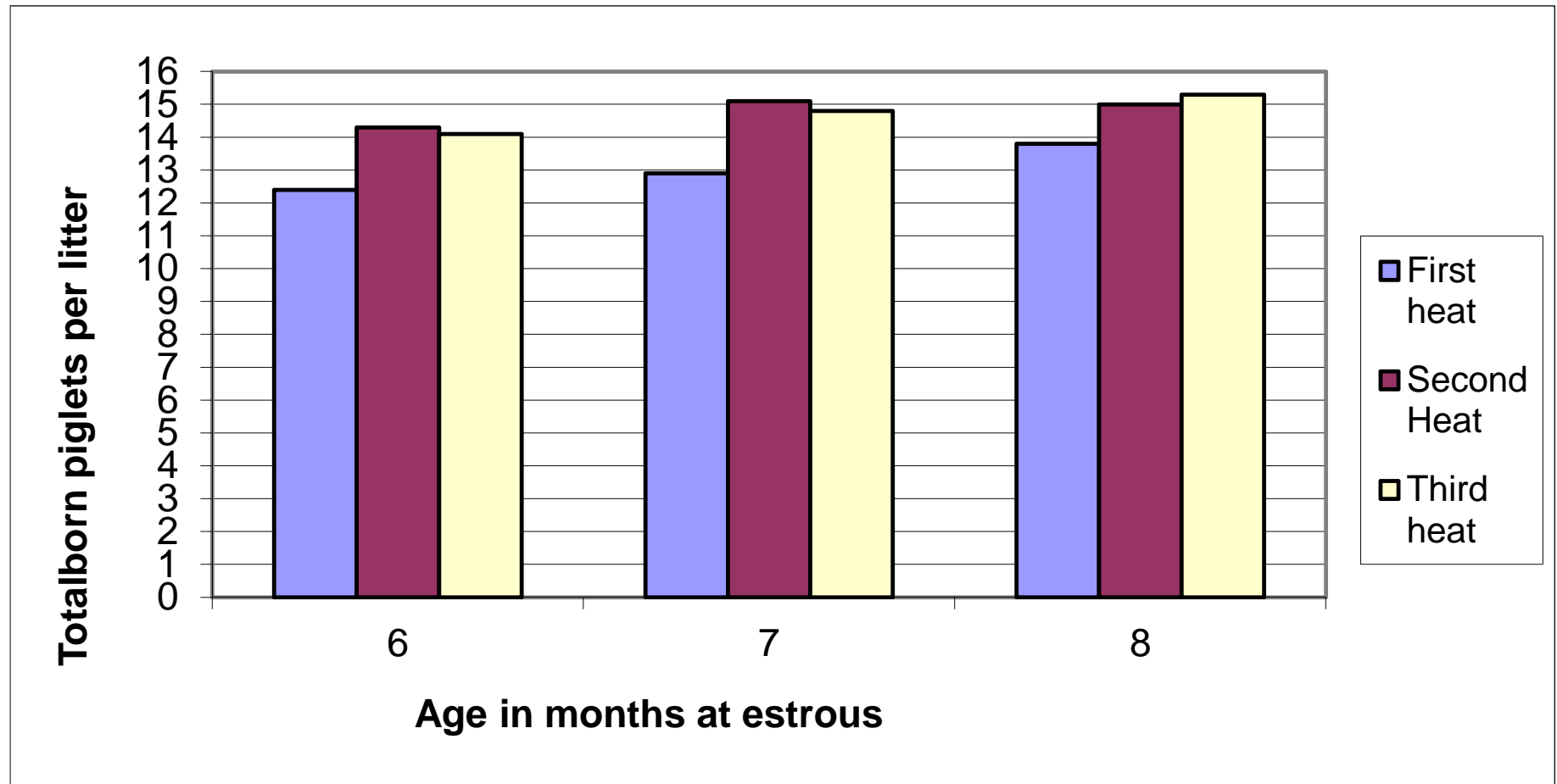
Effect on litter size of age at puberty and of heat number



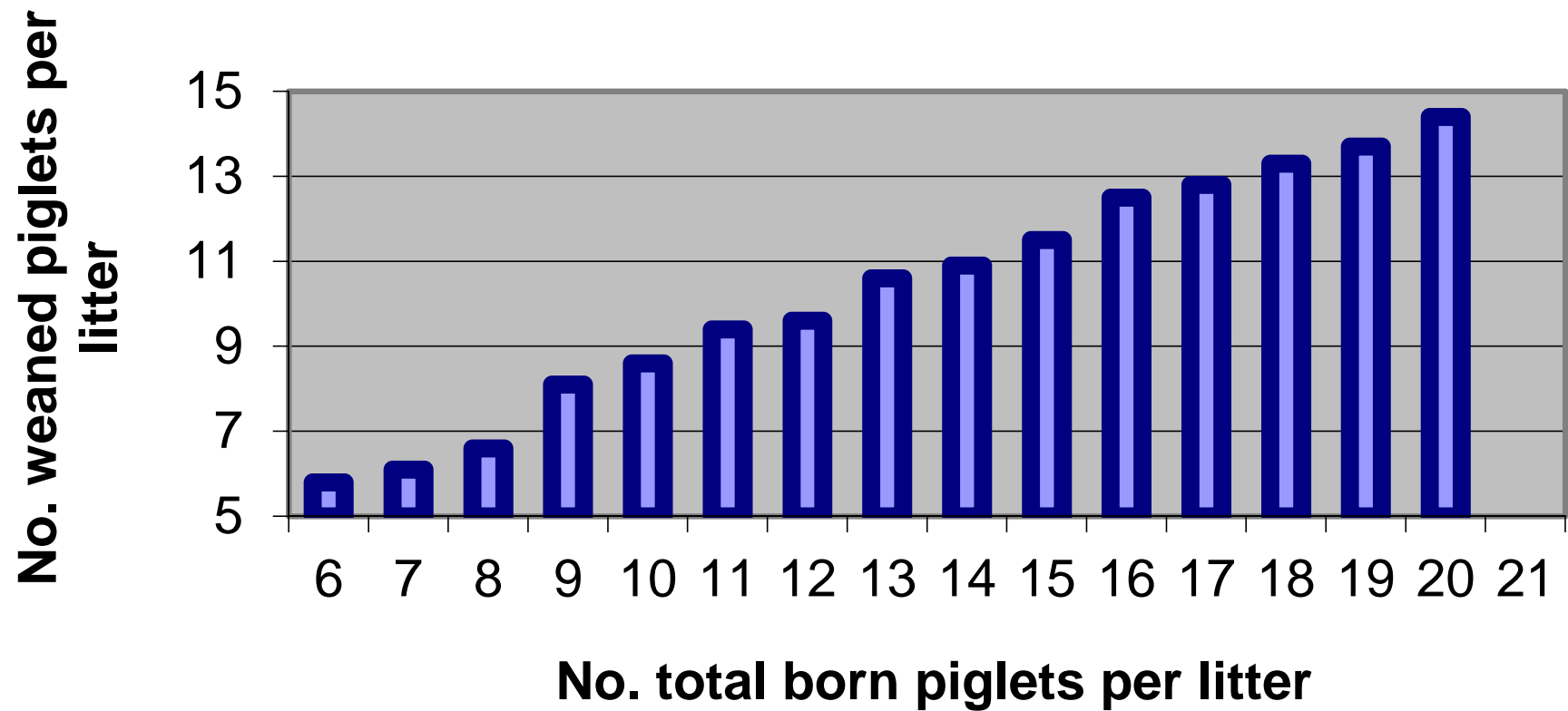
Effect on litter size of age at puberty and of heat number



Effect on litter size of age at puberty and of heat number

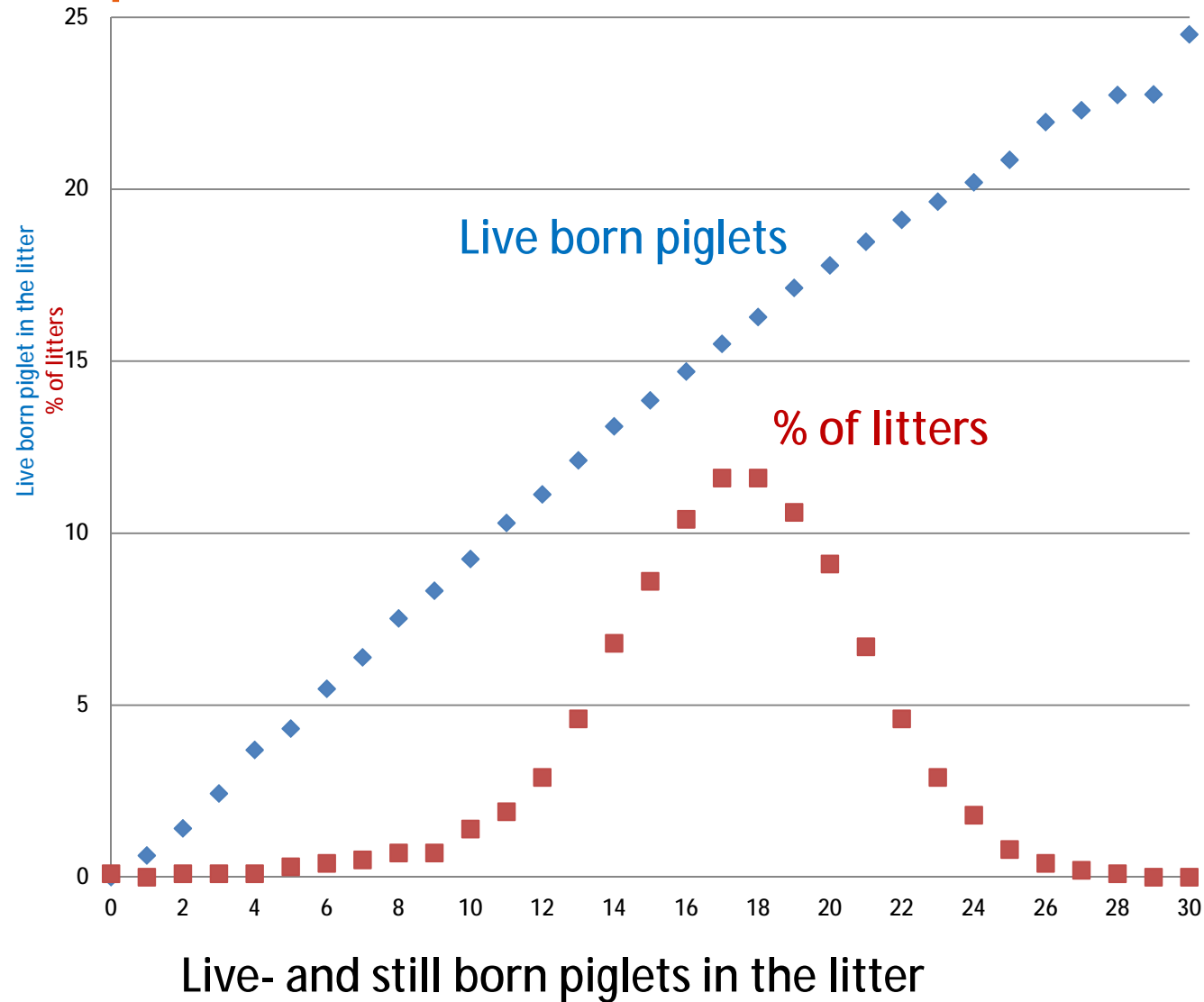


A large litter wean more piglets



Litter size at birth

Thorup. 20.000 litters in 2012



High Piglet Survival

- **Farrowing**
- **Colostrum and milk**
- **Levelling of piglets**
- **Nurse sows**
- **Heaters**
- **Control of diseases**
 - Vaccinations
 - Treatments



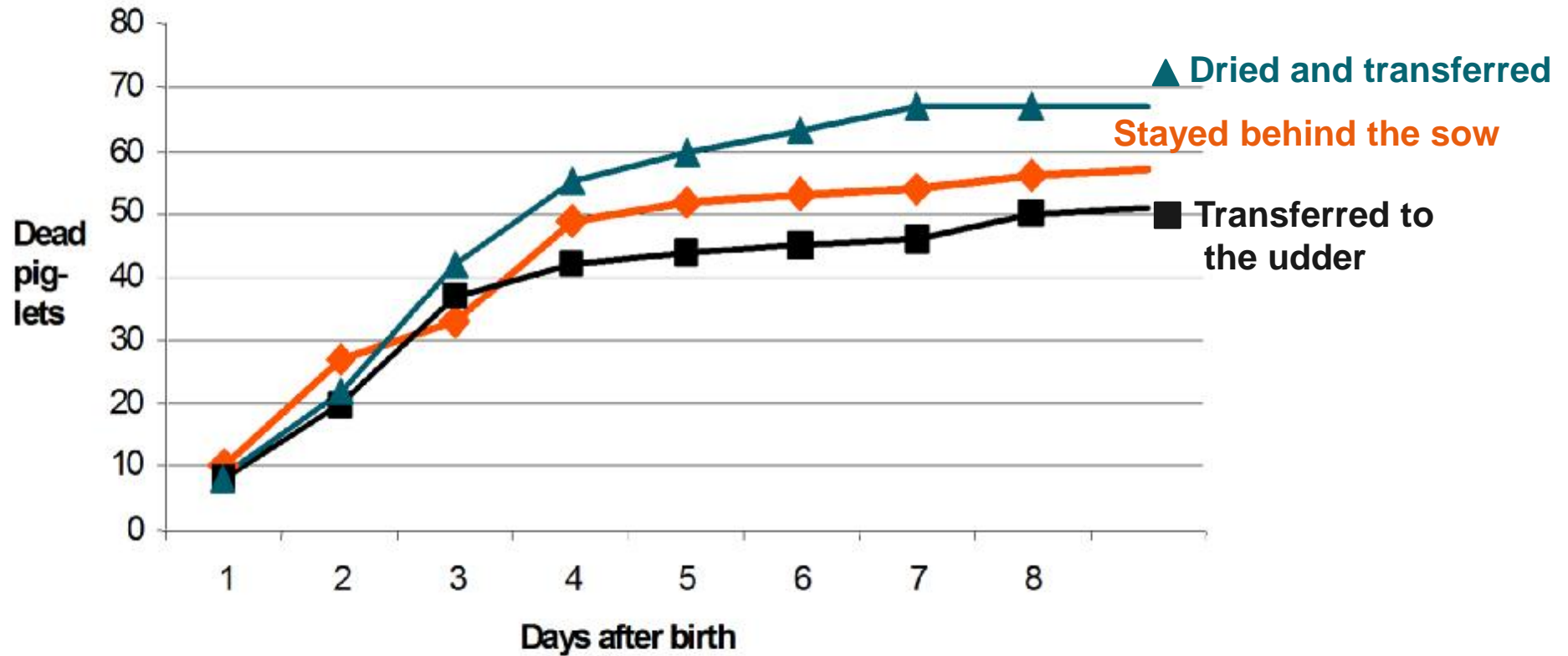
At farrowing

- **Backfat at 15 – 18 millimeter**
- **Reduce feed intake to 3 kg/sow/ the last two days**
- **Observe the farrowing**
 - Who is responsible?
 - How often are the sows checked?
- **Assist at birth when needed**
- **Help weak piglets to warmth and to colostrum**



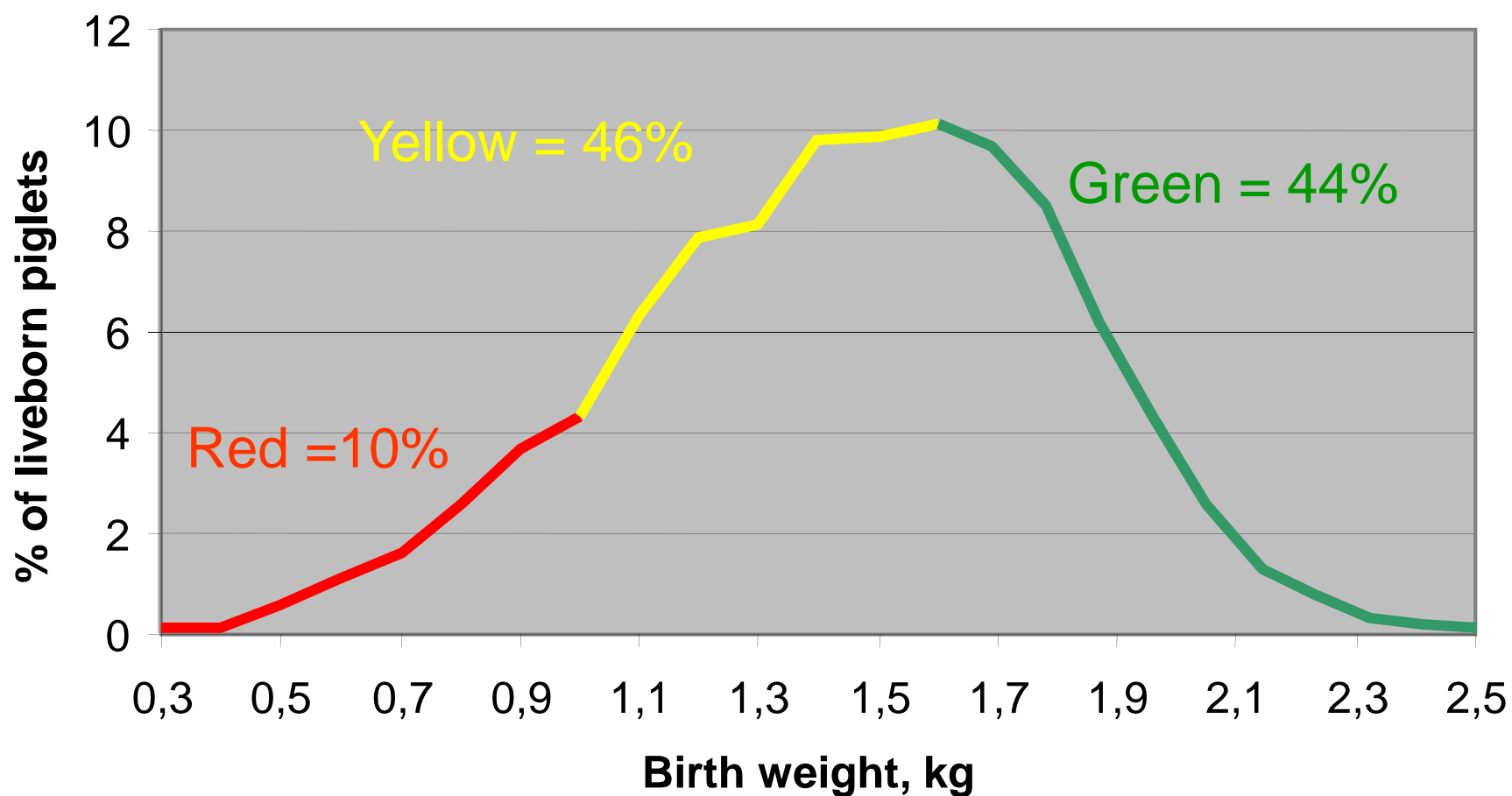
Mortality after birth

Musse 2008. 1200 piglets



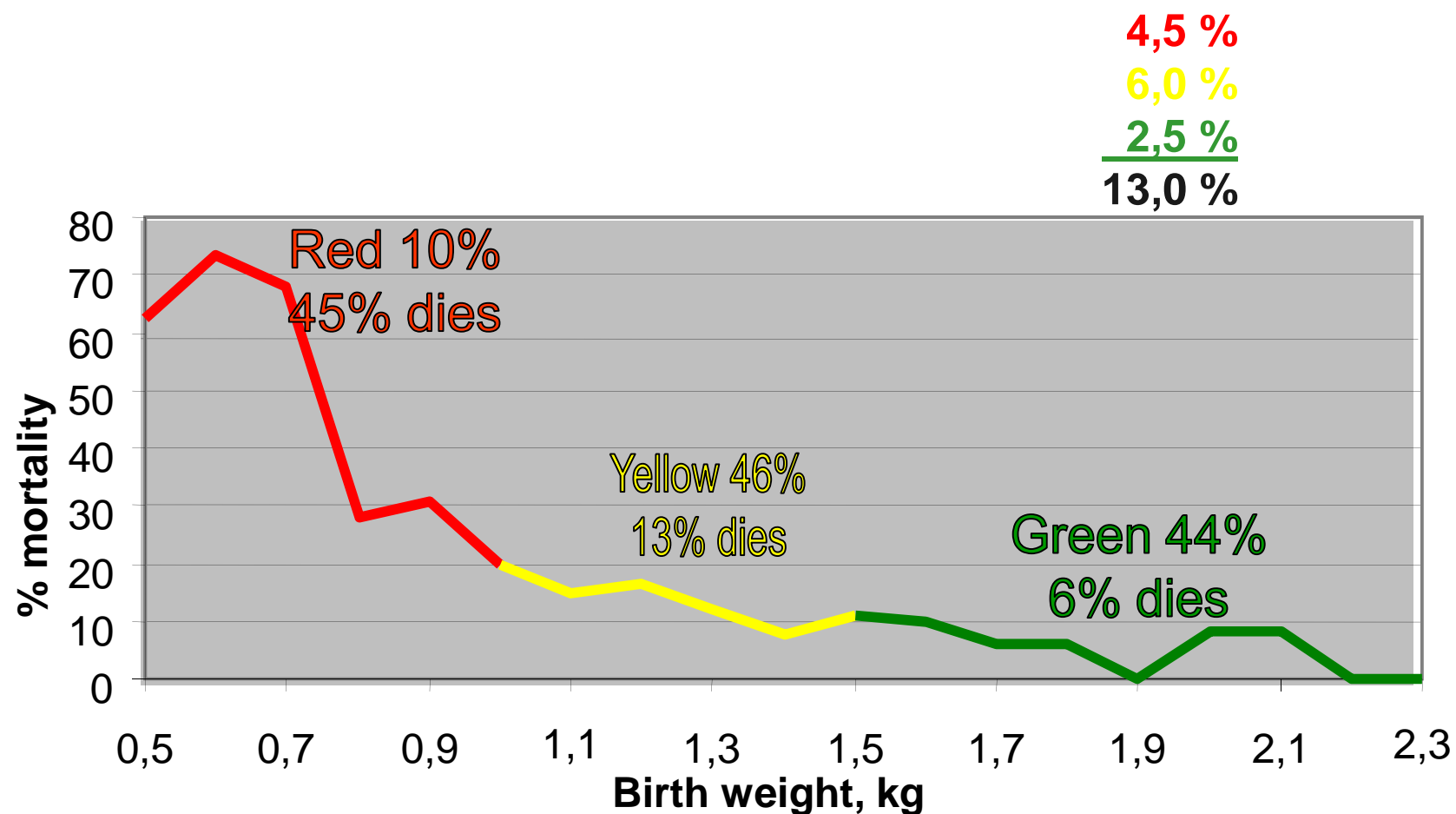
Littersize -

Birthweight – herd with 13 % mortality

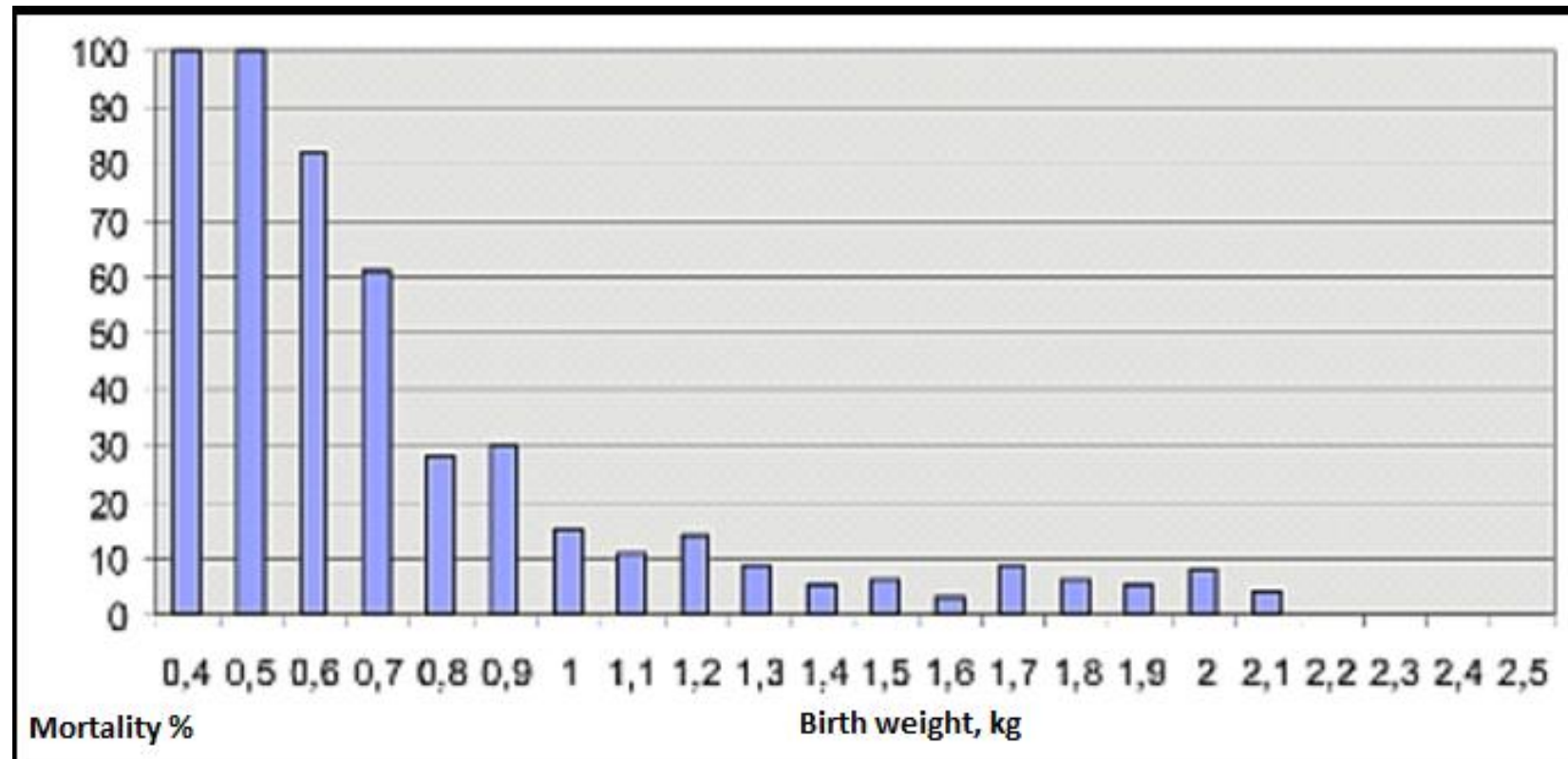


Mortality after birth

Herd with 13 % mortality



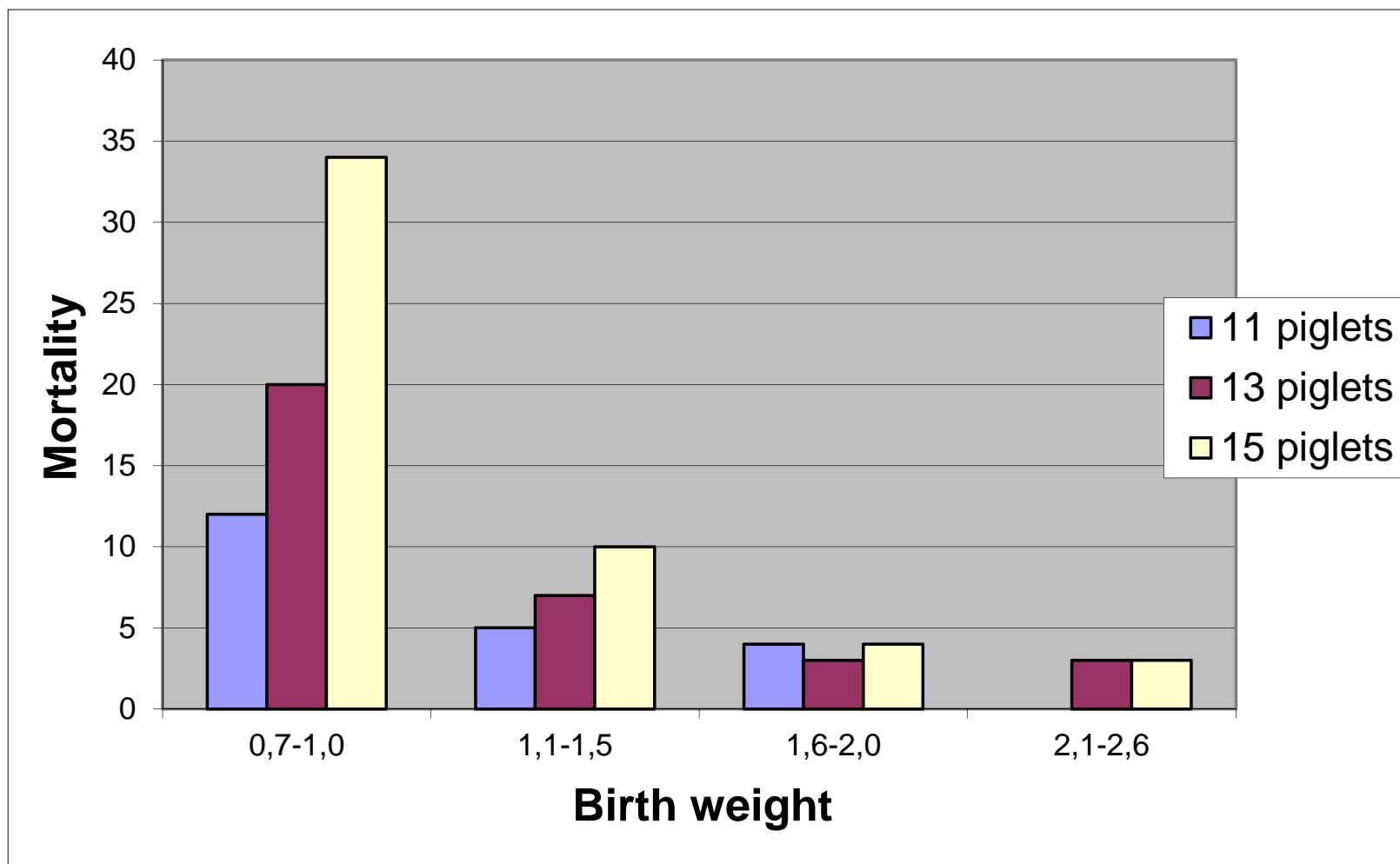
Mortality after birth



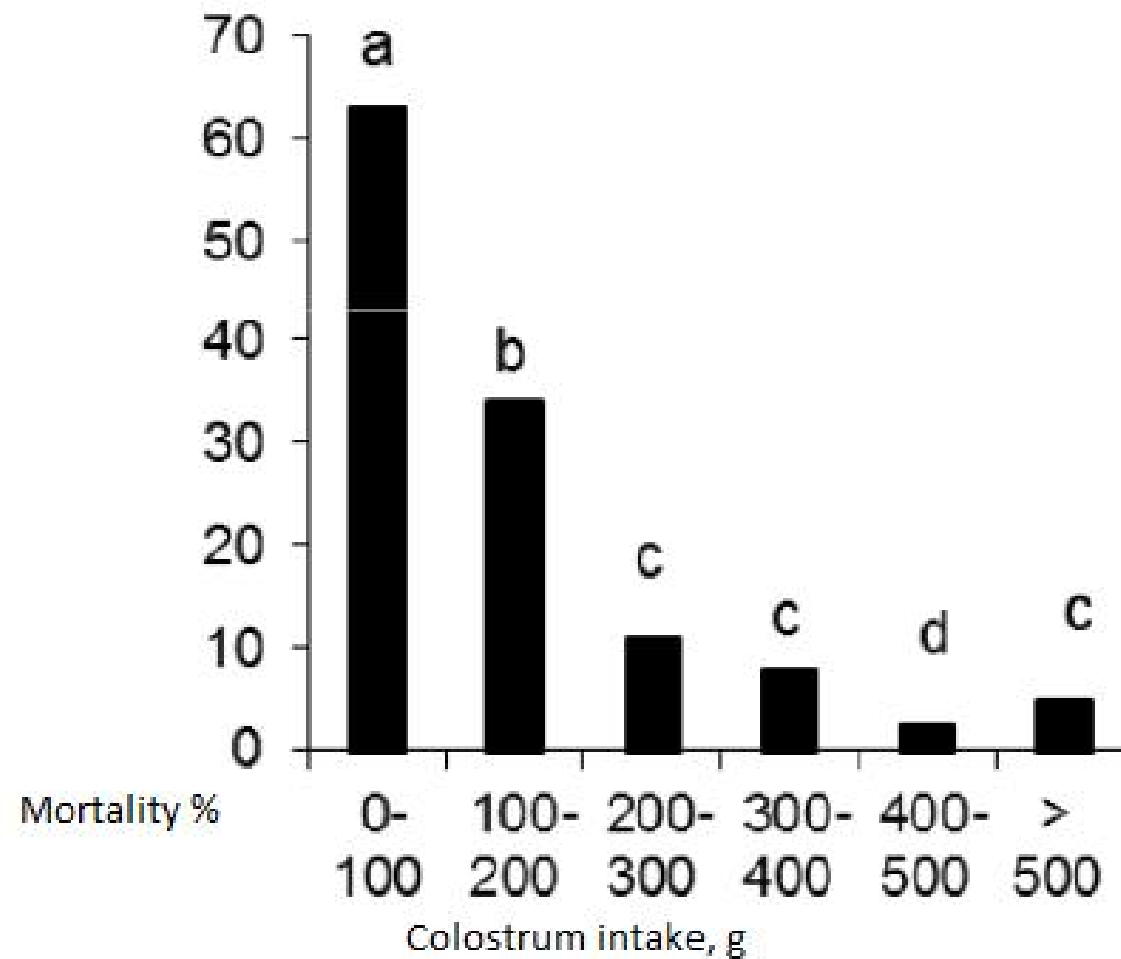
Thorup, Herskind, Hansen, Musse, Nielsen, & Schmidt, 2009



The effect of litter size and birth weight



Mortality after birth

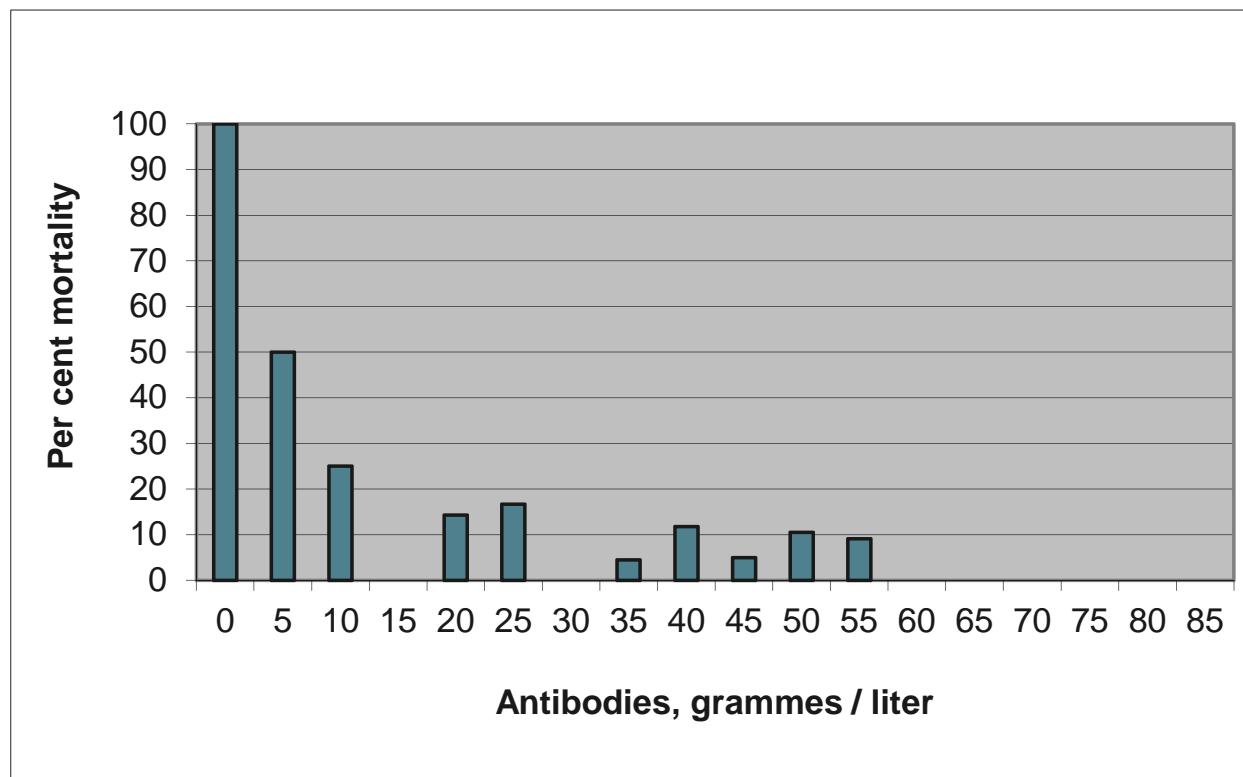


(Quesnel et al.)



Mortality after birth

Antibody level at 12 hours and mortality



Research to ease management

.New research

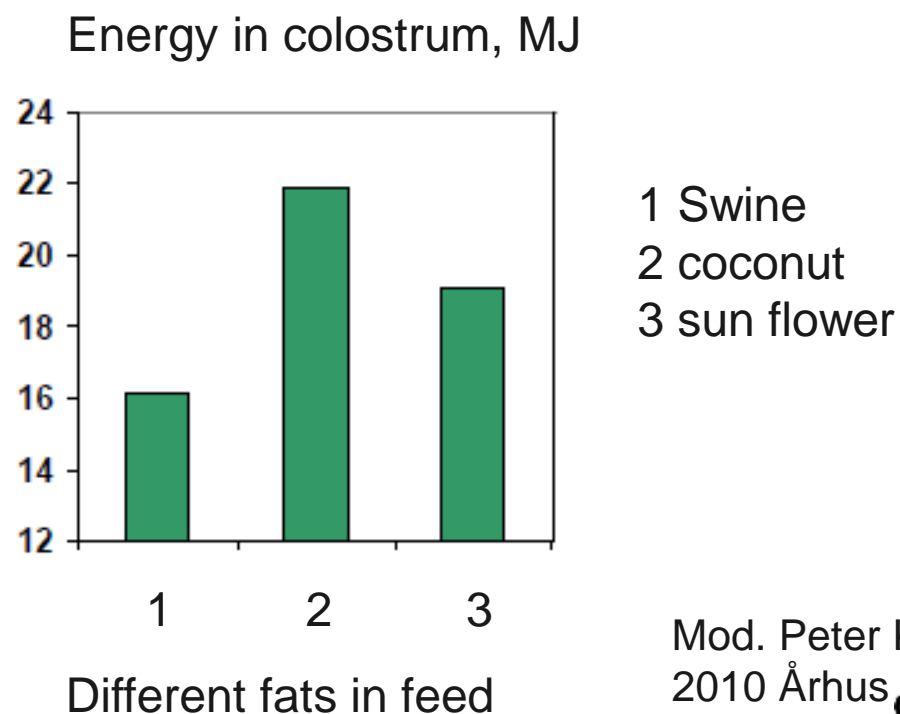
- The week before farrowing, we can change the energy in colostrum with the sows feed

- Different sources of oil in the sows feed will give different yield in milk



Feed – colostrum effect

- Different fats Day 107-117
- Interesting difference!

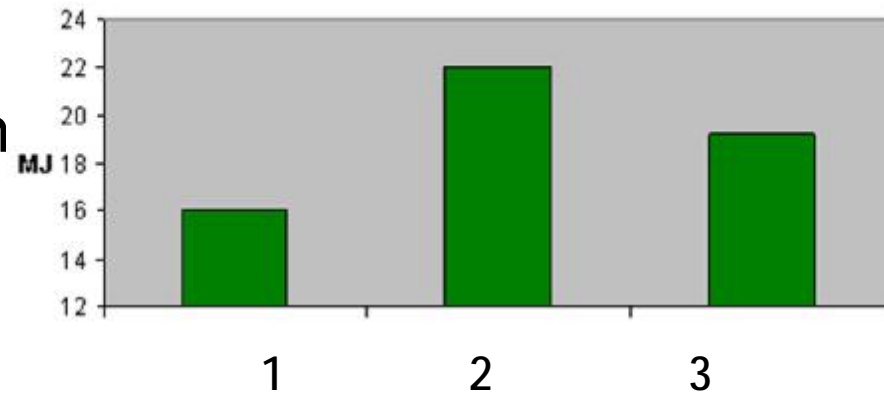


Mod. Peter Kappel Theil,
2010 Århus University, DK

Feed – milk production

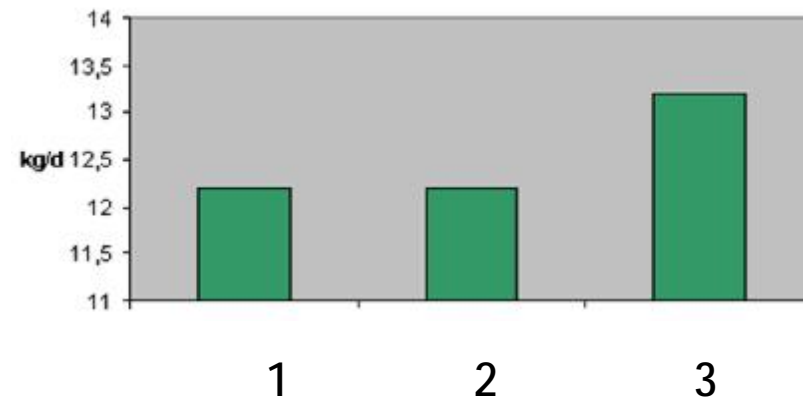
There are more to fats

• Maximize energy in colostrum (MJ)



Or?

• Maximize milk yield in lactation (kg/day)



Mortality and management

- **Most piglets die during the first 3 days**
 - Not much time to save the piglets **L**
 - or
 - Only 3 days of work can save the piglets **J**



Farrowing unit – management



- **Supervision**
- **Piglets:**
 - Warmth
 - Colostrum
- **The biggest challenges**
 - Size, weight
 - Colostrum intake
 - Large litters



Colostrum

- Piglets behaviour watched



Routines after farrowing

- Piglets kept warm



Colostrum intake

- Split nursing 30 minutes



39 piglets were given to 3 Sows
44 replicates in 2 herds



11 piglets



13 piglets



15 piglets

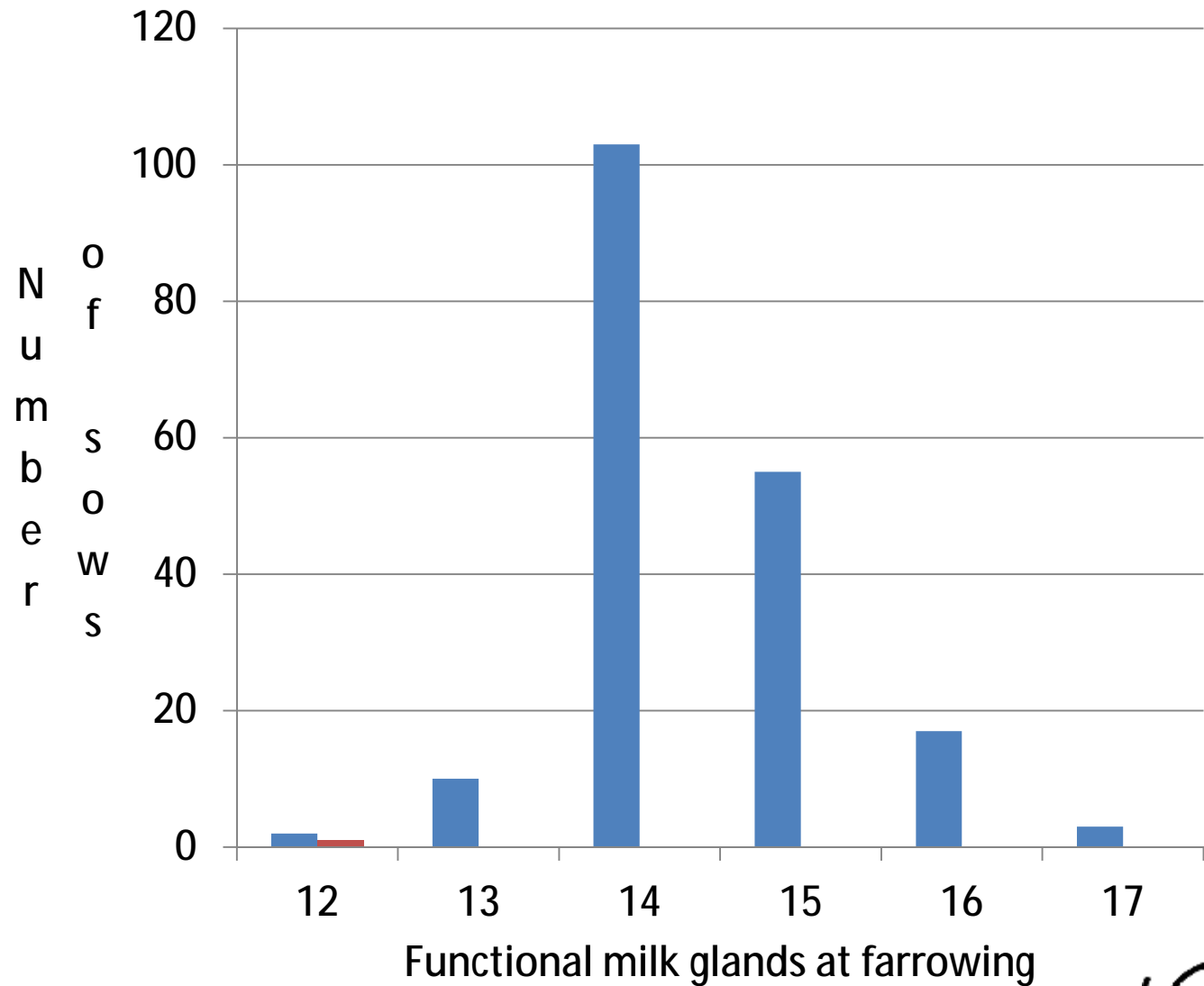


The optimal litter size

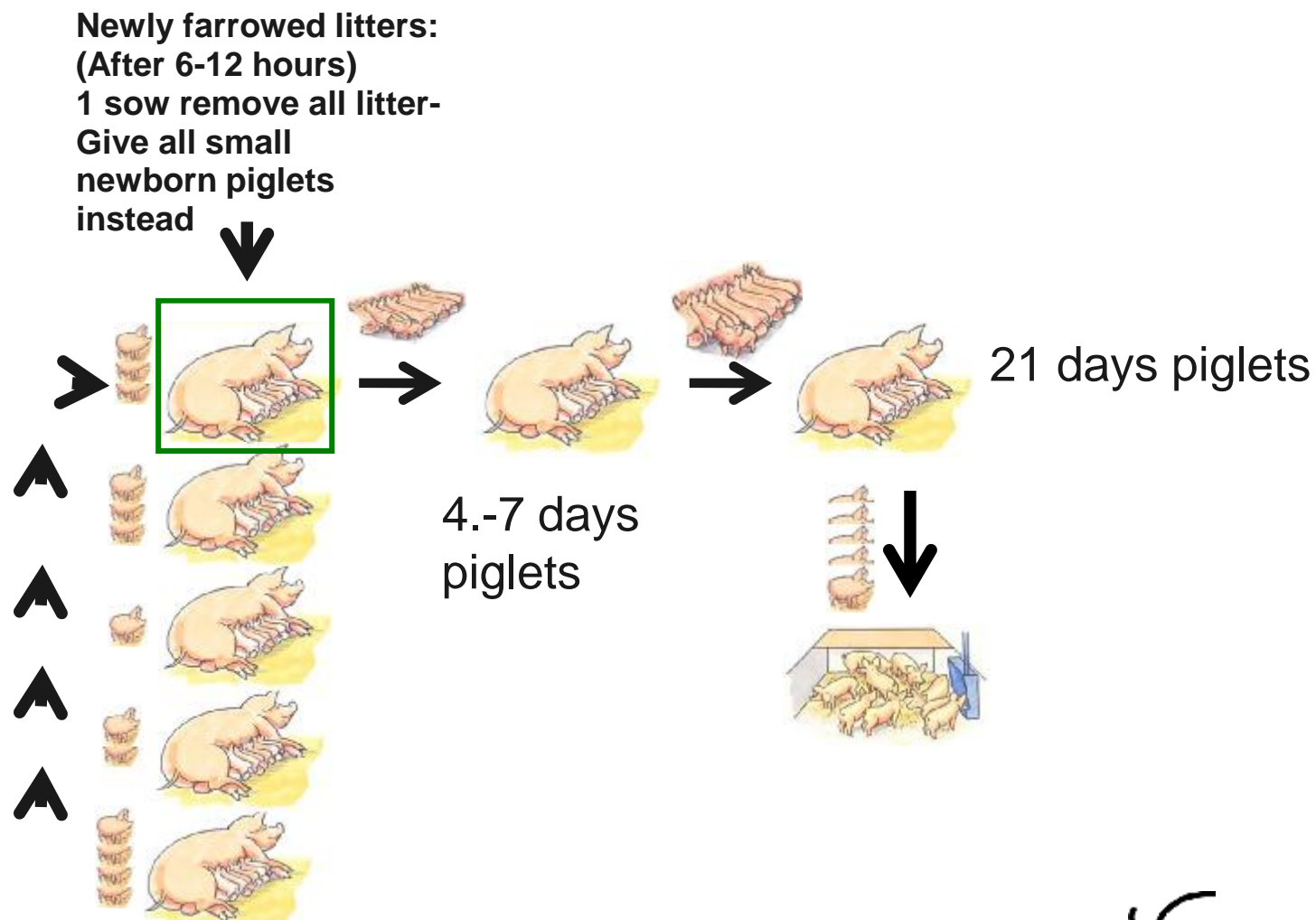
	11 piglets at the sow	13 piglets at the sow	15 piglets at the sow
Piglets taken away (Per cent)	8	10	12
Weaning weight at 24 days (kg)	7,9	7,5	7,2
Piglet mortality (Per cent)	5	6	10



Functional milk glands in 190 first parity sows



Management – levelling of piglets



The nurse sow changed after 21 days of lactation

- Lactation for 2-3 extra weeks
- Gives away piglets at 7 kg
- Receives piglets at 1,5 kg
- Large reduction in milk production
- High risk for lactational estrous
- Farrowing rate: Reduced
 - Register heat in lactation for better heat control
- Litter size in next parity: + 2 piglets



The sow changed after 4-8 days of lactation

- Gives away 2,5 kg piglets
- Receives 1,5 kg piglets
- Small change in milk production
- Lactation for 4-7 days extra
- Farrowing rate: No change
- Litter size: No change



Handling of smallest piglets

- **Collect 10-20 % smallest piglets**
- **> 12 hours after birth (colostrum)**
- **At a 2nd litter sow**
- **> 12 hours after birth (colostrum)**
- **Be aware of the temperature**
- **Supplement of water**

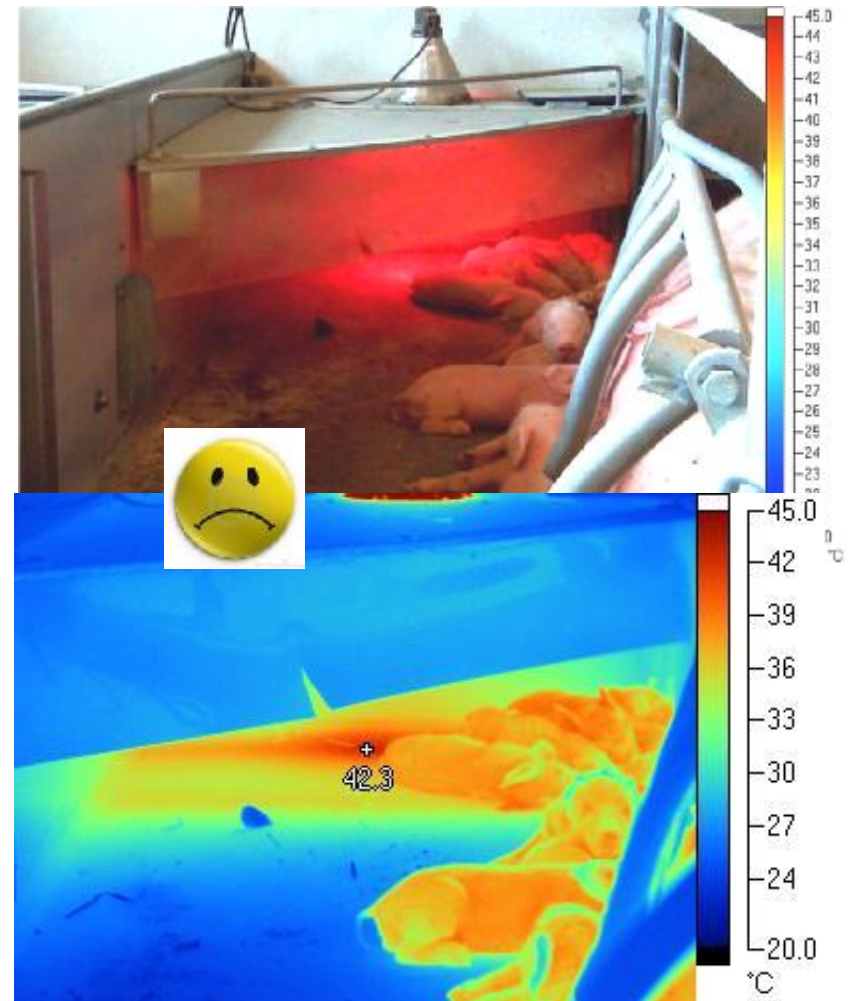


Too cold



A solution for cold piglets.
Not for all piglets

Too hot





The rainbow piglet

- When more than one person is involved
- Check every piglet every day
- Why and when was this piglet treated?
- **Blue: Monday, Thursday**
- **Green: Tuesday, Friday**
- **Red: Wednesday, Saturday, Sunday**
- **Black: Vaccinations etc.**
- **Tail: Diarrhea**
- **Back: Arthritis**
- **Head: Streptococci**



Extra Milk

Lisbeth Brogaard Petersen 2013



Large litters with extra milk

Lisbeth Brogaard Petersen

	15 Piglets per litter. Thorup, 2010	Extra milk. Petersen, 2013
Litters	87	40
Piglets per litter	15	17,8
Weaned piglets per litter (%)	12,5 83%	15,1 85%
Mortality, %	10/5	11
Transferred, (%)	8/12	4
Average age at weaning	22	28
Weight at weaning, kg	Ca. 7,0	7,3

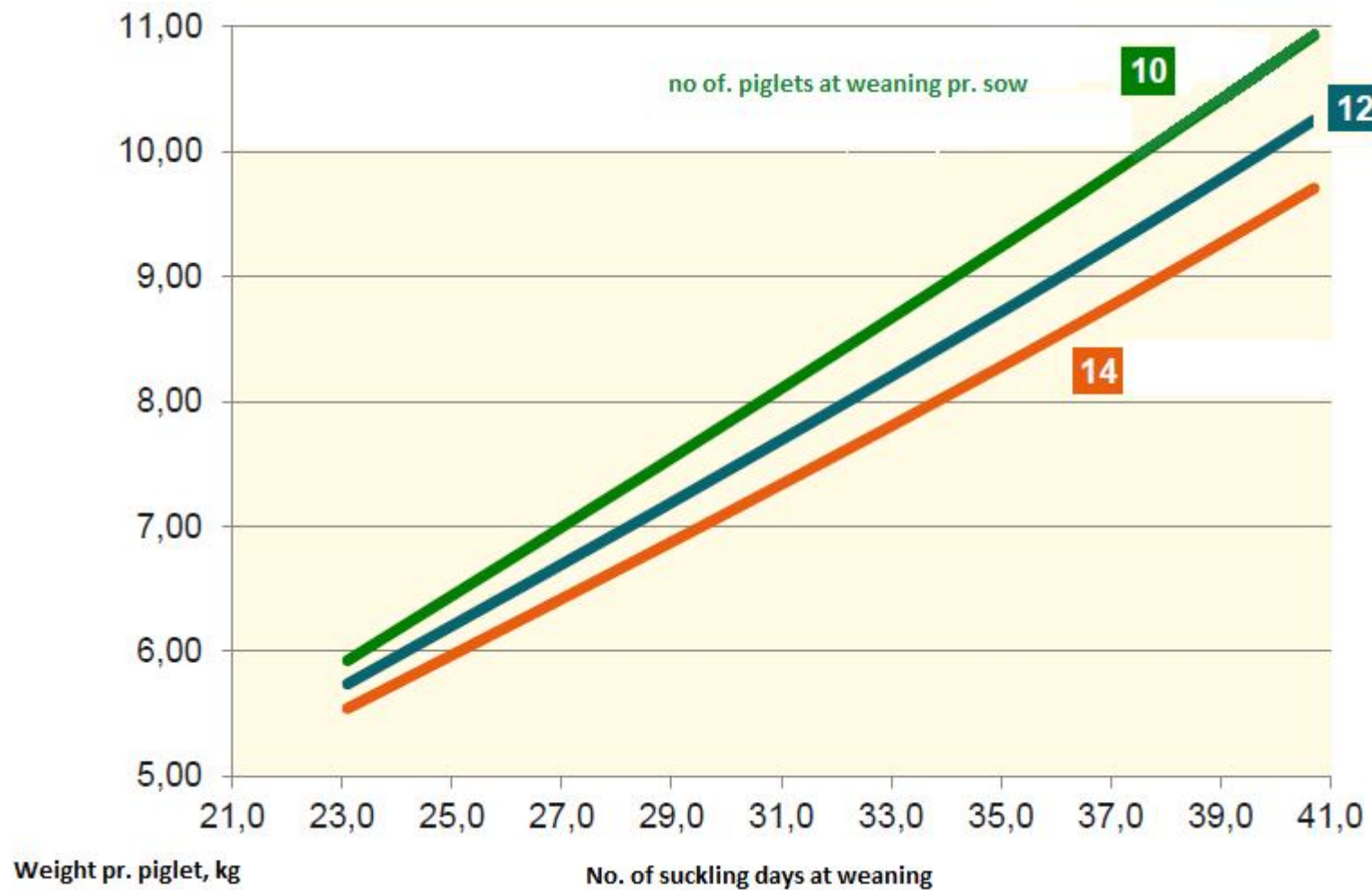


Conclusions on management

- High litter size can be handled
- Do not dry of the new born piglets
- Leave the piglets at the sow for 12 hours
- Small piglets need a good sow and reduced litter size
- Good sows can manage 14 piglets
- Use two step nurses

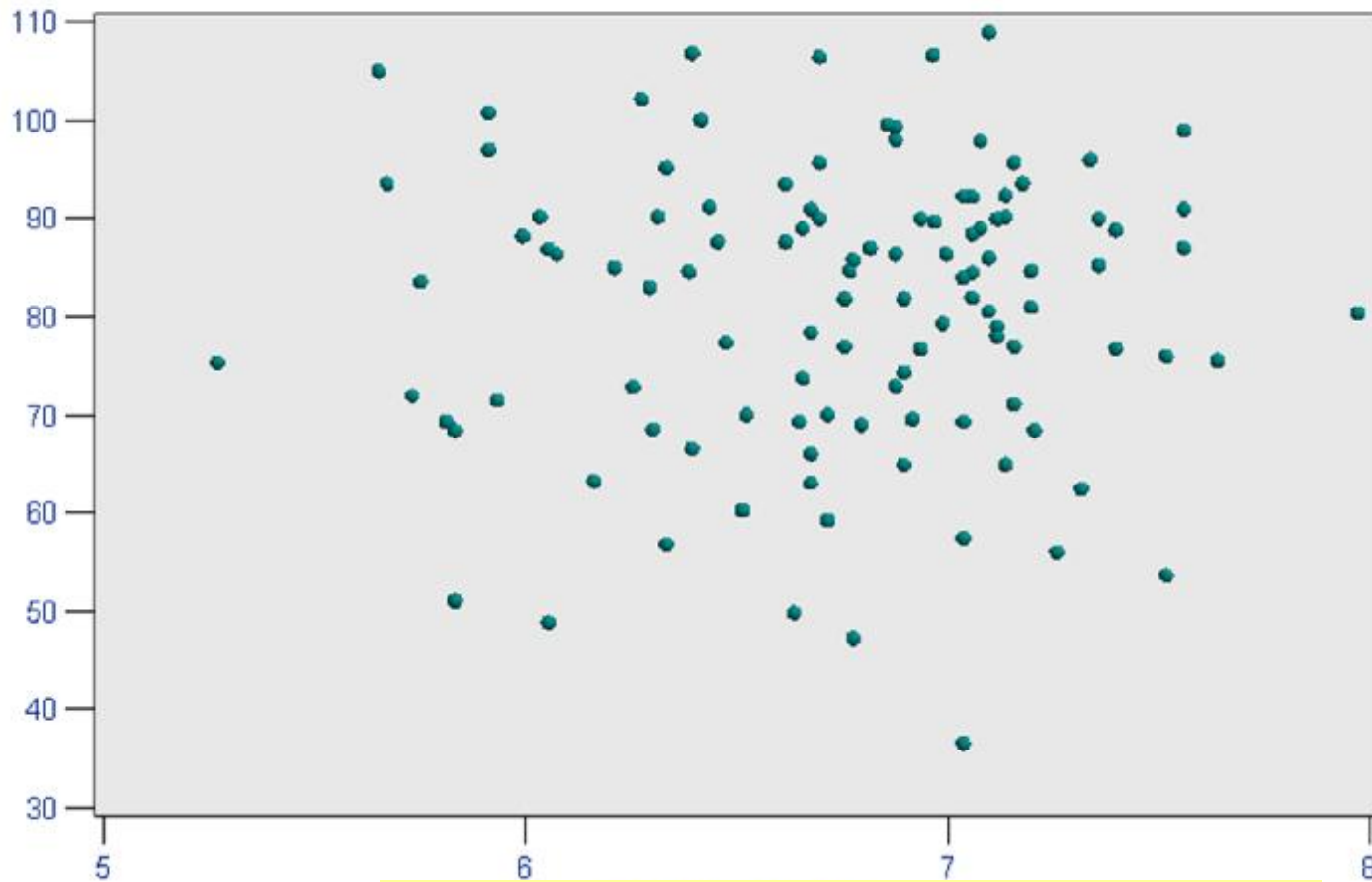


The weight of piglets



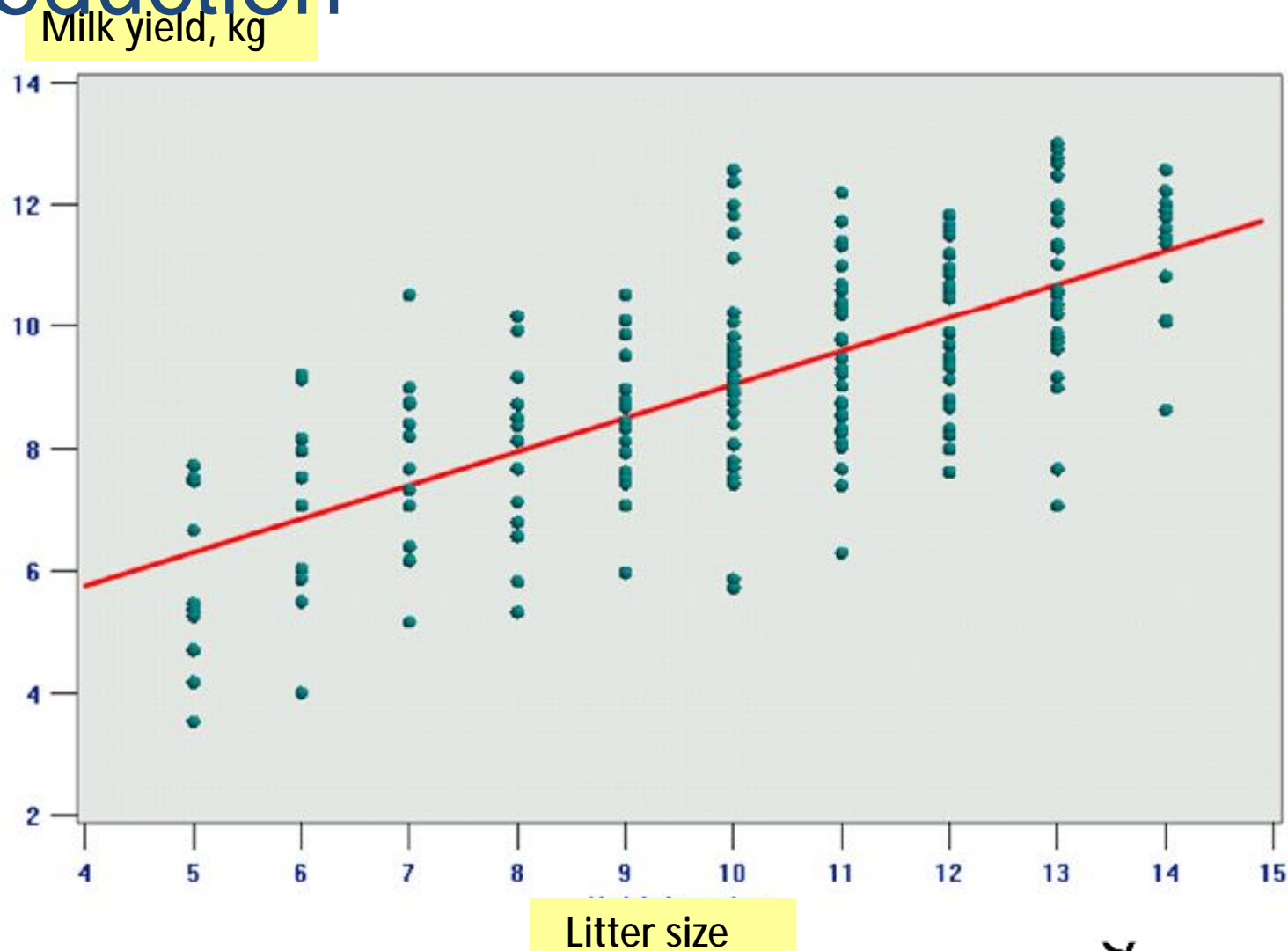
Effect of sows feed intake on litter weight

Litter weight at weaning



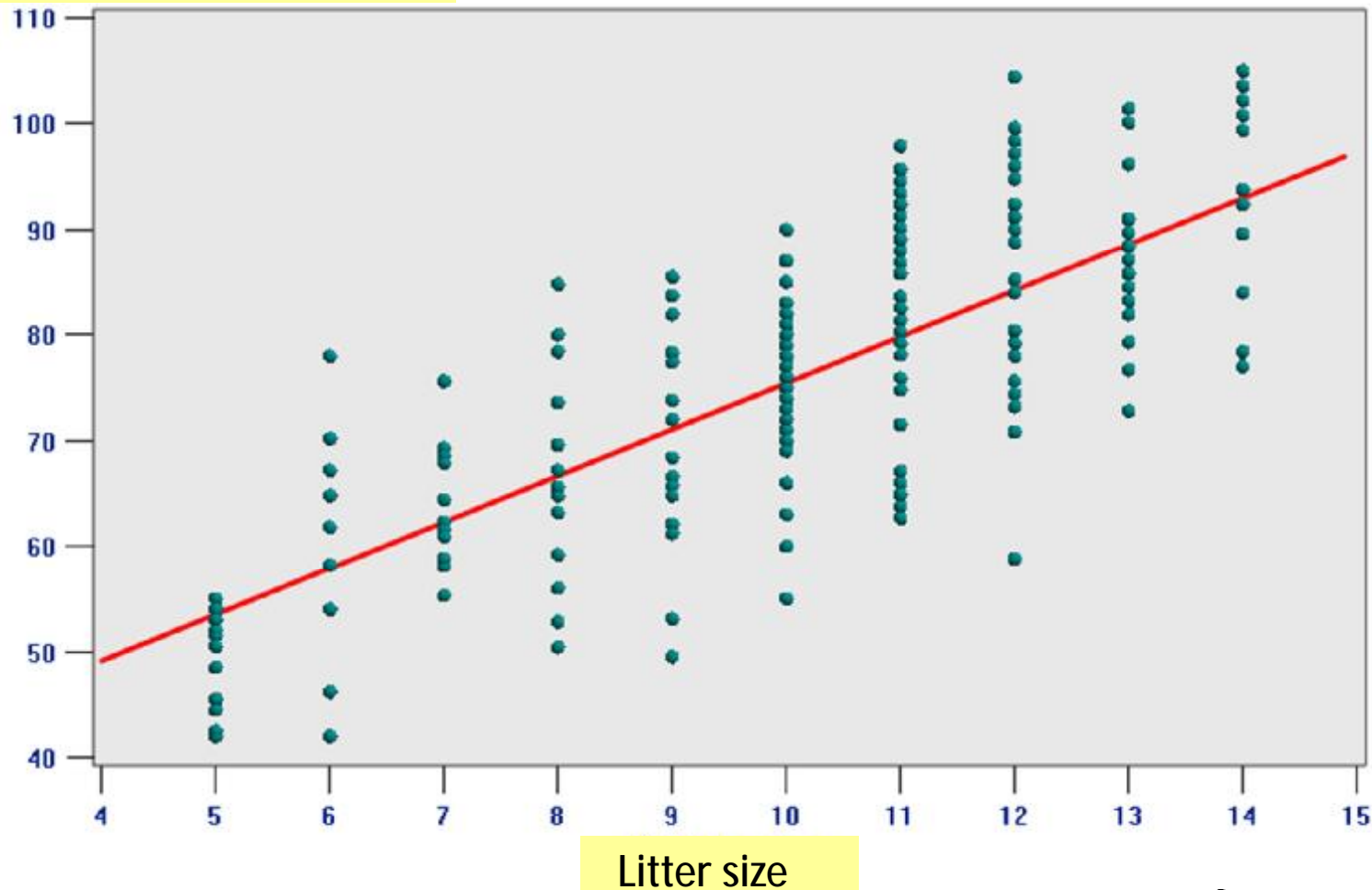
Average FUsow pr. day during lactation

Effect of littersize and sows milk production



Effect of littersize and litterweight

Litter weight at weaning



Advisory Benchmarking Oct.-Dec.

- 60 local herds

	Weaned pr. sow/year	Liveborn pr. sow	Still- born pr. sow	Weaned pr. sow	% mortality	Suckling days
All	30,4	15,6	1,7	13,5	14,0	32,6
TOP 10	33,6	16,3	1,8	14,5	11,2	30,4



Thank you for your attention

