

Free farrowing systems

Roland Weber



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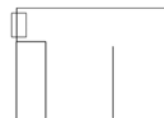
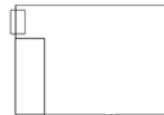
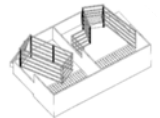
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Basic designs for free farrowing

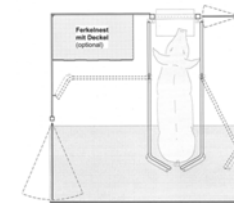
- Crates that can be opened
 - with minimum control of the sow
 - with no control of the sow
 - 5.5 - 6 m²
- No possibility of confinement
 - no separation of lying / dunging area > 6 m²
 - with separation of lying / dunging area 7.0 - 7.5 m²



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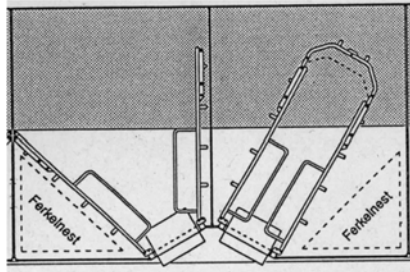
Crates that can be opened / minimal control of the sow



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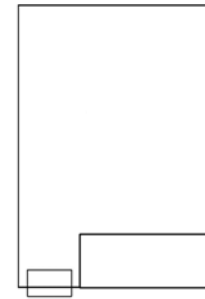
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Crates that can be opened / no control of the sow



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Pens with no possibility of confinement and no separation between lying and dunging area



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Abferkelkonzepte

Mehr Ferkel pro Sau und Jahr abzusetzen ist ein wichtiges ökonomisches Ziel in der Ferkelproduktion. Dazu gilt es, die Vorschriften des Tierschutzgesetzes und je länger je mehr auch diejenigen von Labelprogrammen zu erfüllen. Um in Zukunft am Markt zu bestehen, sind für den Schweinezüchter technisch anspruchsvolle und auf die betrieblichen Gegebenheiten abgestimmte Abferkelkonzepte von zentraler Bedeutung. Wir werden Sie fachkundig beraten und mit Ihnen zusammen die für Ihren Betrieb massgeschneiderte Lösung für eine wirtschaftliche Ferkelproduktion erarbeiten.

Bild oben: Abferkelkonzept mit Einstellvorgang
Bild unten: Abferkelkonzept mit Ferkelgang

Huber Metallbau AG
Stalleinrichtungen



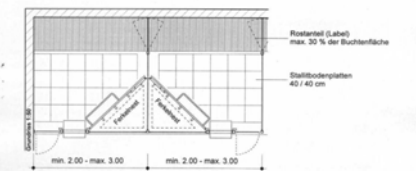
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MOSER
Stalleinrichtungen

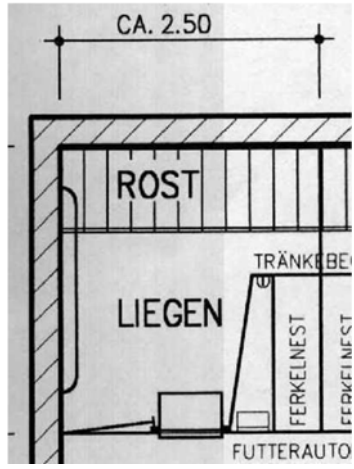
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Abferkelbuchten «Label» 7.0 m²

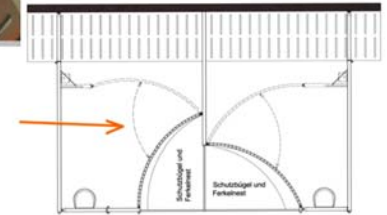


Theoretical possibility of confinement

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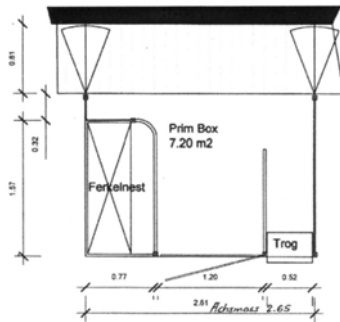


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Inauen

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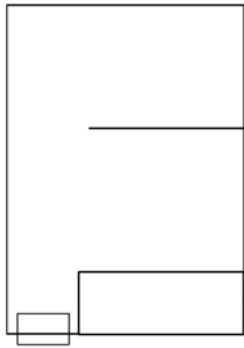
Werribee (AUS)



Nürtingen (D)

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+ Pens with no possibility of confinement and separation between lying and dunging area



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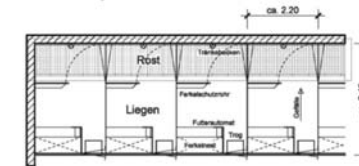
Ein System ohne Tierschutzprobleme

Comfort-Box

Die Abferkelboxe ohne Fixierung

Systembeschreibung

- Entmietung oder Umspülung
- Bodenfläche ca. 7,6 m²
- Ferkelrost mit Streifenvorhang
- Diverse Heizungsmöglichkeiten
- Komplett aus Chrom-Nickel-Stahl
- Einfache Montage



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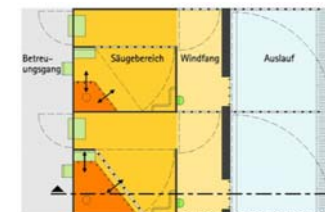


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HeKu (D)

Lachner (D)

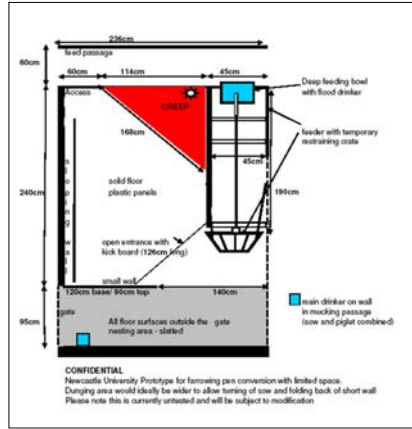


Trenthorst (D)

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PigSAFE (GB)



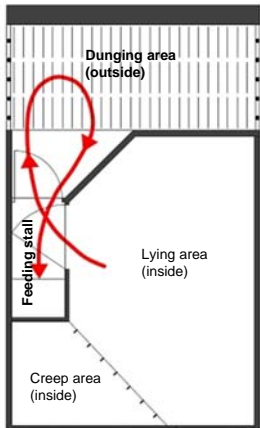
Illustrations: S.A. Edwards



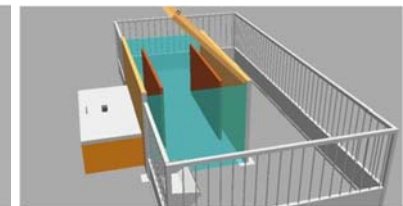
Pens for outside temperatures



Self-construction by a farmer (CH)



Alphanest (self-construction by farmers, CH)



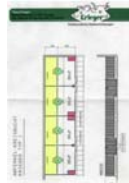
HAKA-Ethobox (D)

Swiss Creep-area inside the pen



Schmid-pen (CH)

Huber-Swissstall (CH)



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Swiss Group-suckling



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Details for free farrowing

See also:

Baxter, E.M., Lawrence, A.B., Edwards, S.A., 2011.
Alternative farrowing systems: design criteria for farrowing systems based on the biological needs of sows and piglets. Animal 5, 580-600.

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Swiss Pen size

	Pen size (m ²)	Losses	
		total	crushed
	3.9	↗↗	↗↗
	4.4	→	no info
	4.6	↗	↗
	4.4	↗	↗
≤ 5 m ²	5.0	↗	↗
	6.0	→	→
> 5 m ²	6.5	↘	no info
	7.0	→	↗
	7.0	→	↗
	7.0	→	↗
	7.3	→	↗
	7.0	→	↗
	7.2	→	no info
	7.6	↘	no info
	7.8	→ ↘	↘
	5.3 - 8.1	→ ↗	↗
	>6.5	↗	↗
Weber et al. (2007) 482 / 173 farms	5.1 - 12.2	→	↗

↗ = increased / → = unchanged / ↘ = decreased in free farrowing

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Baxter, E.M., Lawrence, A.B., Edwards, S.A., 2011.
Alternative farrowing systems: design criteria for farrowing systems based on the biological needs of sows and piglets.

Sow needs to be able to:

- circle around during nest building
- lie laterally during parturition and suckling
- turn around to contact the piglets during parturition and group the piglets before lying down

→ 2.79 m² / sow and 1.21- 1.31 m for udder access

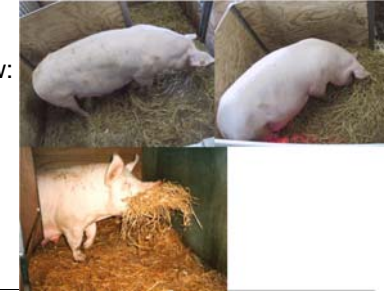


Substrate (nest building)

- Substrate allows nest building → motivation can be satisfied → several authors proposed that high nest building activity reduces risk of crushing
(farmers and advisers in CH say that sows with no possibility of nest building are more "nervous" during parturition and afterwards)

- Nest building material must allow:

- pawing
- rooting
- carrying



Piglet protection facilities

- "It is said that" piglet protection facilities prevent crushings
- Solid sloped or vertical walls are preferred over farrowing rails

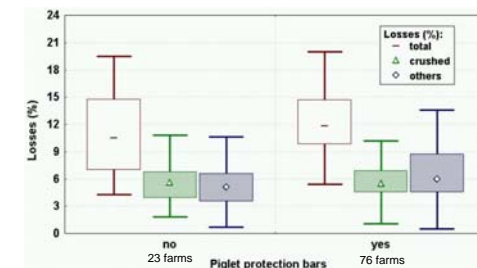


On the other hand:

Most piglets are crushed in the middle of the pen and not at a wall



Weber, R., Keil, N.M., Fehr, M., Horat, R., 2009. Factors affecting piglet mortality in loose farrowing systems on commercial farms. *Livestock Science* 124, 216-222.



Farrowing rails	p-values			n.s.
	total	crushed	others	
	0.09	0.87	0.08	

No relation to pen size could be found

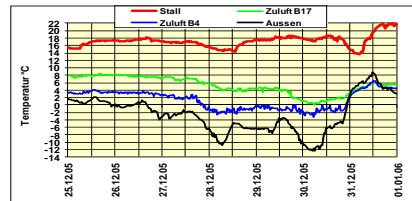
Average pen size (m ²)	Farrowing rails	
	no	yes
	6.7 ± 0.7	7.1 ± 0.5

Temperature

- Temperature not too warm even in wintertime (16 °C is better than 25 °C) → enough litter is required



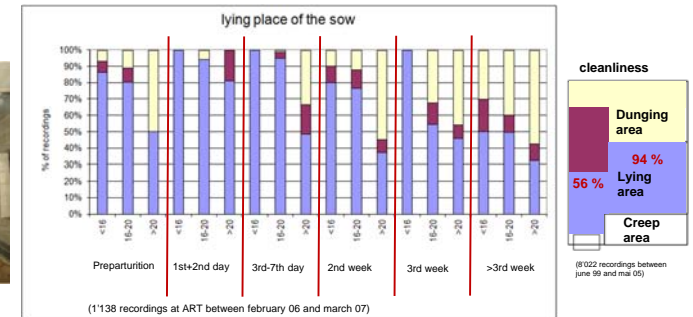
FAT 2 pens with earth heat exchanger



Winter

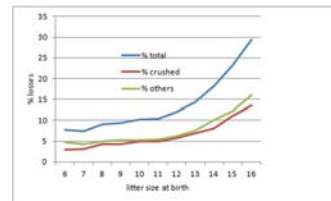
Connected factors: structure, air inlet and floor on the dunging area

- Pen should be structured → sow can distinguish between lying and dunging area
 - Air inlet should be over the dunging area → no air draught in the lying area
 - Cast iron floors in the dunging area instead of concrete slatted floors → dunging area should not be too comfortable to lie on
- More cleanliness of the pen



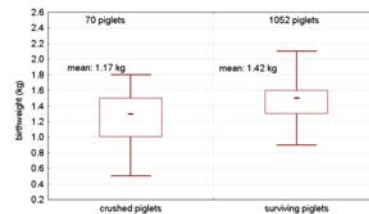
Other important factors (not dependent from farrowing system)

- Litter size at birth
 - Increased losses in large litters



Weber, R., Keil, N.M., Fehr, M., Horat, R., 2009. Factors affecting piglet mortality in loose farrowing systems on commercial farms. Livestock Science

- Birthweight
 - Underweight piglets have a higher risk to be crushed or die later as runts



Data: Individual weighing of 1752 piglets at ART in free farrowing

What farmers, advisers and manufacturers also recommend

- Creep area at the service corridor → piglets could be enclosed in the creep area and handled from the service corridor and not from the pen
- When ever possible, let the sow alone during parturition and short afterwards → sows get "nervous" when people are permanently around them during parturition → naturally they want to be alone
- Drinking facilities in the dunging area

Management (personality of the stockperson)

Ravel et al. (1996): Influence of management, housing and personality of the stockperson on preweaning performances on independent and integrated swine farms in Quebec. → [Research on farms with crates](#)

- Independent farms:
 - High performance: stockpersons high self-discipline
 - Poor performances: stockpersons exaggeratedly self-assured and sensitive
- Integrated farms:
 - High performance: stockpersons high self-discipline, warmth and emotional stable
 - Poor performances: stockpersons rather bold, suspecting and tense

→ If personality is important for farrowing crates then it is even much more important for free farrowing

"Dead-end-systems"

- To small
- No substrate
- And so on



Mushroom-pen (D / A)



VIP (DK)

Ulrich-pen (D)



Vario-Fit (D)

Circle-pen (D)

