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Are liquid fed pigs more motivated to obtain additional water than dry fed pigs ?

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Background and objective

- EU standards for the protection of pigs (2003):

"*All pigs over two weeks of age must have permanent access to a sufficient quantity of fresh water.*"

- Do liquid fed pigs need additional fresh water?
- Objective:
  Measure motivation to obtain additional water

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Method

- Problem: Simply measuring water intake does not distinguish playing behaviour and water intake
- Reduction of flow rate to increase work load
- Determine demand curves like Matthews and Ladewig (1985)

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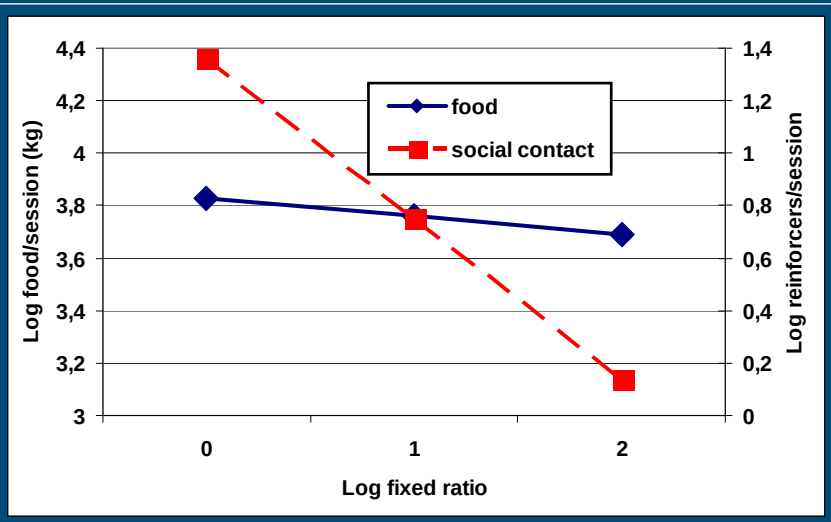
Consumer-demand: steep=elastic=less essential



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Material and Methods

- 3 liquid and 1 dry feed systems
- 2 batches each with 2 rooms with 12 pens (576 pigs)
- Additional drinking bowl with push nipple in back of pen above slatted floor
- Recording water intake 12 weeks every hour
- Randomly changing flow rate every week (134 – 356 – 733 – 1041 ml/min) to measure motivation
- Inelastic consumer-demand curve = essential need!

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Treatments: Dry (1) and Liquid (3) feeding systems

- Dry feed, one feeder including drinker
- Liquid, Long Trough, 3 times/day, 12 places
- Liquid, Sensor, 5-10 times/day, 4 places
- Liquid, Variomix, 5-10 times/day, 1 place
- Additional drinker in every pen

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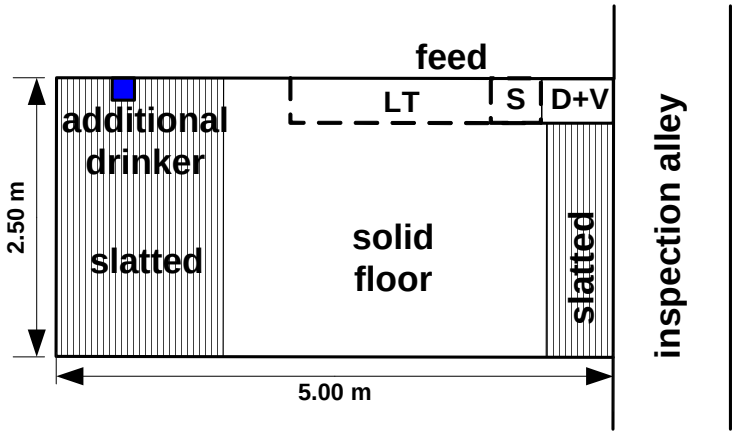
Pen layout for groups of 12 growing pigs



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General Results:

	Additional water l/pig*d	Total water l/pig*d	Feed intake kg/pig*d
Dry feed	3.39[a]	4.72[a]	1.93
Long Trough	0.74[b]	7.18[b]	1.87
Sensor	0.56[bc]	7.36[b]	1.97
Variomix	0.42[c]	7.27[b]	1.99

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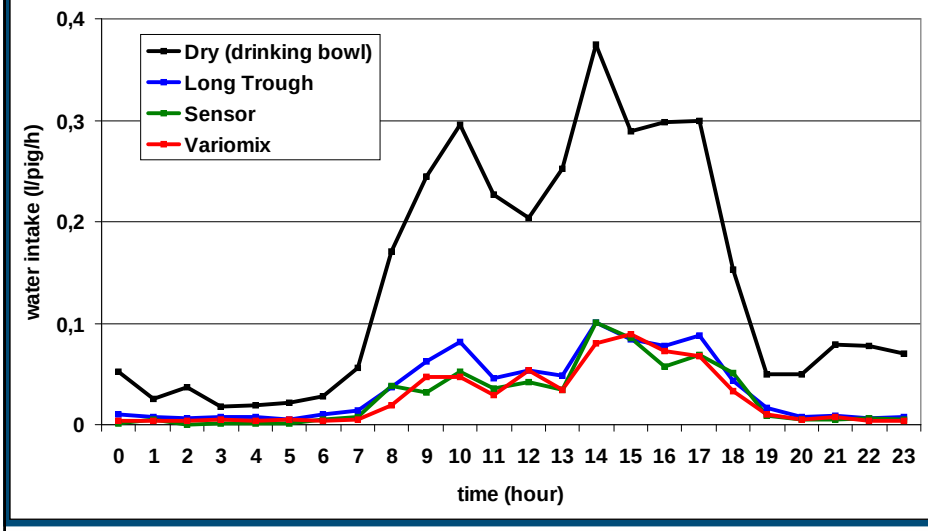
Water intake: 24 hour pattern



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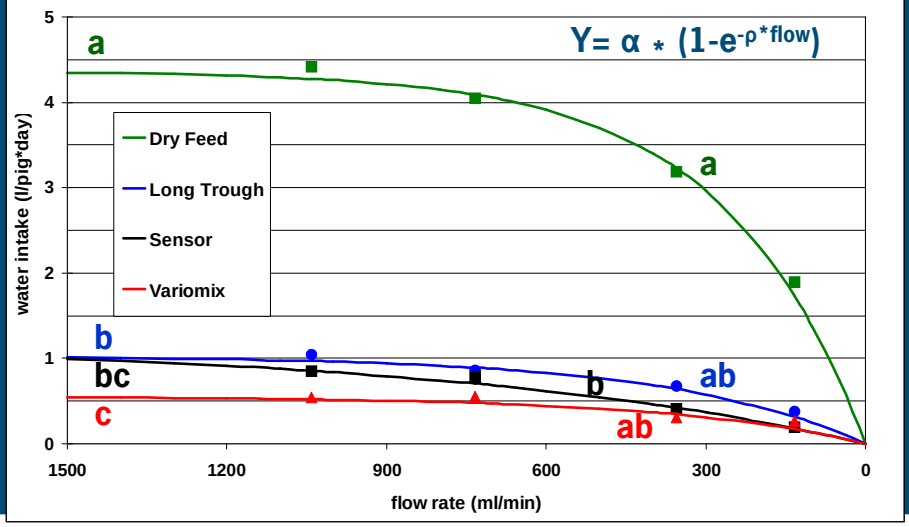
Water intake related to flow rate (fitted curves)



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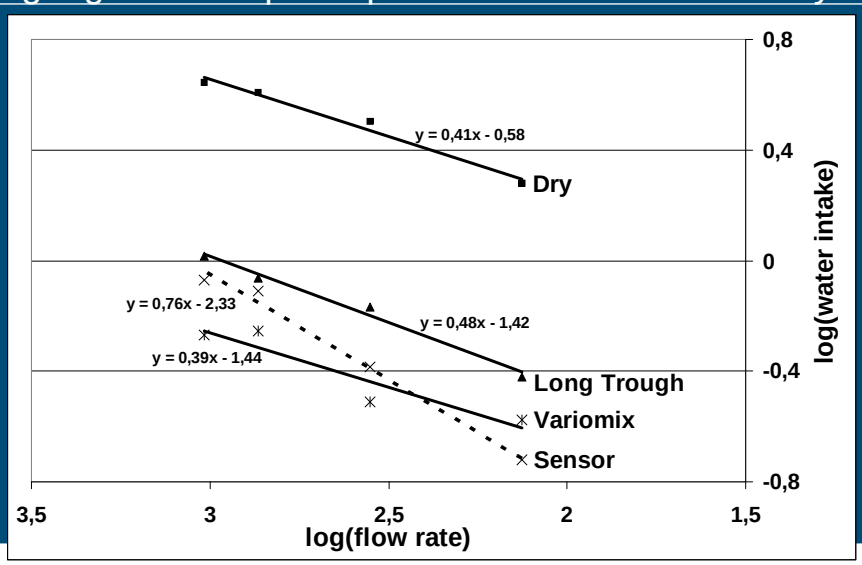
Log-log scale: Liquid equal or more elastic than Dry



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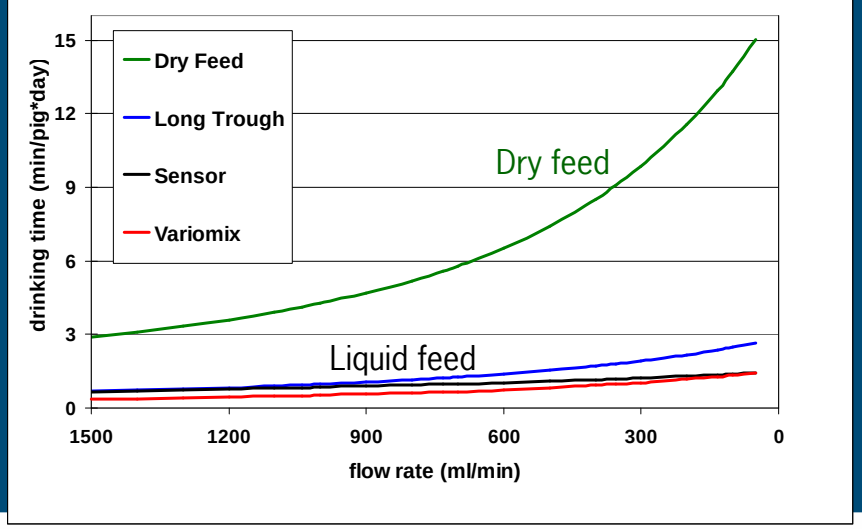
Drinking time related to flow rate



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Conclusions

- The motivation to work for additional water is inelastic and equal or less in liquid fed pigs compared to dry fed pigs
- The water intake of dry fed pigs from an additional drinker is higher than of liquid fed pigs

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