



Better Training for Safer Food *Initiative*

Training course on “Animal Welfare in pig production”

**Environmental enrichment to improve
welfare focusing on legislative
requirements and practical solutions**

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EU directive 2008/1 20/EC

“Pigs must have permanent access to a sufficient quantity of materials to enable proper investigation and manipulation activities, such as straw, hay, wood, sawdust, mushroom, compost, peat, or a mixture of such, which does not compromise the health of the animals”.

Intention of the directive

To fulfil the pigs' behavioural need for exploration and manipulation

Side effect:

to reduce problems with tail-biting

What is proper investigation and manipulation activities ?

The pig snout can:

*Root
Sniff
push*

and find thing that the mouth can:

*chew
taste
swallow*



In nature, the pig is omnivore

It spent approx. 50 % of its day time on foraging (rooting and grazing) and approx. 23 % in locomotion and investigation of the environment

... the rest of the time is spent on shorter resting periods

(Stolba and Woodgush, 1989)

Why do pigs explore ?

To find: food

Motivated by hunger

To find:

*information about the
environment eg. places to
rest*

*Motivated by curiosity,
gather information for
survival*



Pigs are highly motivated to explore even when they are NOT hungry !



Exploration in a production system

- *Exploration is a behavioural need*
- *Strong inner motivation*
- *When no biological relevant substrate are available, pigs redirect exploration towards conspecifics*



What is biological relevant substrate ?

Directive mention:

*straw, hay, wood,
sawdust, mushroom,
compost, peat*

...but

*Chains, toys, sticks
are more often used*



But are these materials of any value for the pigs ?

Step :1 Choice test

	Destructable Indigestible	Destructable Digestible
Small particles	Compost Peat Shavings	
Small parts	Wood chip Spruce chip Willow chip Intact straw Chopped straw Straw pills	Lucernehø + halm Seed grass straw Barley with hay Straw + turnips Straw + maize Straw + silage
Larger objects	Bite Rite Rope Wood log	



Results from the choice test :



Chosen:

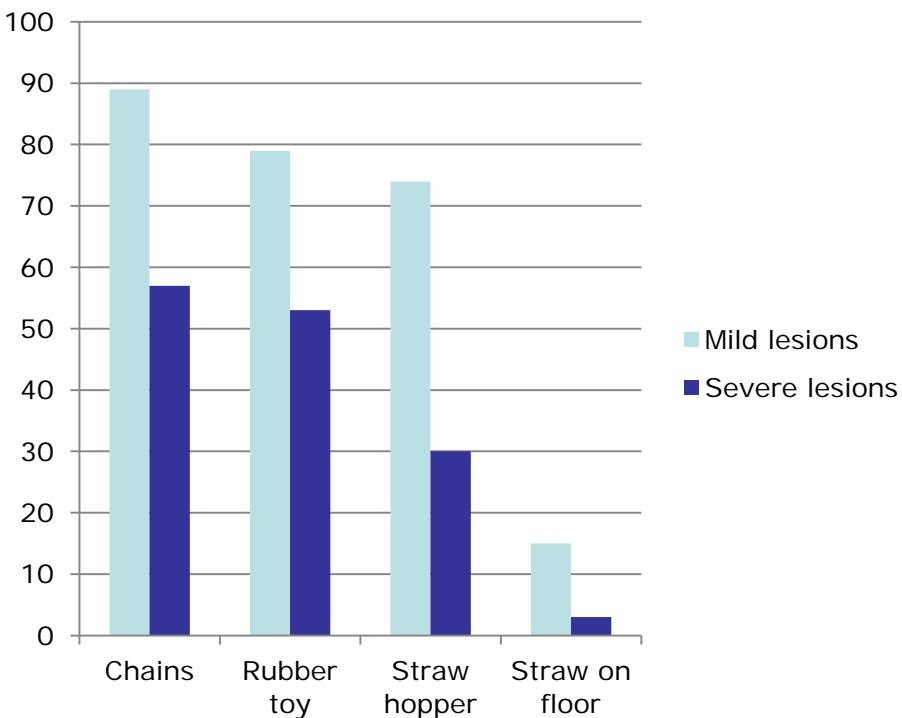
*compost, wood chip
and maize silage in
straw*

Not chosen:

bite rite, stick

Materials that prevent tail lesions

Percentage of pigs with lesions (%)



Materials that are preferred by the pigs are also those that prevent tail lesions

Which materials are preferred across 6 categories – operant conditioning



Characteristics of a good rooting material

Can be manipulated and changed

- can be chewed and destructed

Variable and complex

- variable in structure, e.g. parts of different size and shape
- variable in contents, e.g. branches and leafs

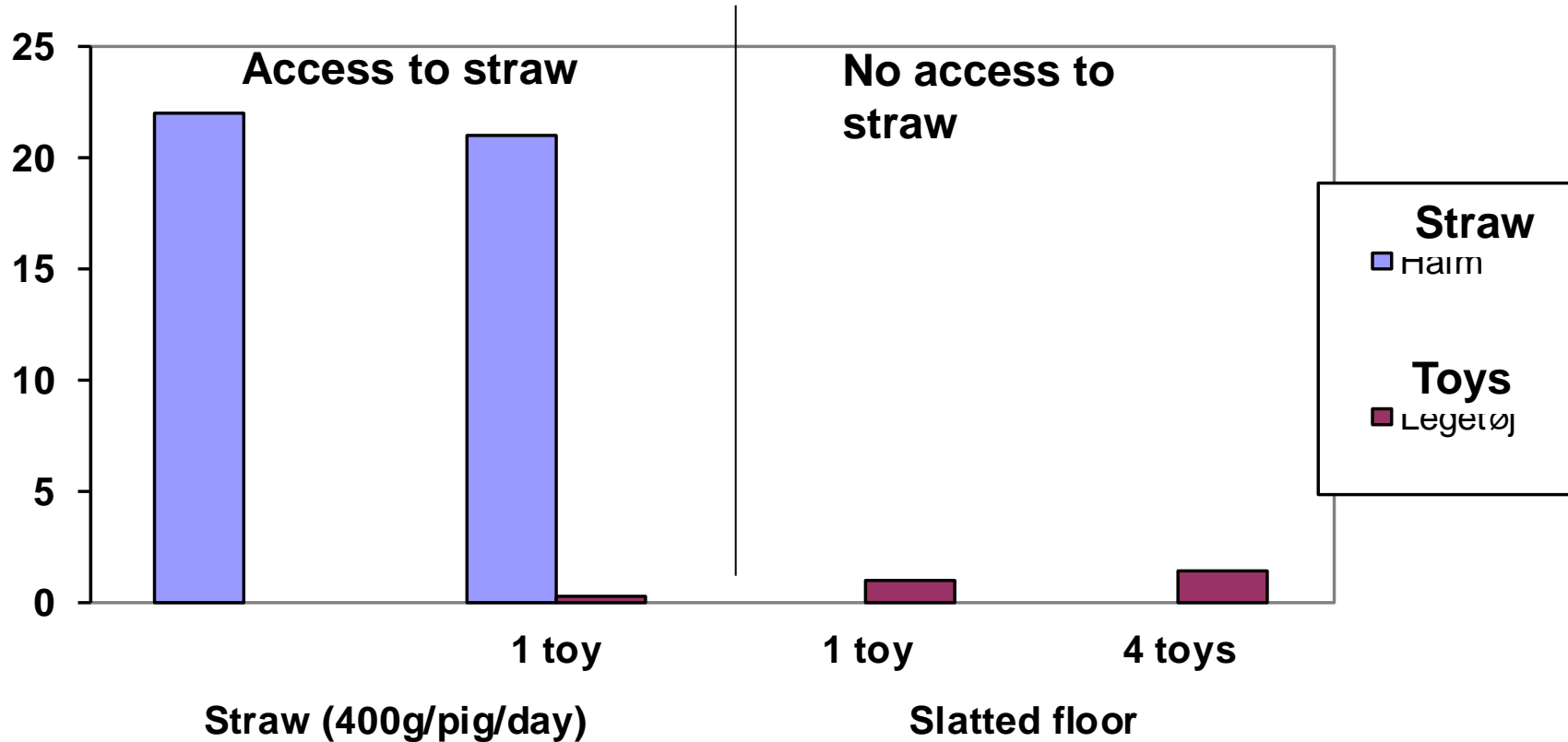
Contains small rewards in the material

- e.g. eatable parts of roots and grain

A good rooting material are changeable, complex, can be chewed and contains small eatable items

% of time
exploring

What is "sufficient" rooting material?



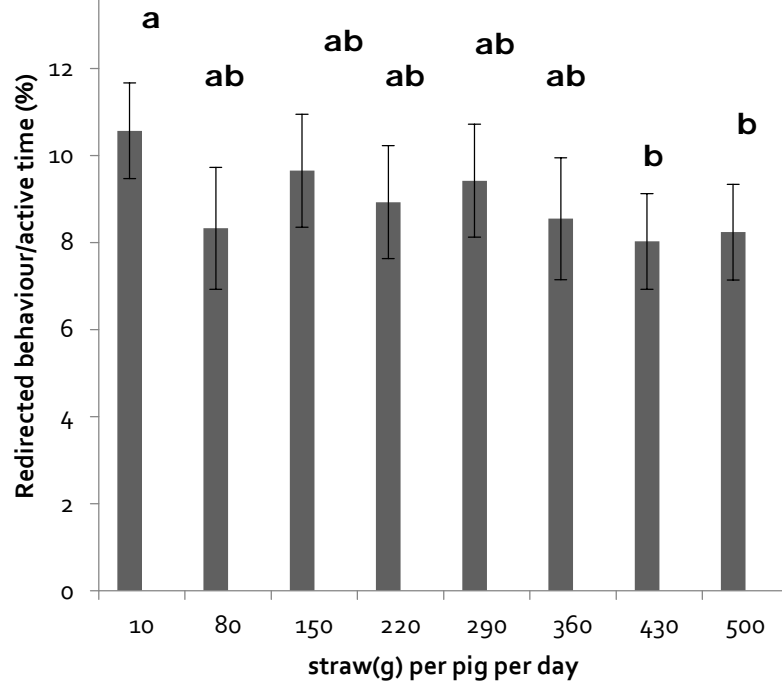
**The amount of toys is not important
because toys are not a suitable rooting material**

How much straw is sufficient ?



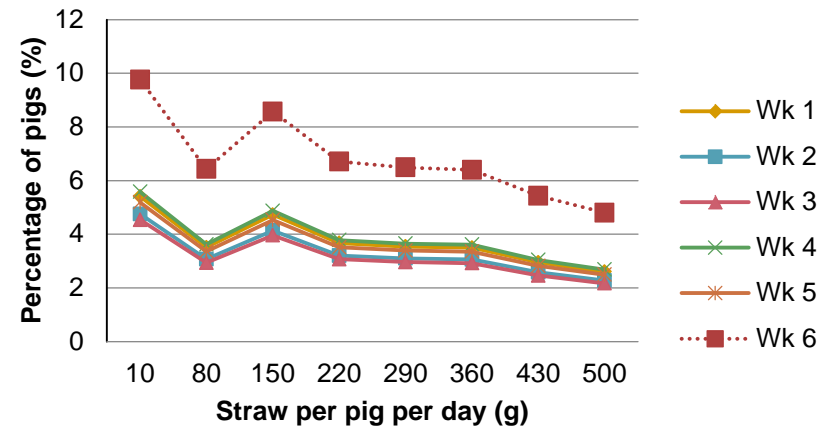
1000 g

Redirected behaviour/active time (%)¹⁴ (P = 0.01)



Pigs with affected tails (%) (P = 0.01)

Percent pigs with tail score > 0

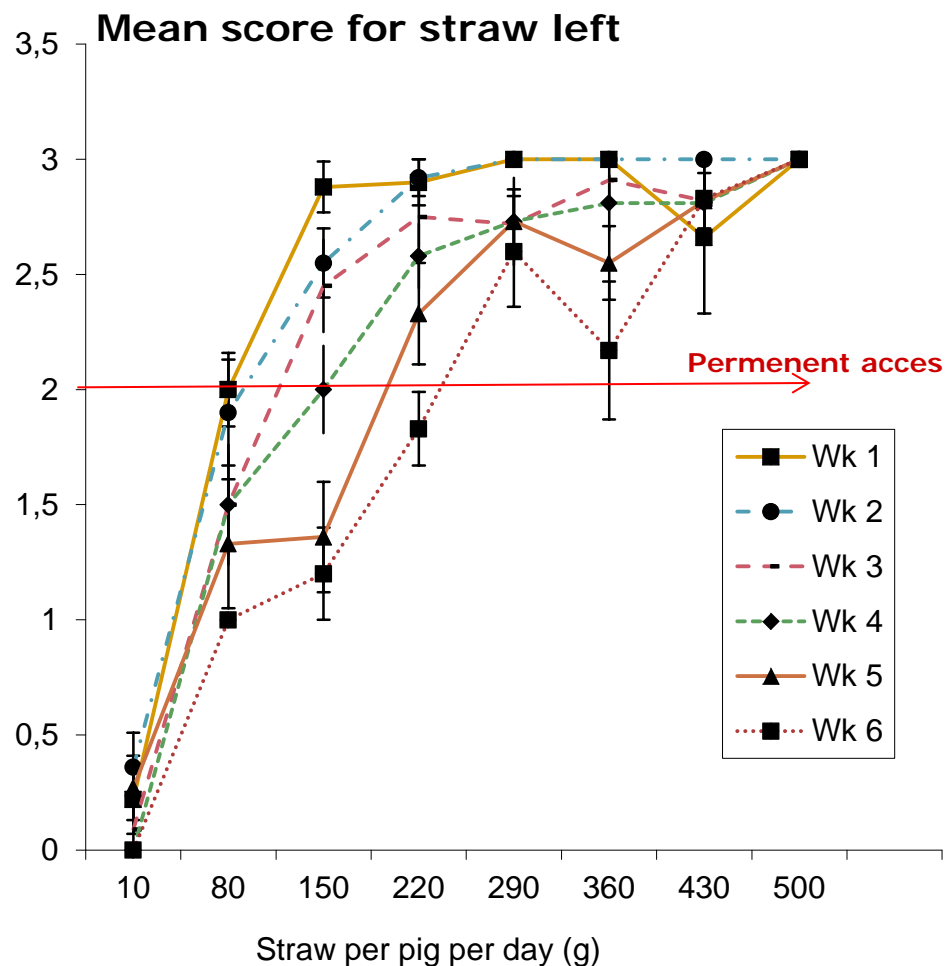


What is permanent access to straw ?

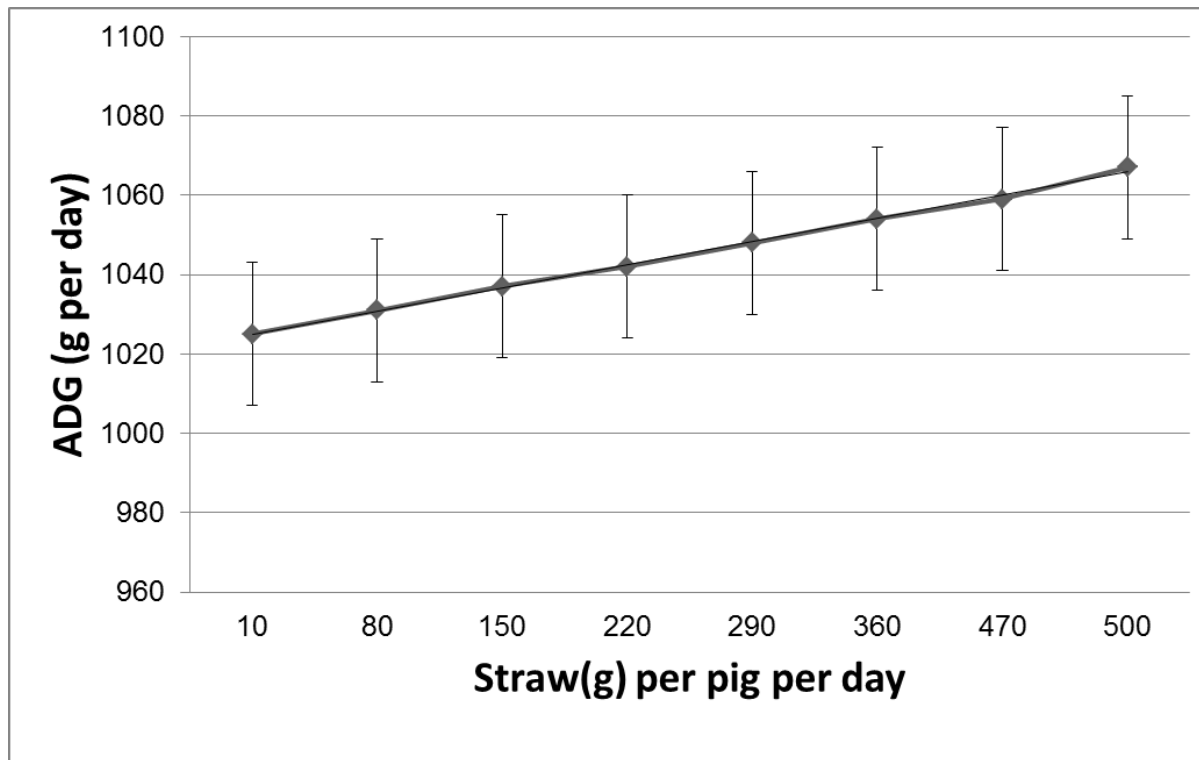


Weekly scoring of clean straw left in pen before daily allocation

Score	Straw left
0	< 1 dl
1	>1 dl and <1 litre
2	> 1 litre and < 10 litre
3	> 10 litre



Straw increased average daily growth



Straw reduced stomach ulcers

Simple scale	Detailed scale	10 g (N=18)	500/1000 g (N=27)	P-value
Normal	0	33 %	33 %	NS
Hyperkeratinosis	1-3	17 %	41 %	NS
Erosion	4-6	17 %	19 %	NS
Ulceration	7-9	33 %	7 %	P<0.05

Take home messages

- *Not suitable materials: Toys, chains, rubber stick, wood stick.*
- *Suitable materials: are changeable, complex, can be chewed and contains small eatable items*
- *Sufficient straw: 300-400 g per pig and day*
- *Permanent access of straw: 150-290 depending on age of the pigs*



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