

INRAE



Do piglets need iron supplementation in organic farms?

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POWER

Iron requirements of neonatal piglets

Birth

- High needs (5-7mg/day)
- Reduced stores
- Via milk (1mg/day)



6-7 days

- Risk of anemia
- Oral or parenteral iron supplementation by 2 days of age
- Welfare issues



21-28 days : weaning

- Sufficient iron intake from feed
- Inflammatory states can cause anemia



Specificity of organic farming



Weaning at a minimum of 42 days of age



Indoors

Iron supplementation necessary

Solutions in conflict with principles of ecology and health of organic farming

Intramuscular iron injection considered as a drug treatment by some certifying bodies



Outdoors

Iron supplementation not necessary

Iron injection not systematic

Sufficient amount of iron found in the environment (soil)



Objectives

**A study to compare haematological parameters, inflammatory status,
and oxidative stress
in piglets raised indoors and outdoors
in organic farms**

Experimental design

A survey in 21 French organic commercial farms

1 visit

6 days before to 1
Day after weaning

~30 piglets / farm

.from 4 to 7 litters per farm

.from multiparous and
primiparous sows

9 indoor farms



11 outdoor farms

→ 283 piglets

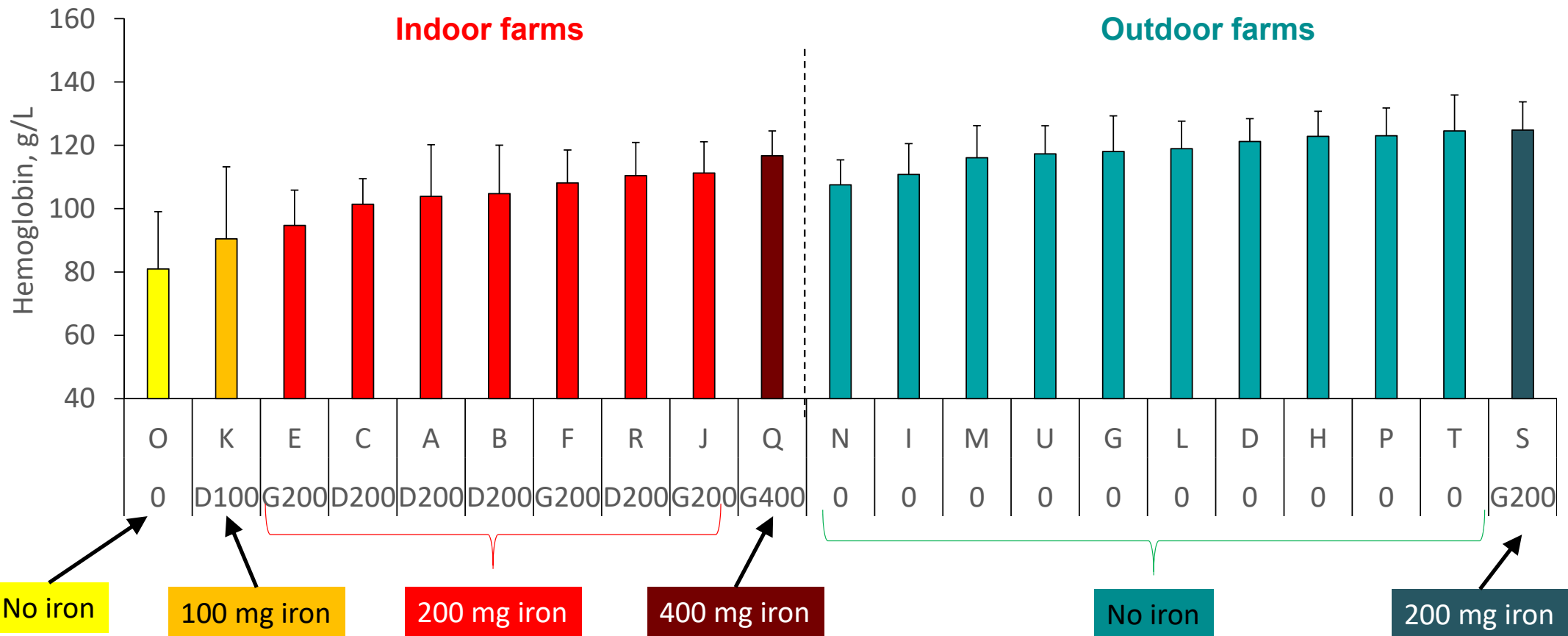
42 ± 3 days of age
12 ± 3 kg

→ 296 piglets



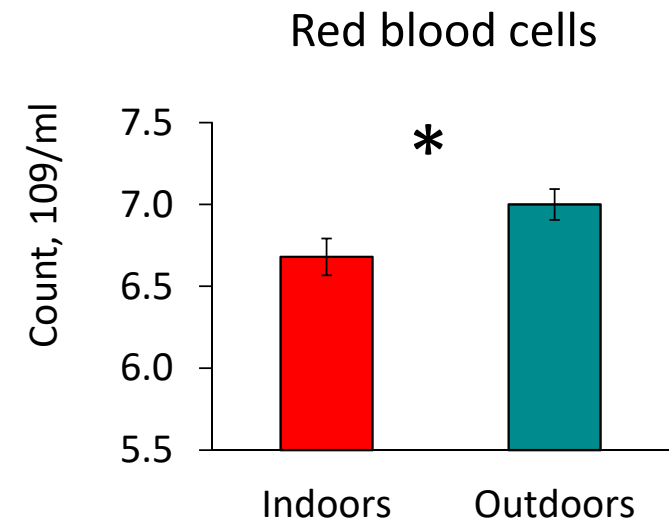
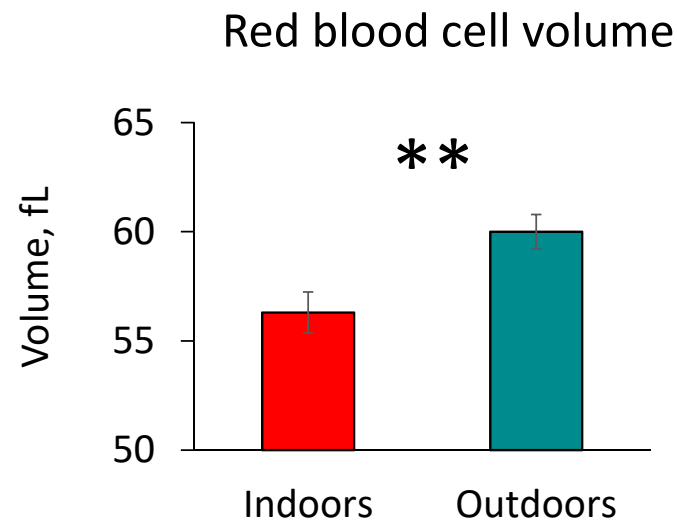
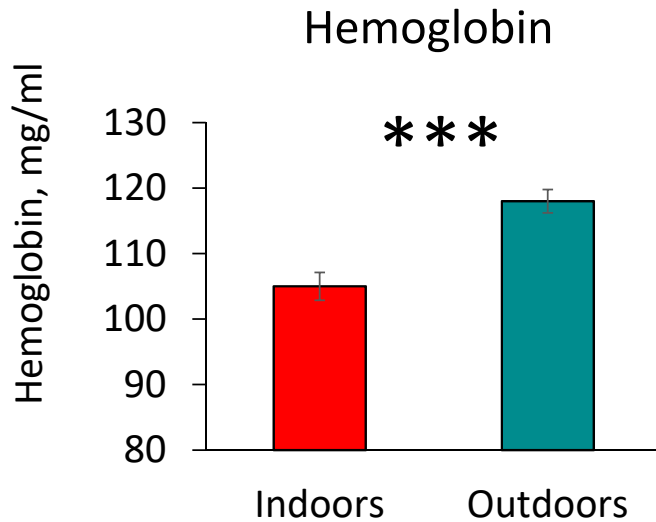
Complete blood count
Haptoglobin
Hydroperoxids and
blood antioxidant
potential (BAP)

Results : housing and supplementation practices

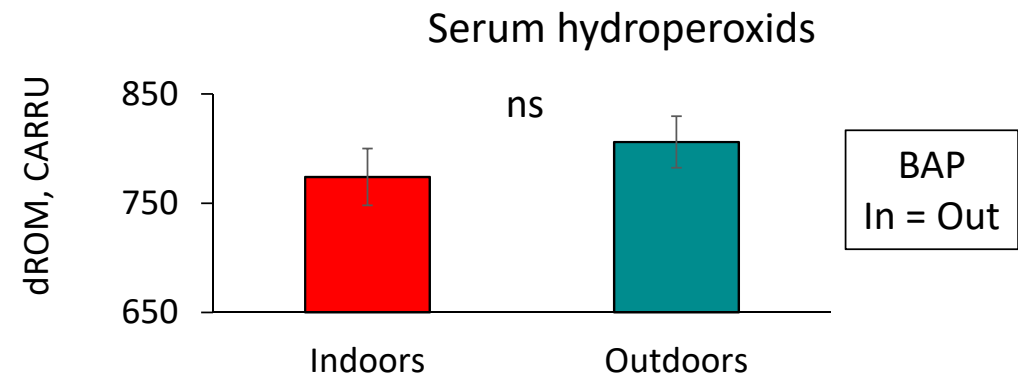
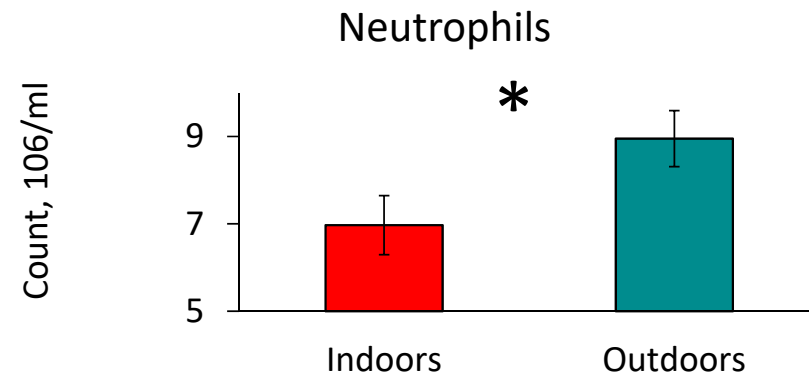
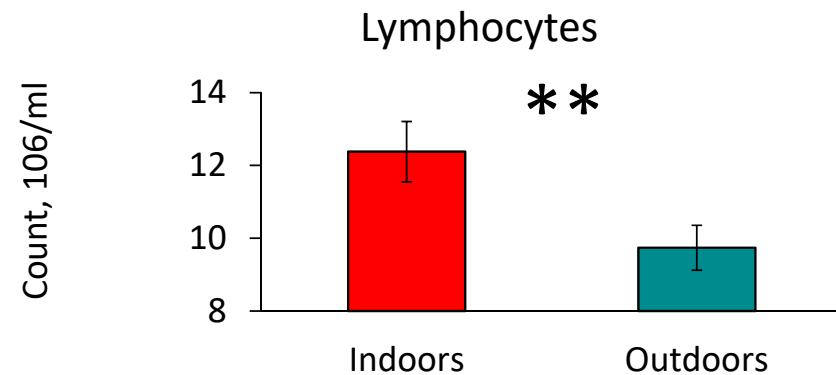


Results : hemoglobin status

Indoor, 200mg iron: n=206 piglets
Outdoor, no iron: n= 280 piglets



Results : immune and oxydative stress variables



Conclusions



- Outdoors: iron supplementation not necessary
In agreement with previous studies in 3 and 4-week-old piglets (Kleinbeck et al, 1999; Brown et al, 1996)
Sufficient iron in the environment
A risk when low soil bioavailability for iron
- Indoors: a minimal dose of 200 mg is necessary
in agreement with the literature (Svoboda et al, 2018)
- Iron status Indoor < Outdoor
Due to a better health status ? A physiological and progressive intake outdoor?

⇒ 200 mg of iron by injection may be suboptimal
⇒ alternative solutions needed for indoor piglets



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<https://projects.au.dk/coreorganiccofund/core-organic-cofund-projects/power/>

