2DA EDICIÓN

PROTEINAVIVA

La industria de alimentos en el centro del mundo

SOLUCIONES FITOGÉNICAS PARA UNA PRODUCCIÓN ANIMAL RENTABLE Y SOSTENIBLE

CON EL AUSPICIO DE:

QSI

QSI ECUADOR S.A.

13, 14 Y 15 DE MAYO 2026

CENTRO DE CONVENCIONES METROPOLITANO
QUITO - ECUADOR

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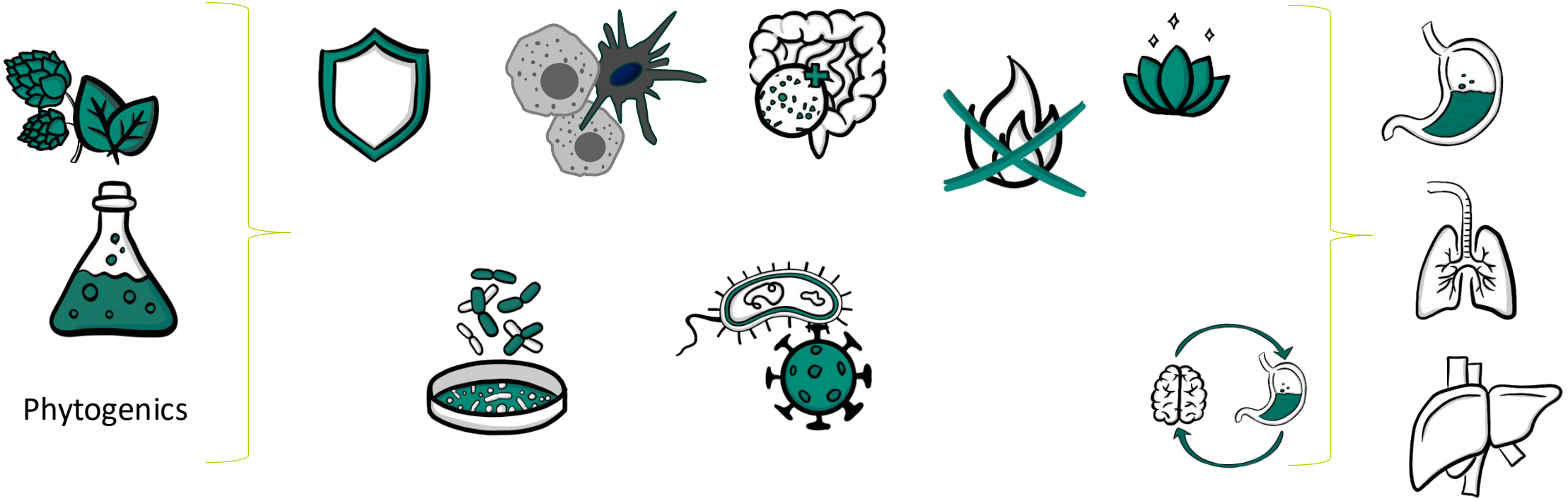
Phytogenic Solutions for Profitable and Sustainable Livestock Production

Muhammad Umar
Quito, 15.05.2026

DR. ECKEL
creative solutions

Phytogenics: Diverse modes of action



(Adapted from Li et al, 2023)

Benefits of phytogenics

Environmental impact

Sustainability

- Reduction in antibiotic use
- Lower environmental footprint

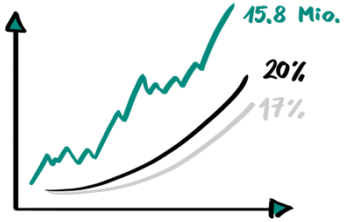
Eco-friendly practises

- Natural and biodegradable
- Reduced greenhouse gas emissions

Economic advantages

Cost efficiency

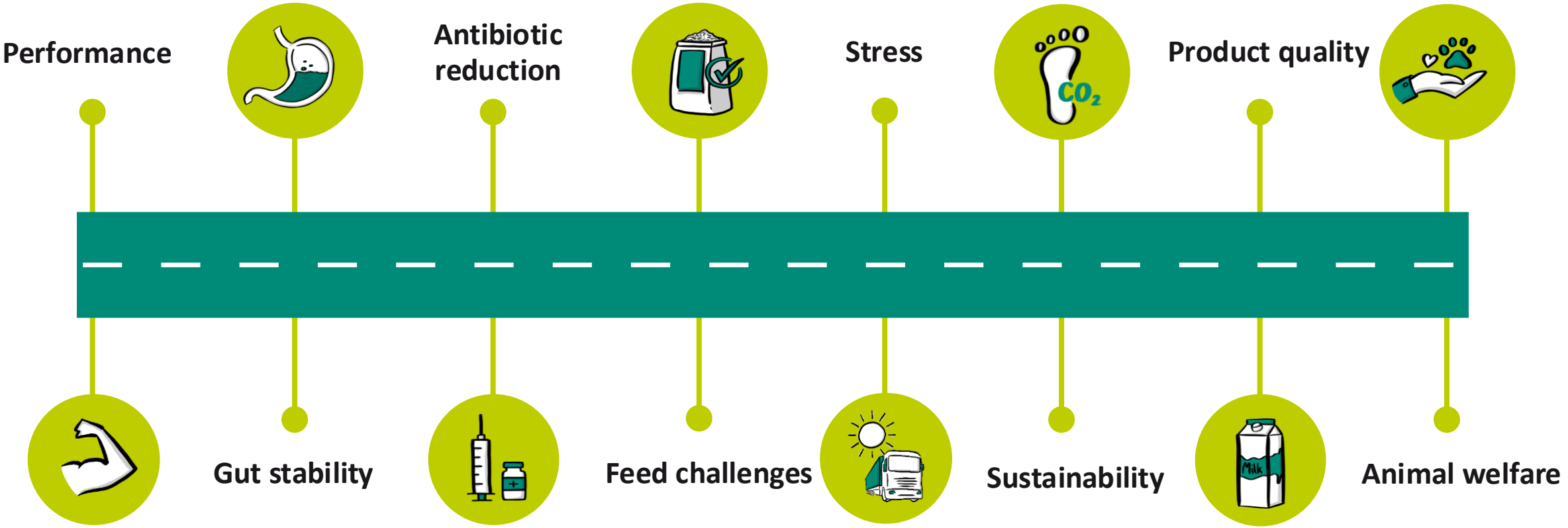
- Improved feed efficiency
- Lower veterinary costs



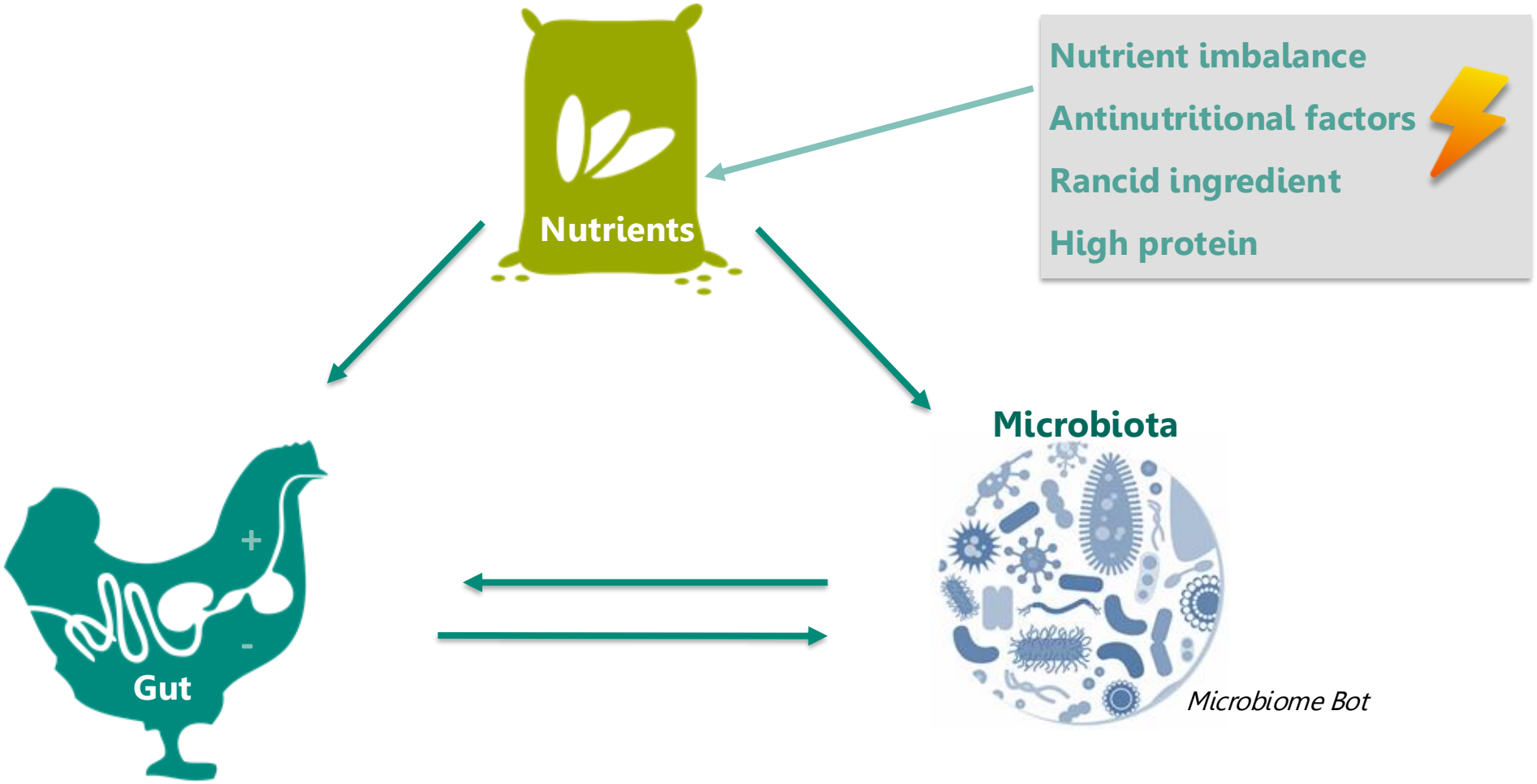
Market demand

- Growing consumer preference for natural products
- Higher market value for sustainably raised livestock

The path to decision:
Strategic application areas of phytogenic solutions



Gut Health: Dual function of nutrients as substrate & signal

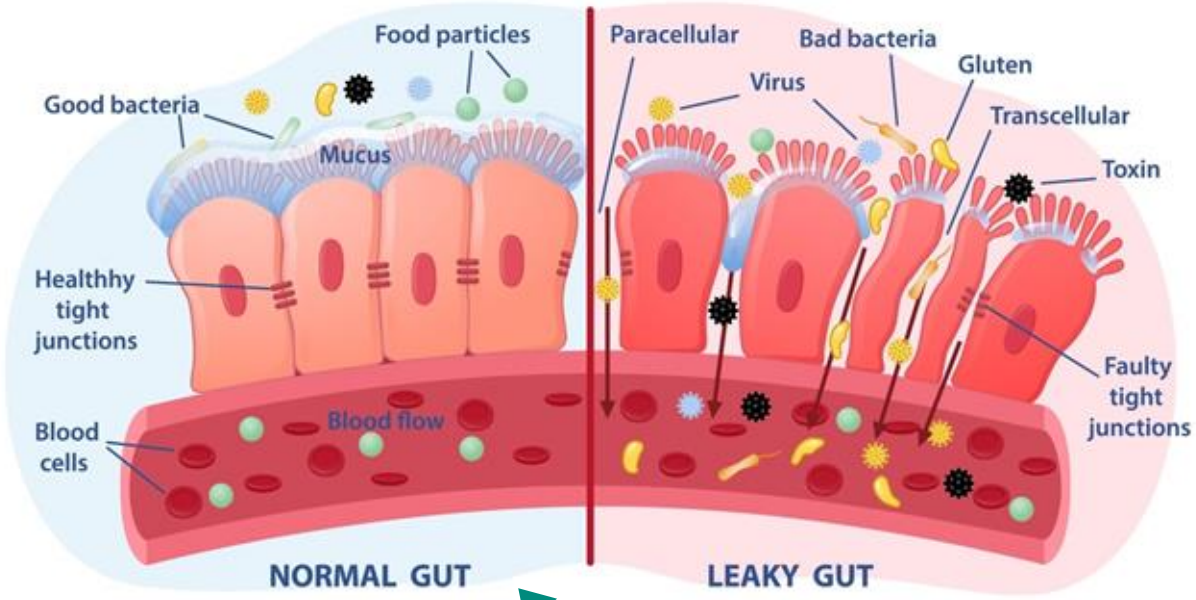


Features of Healthy & Unhealthy Gut

- Efficient nutrient absorption control
- Effective barrier function
- Immune homeostasis

VS

- Absorptive failure
- Leaky gut
- Immune depression

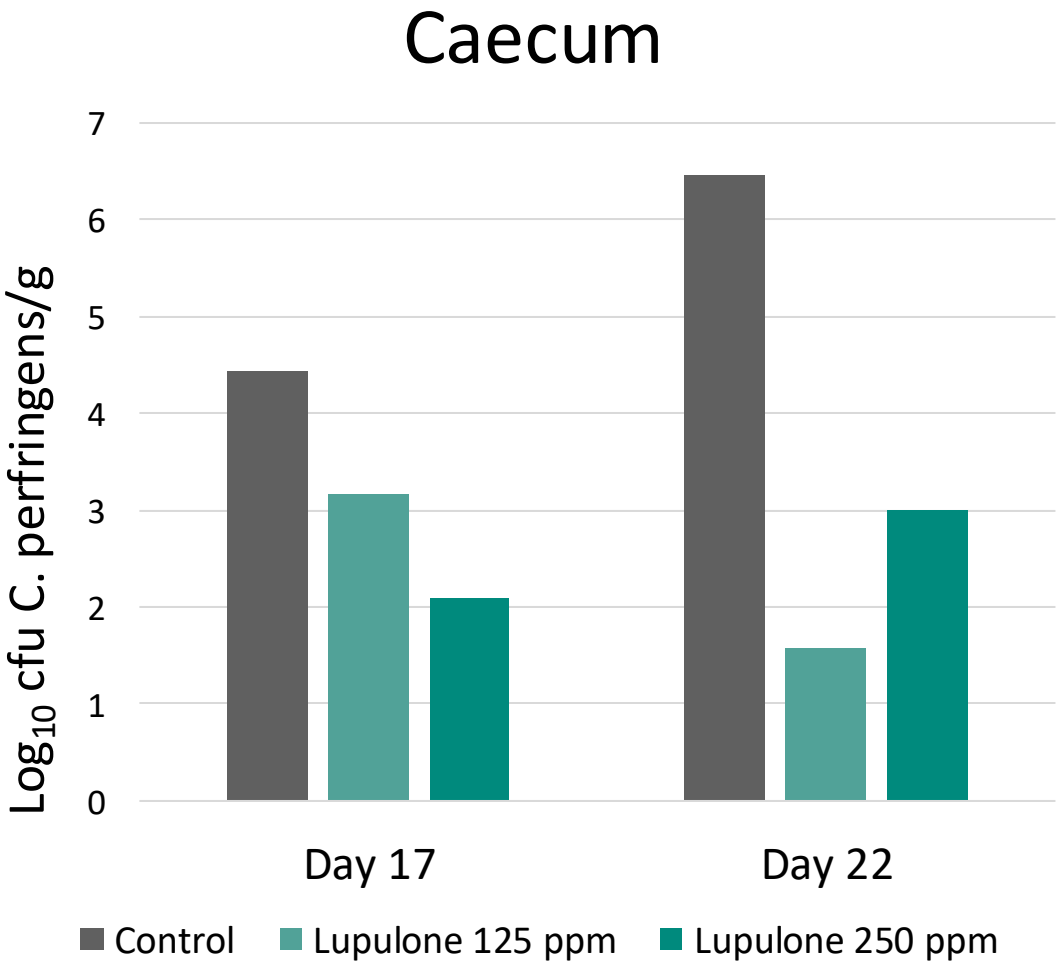


Special parts of the hops can reduce the pathogenic level e.g. from *Clostridia*

Hops Extract May Reduce *Clostridium* in Chickens

By Sharon Durham

A compound in hops called lupulone was found to be possible replacement for low levels of antibiotics as a way of controlling some pathogenic bacteria in chickens. *Click the image for more information about it.*

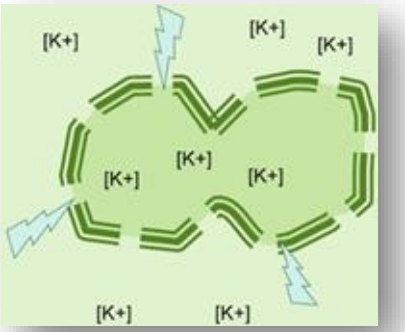


(Siragusa et al., 2008)

Main ingredient: Hop

— Deeper look into components and properties:

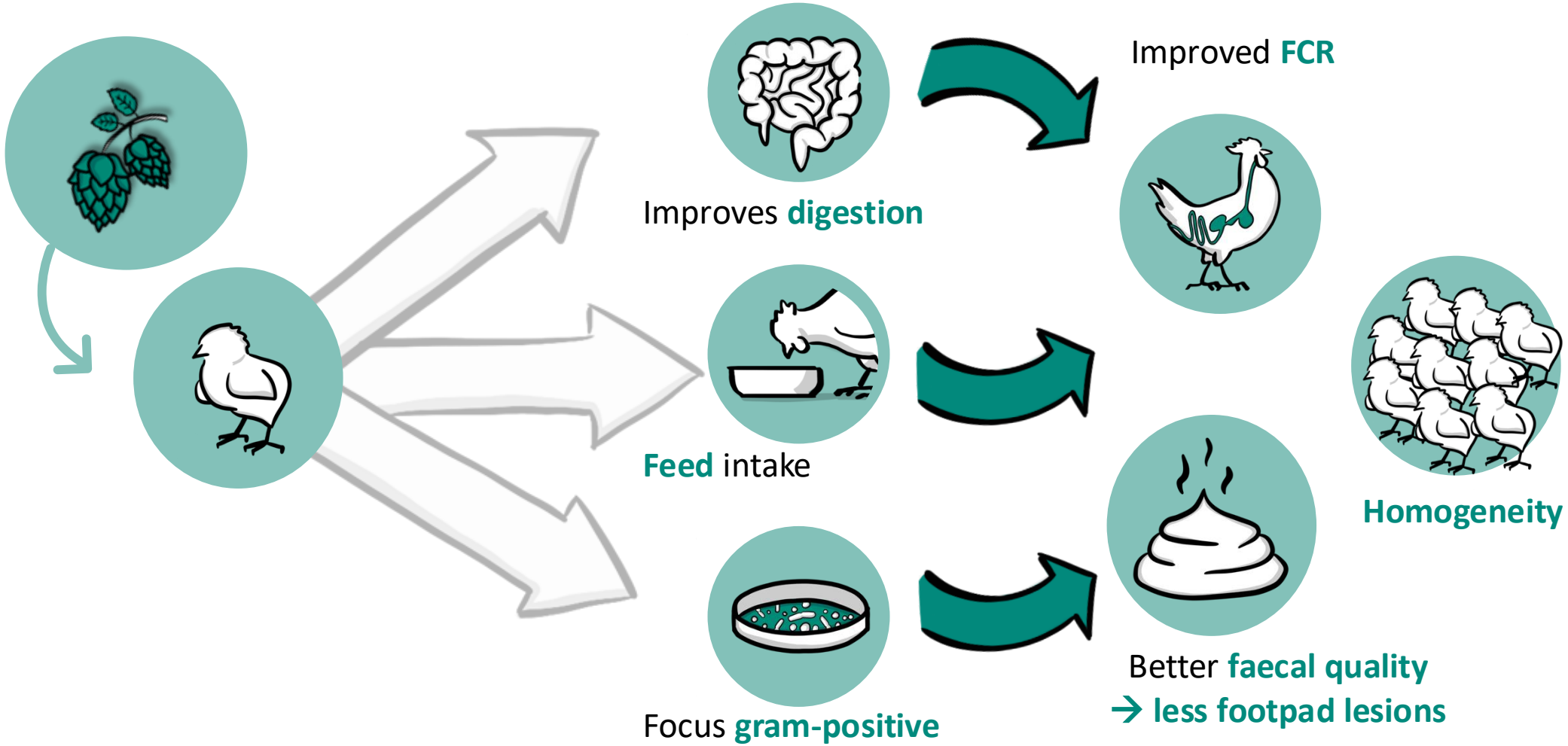
- Polyphenols
- Essential oils
- Bitter acids



- Antibacterial
- Anti-inflammatory
- Anticancer
- Antifungal
- Antiviral
- Expectorant

(Adapted after Abiko et al., 2022)

Hop-based phytogenic additive (broilers)
→ Better FCR, less footpad lesions & more stable growth



Field test broiler: Replacement of AGP

- **Animals:**
  - Commercial broiler chicks
  - Evaluation: 6 flocks of 45,000 birds = 270,000 birds historical comparison
- **Duration:**
  - 1st day till slaughter
- **Groups:**
  - Positive control (PC): Basal diet + AGP (Enramycin)
  - Hop-based phytogenic additive: Basal diet +
    - 1 to 21 days: 400g/ton
    - 22 to slaughter: 200g/ton
- **Parameter:**
  - Performance
  - Faecal quality

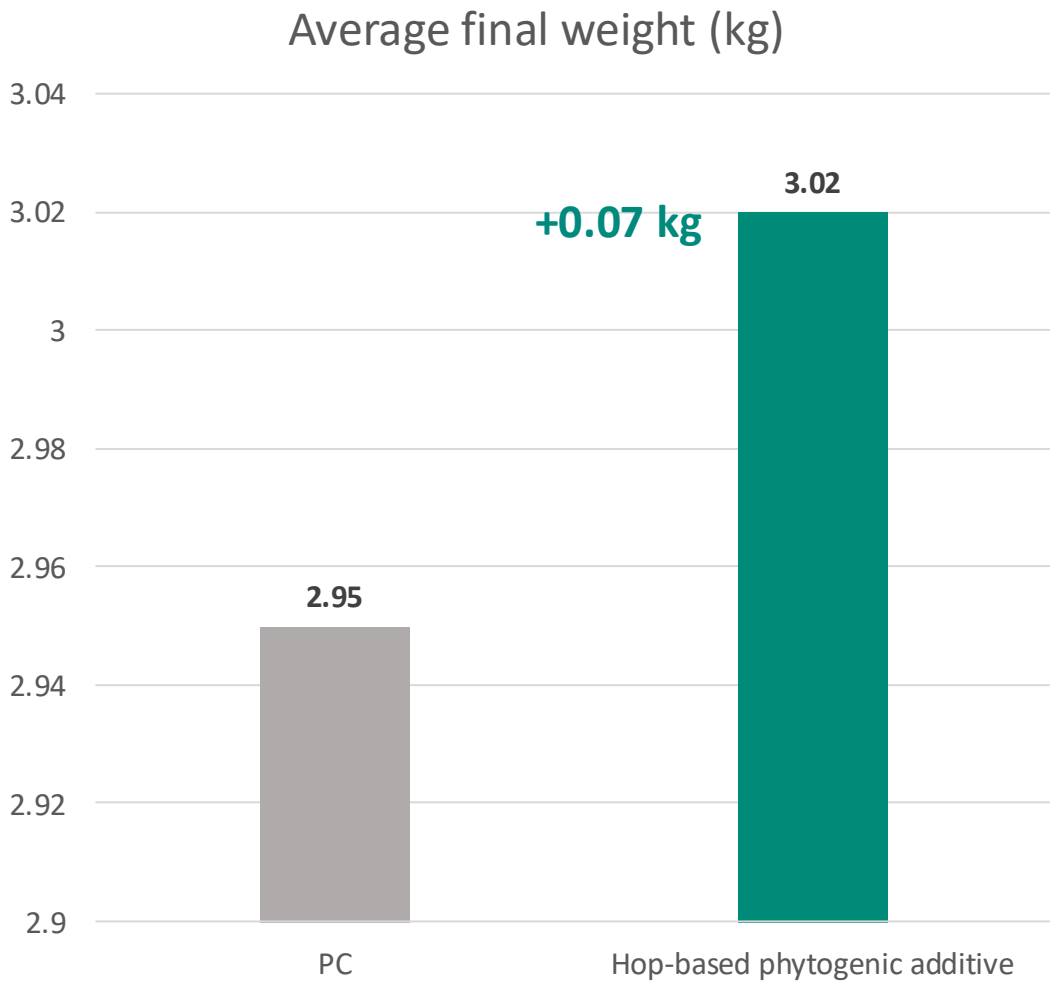
Faecal quality (Positive Control)

- Use of AGP (Enramycin)

Faecal quality (hop-based phytogenic additive)

– Use of hop-based phytogenic additive

Higher final weight: Better economics



- Non-uniform growth in PC group
- Support performance in phytogenic group:
  - +0.07 kg/chicken

= (0.07 kg) x ($1.16)
= $0.08 per chicken

With 270,000 chickens

= ($0.08) x (270,000 chickens)
= $21,924 (average)

21,924 USD

Field test summary

- Hop-based phytogenic additive as natural growth promoter clearly a good solution
- Good results + even higher results than AGP possible

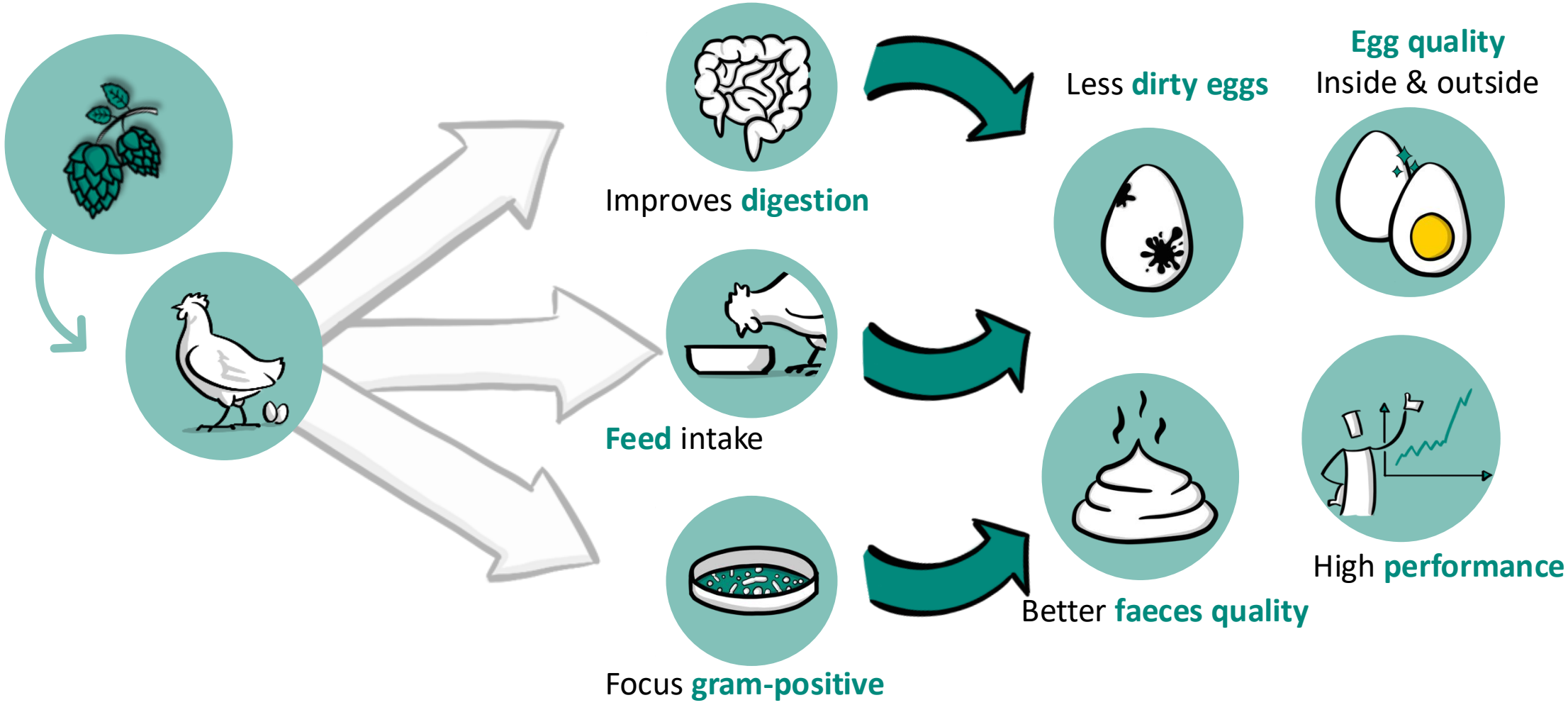
- Deeper look:
- Not all farms had the same slaughter date, therefore a corrected FCR was calculated:

Treatment	Final weight	Age	FCR	Corr. FCR*
PC	2.94	45.17	1.62	1.63
Hop-based phytogenic additive	3.02	45.83	1.60	1.59

Save feed cost

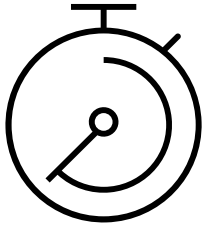
*Corr. FCR=[(3000- Final real weight in grams)/ 5] + real FCR in grams

Hop-based phytogenic additive (layers)
→ Better egg quality, marketability & higher laying persistency

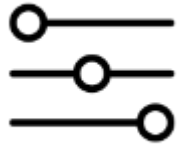


Customer feedback
Layer trial, Thailand

Group 1: Control
Group 2: **200g/t** hop-based phytogenic additive

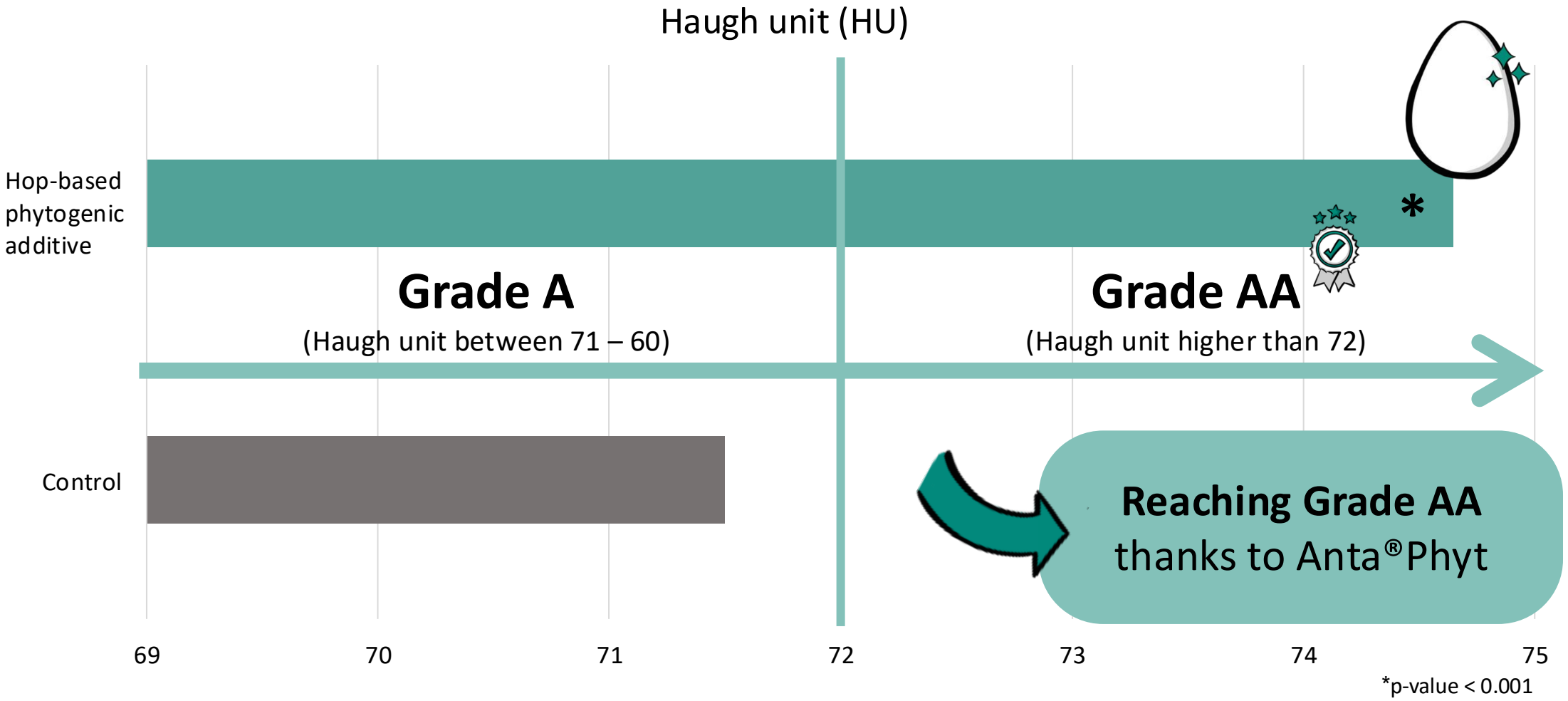


From **23rd** to **30th** week of life (10,000 layers)

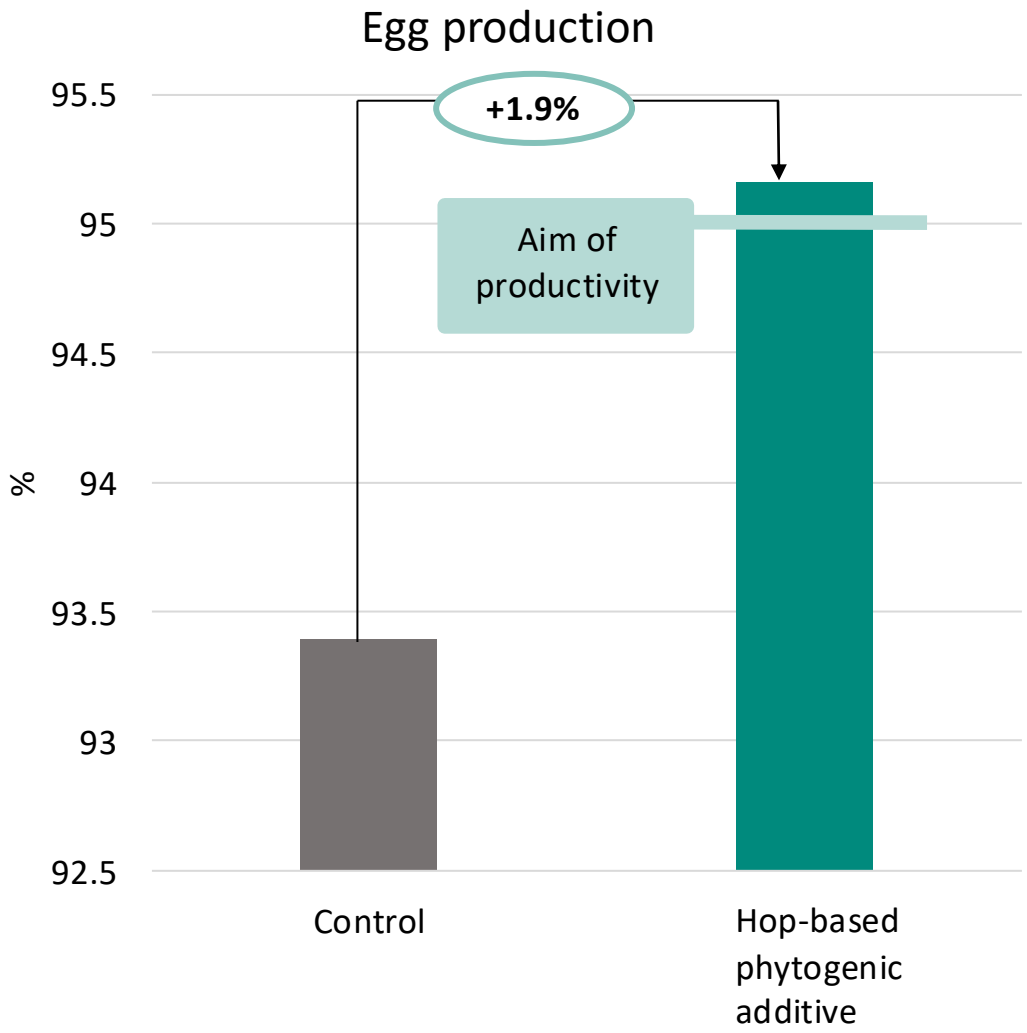


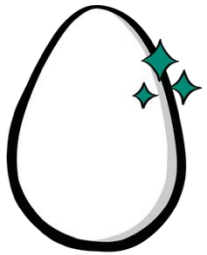
Egg protein **quality**
Egg **production**

Hop-based phytogenic additive: Higher egg quality



Hop-based phytogenic additive: Boost peak production





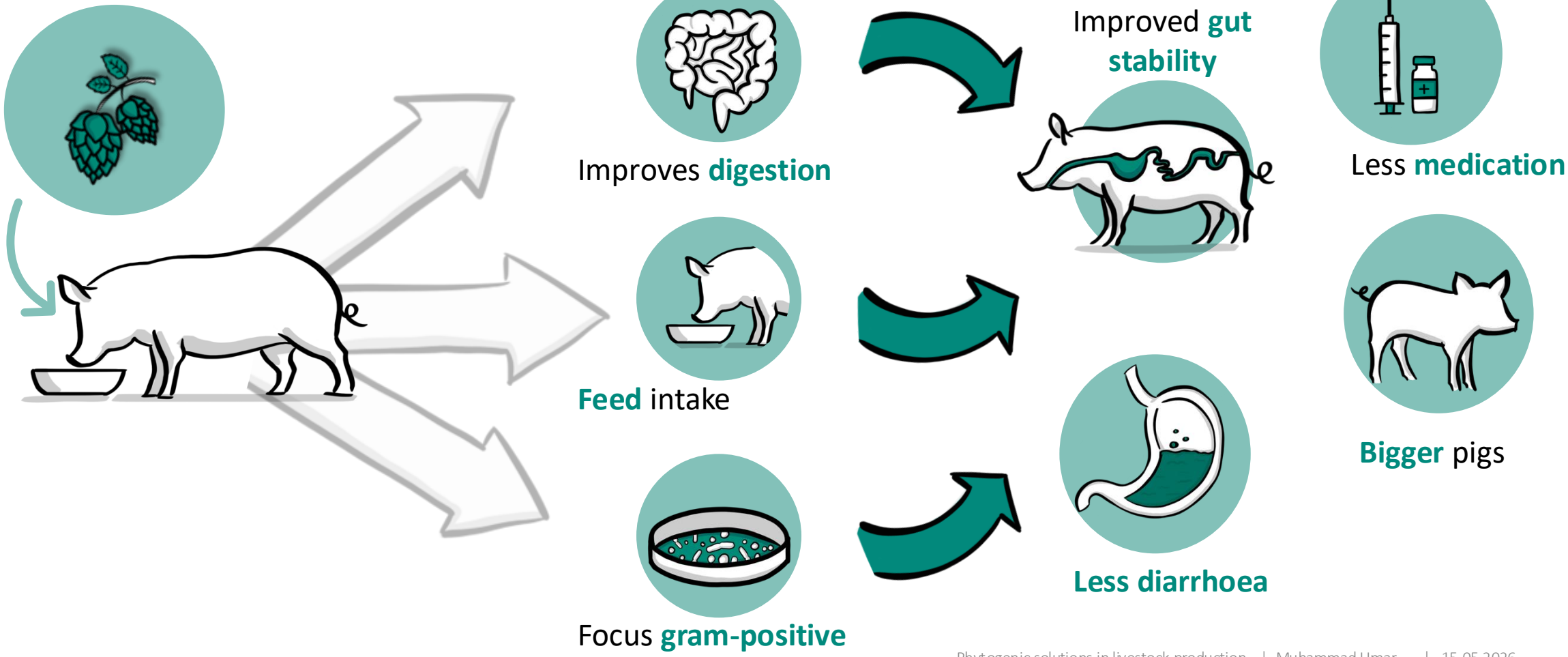
Better egg **quality**

Higher egg **production**

Same egg weight and eggshell thickness

→ 1.9% more eggs
→ **190 eggs** more per day for 10,000 laying hens.

Hop-based phytogenic additive (pigs): From immunity to feed conversion & better pigs



Post weaning gap in swine (Weaning = Stress)

Vaccinations

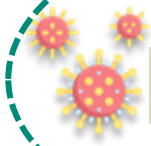
Change of pens

Passive Immunity

Regrouping

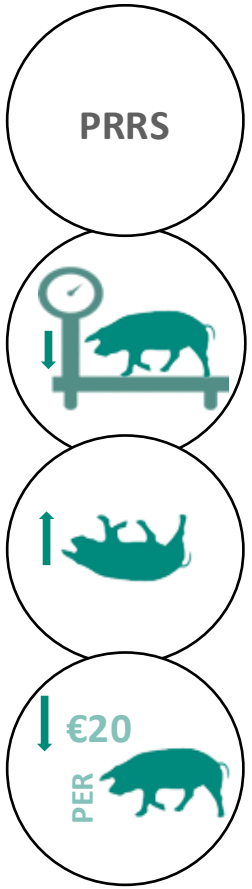
Change from milk to solid diet

Fighting



Disease pressure

Porcine reproductive and respiratory syndrome (PRRS)

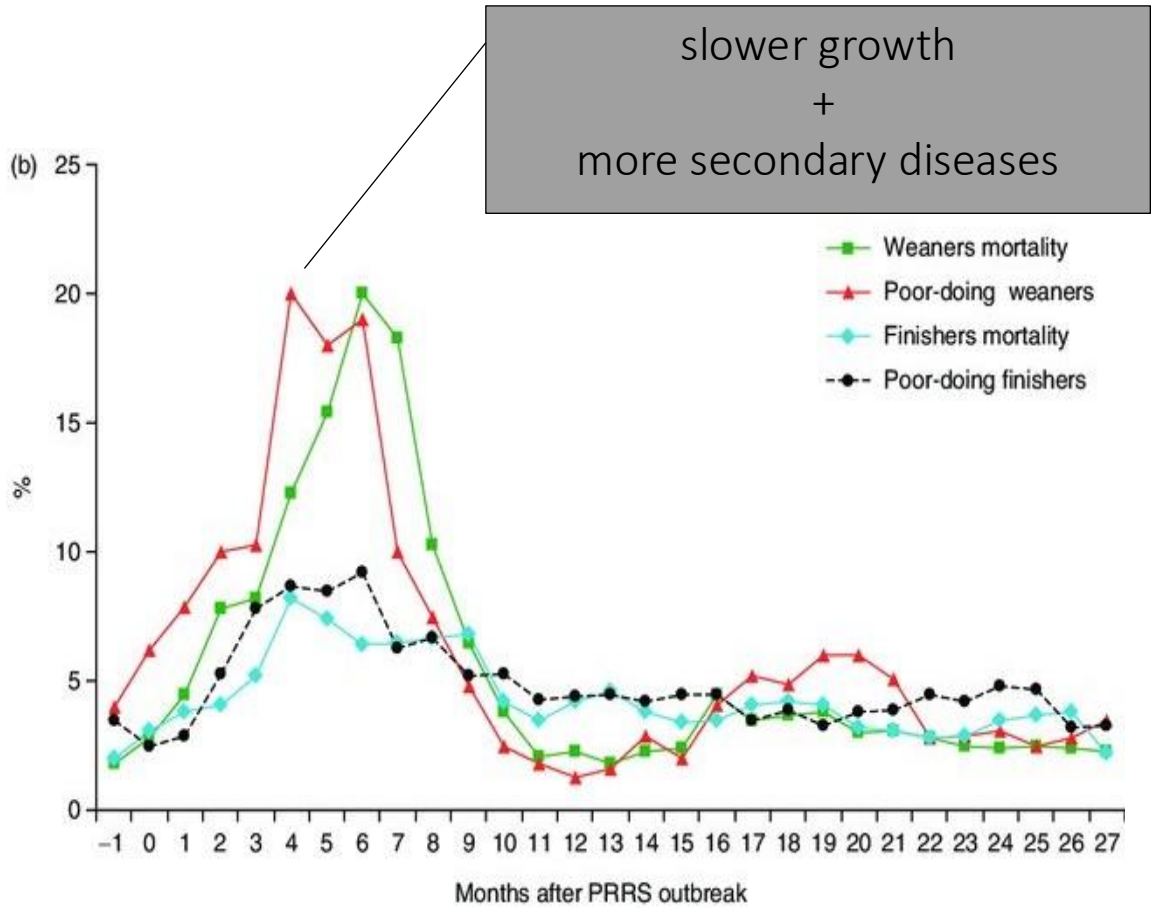


A viral disease of pigs leading to reproductive failure

Significant reduction in daily gain

Increased mortality

€20 loss per pig produced

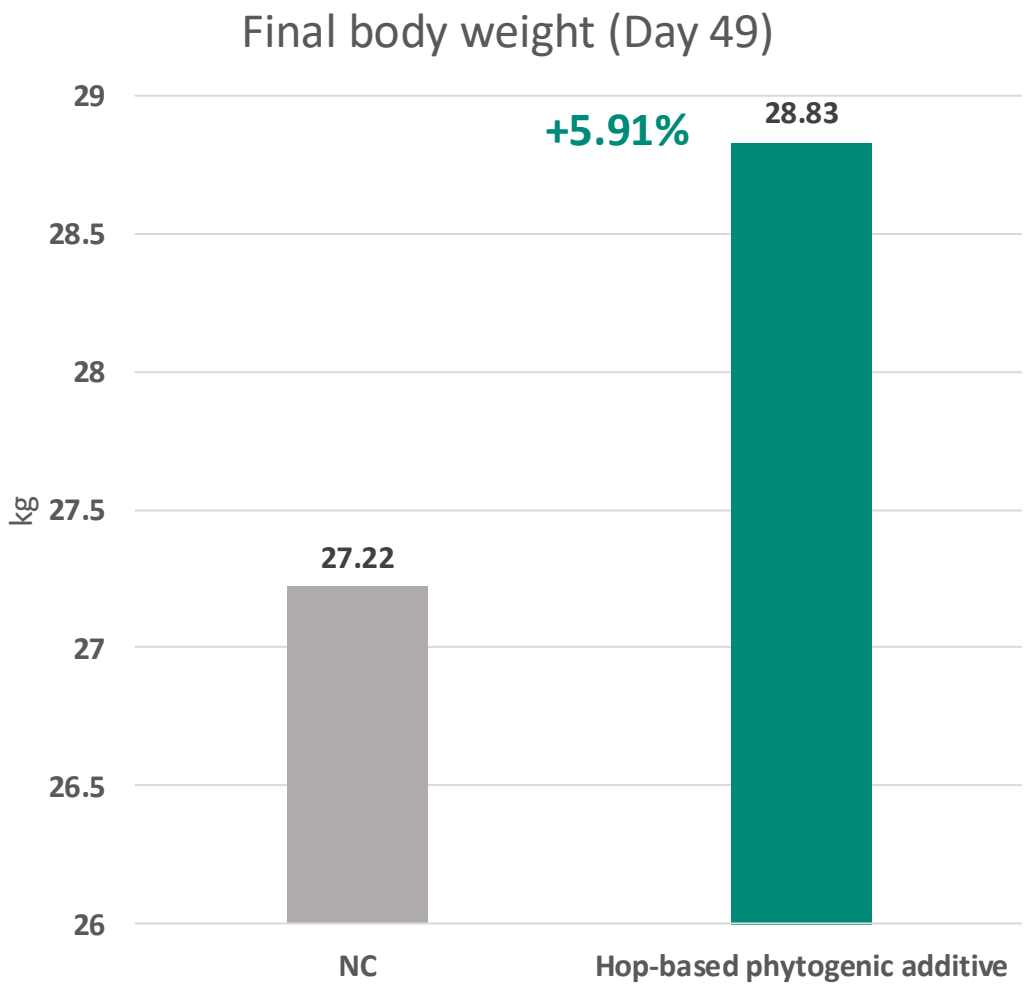


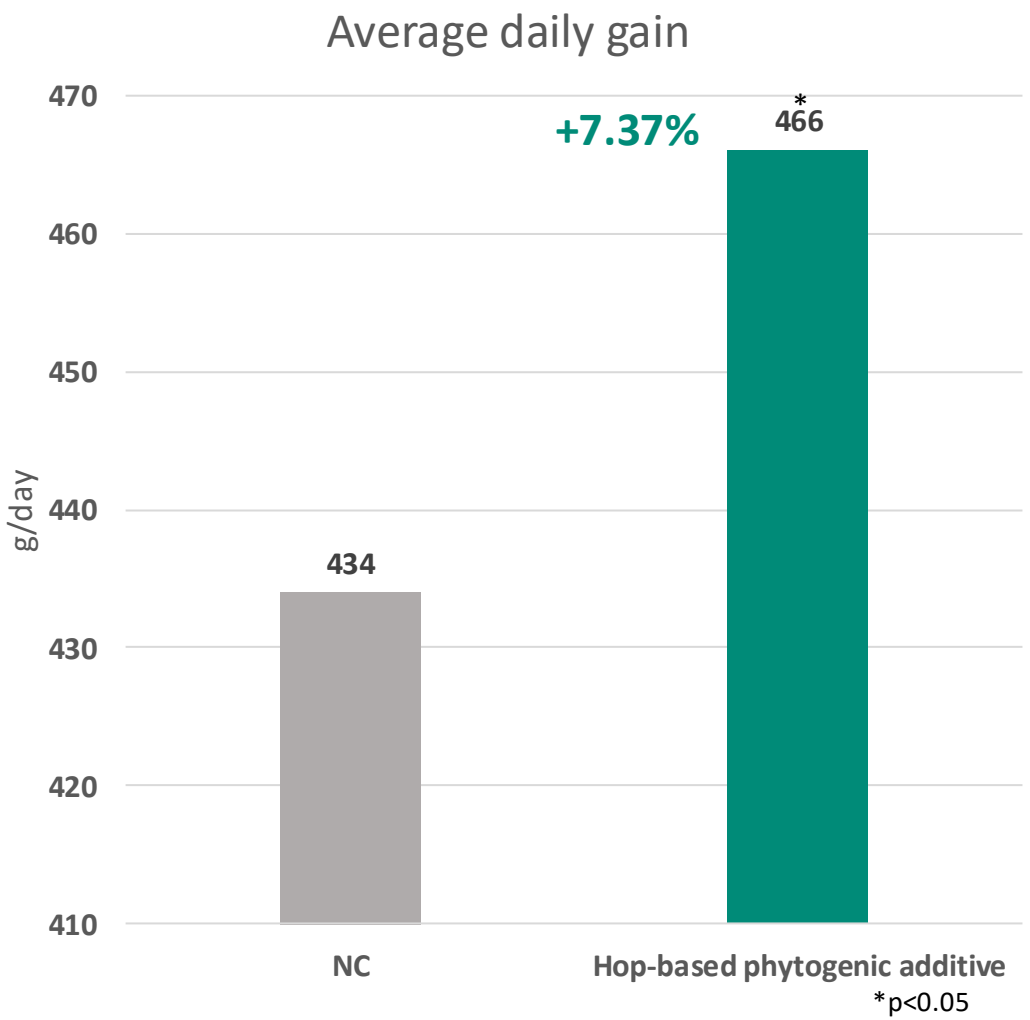
(Stadejek et al., 2011)

Supporting piglet growth in difficult times

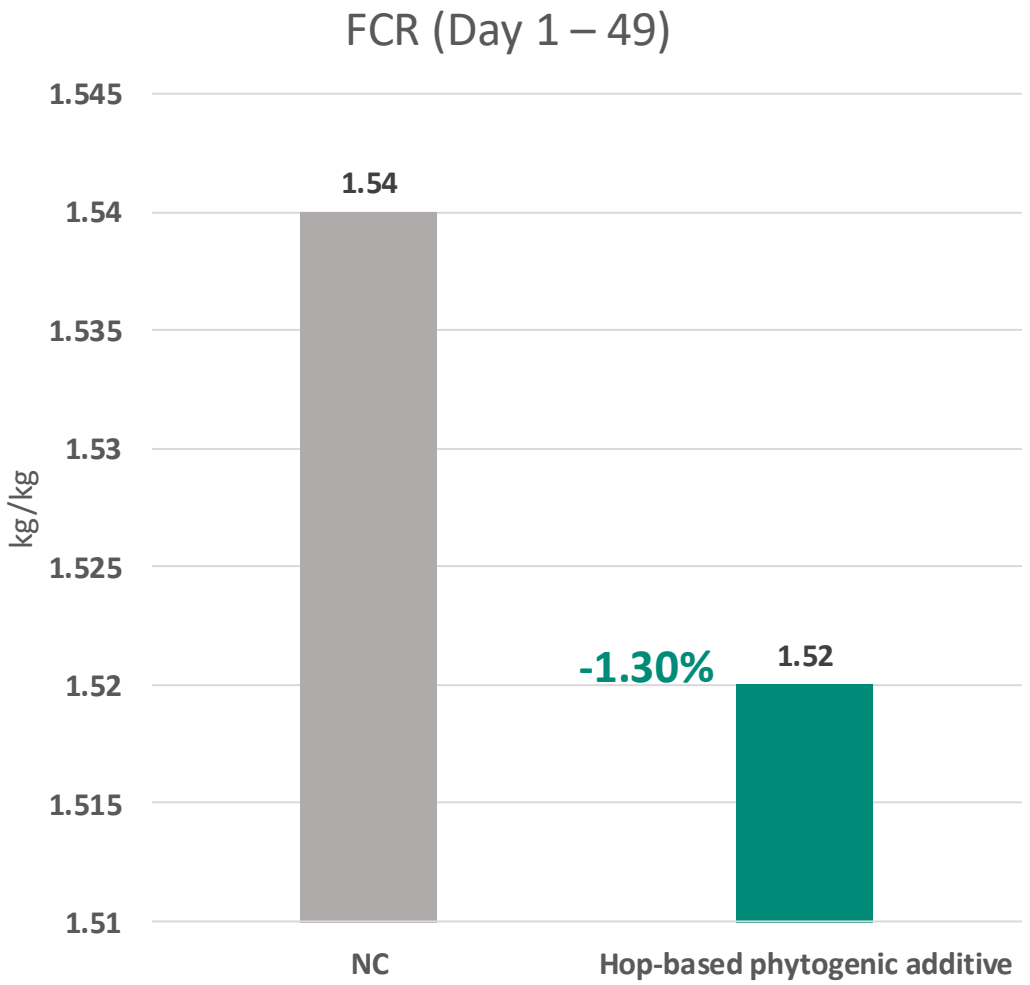
- **Trial duration:** 49 days, in Germany
- **Animals**
  - 1560 DanBred pigs (34 pigs/2 pens)
  - Weaning weight: Ø 6.3 kg
  - **PRRS outbreak** in the suckling period
- **Groups**
  - Negative control (NC): Basal diet, incl. acidifier
  - Phytogenic additive: NC + hop-based phytogenic additive at 600 g/t
- **Parameter:**
  - Weight gain
  - Feed intake
  - Medication cost and mortality

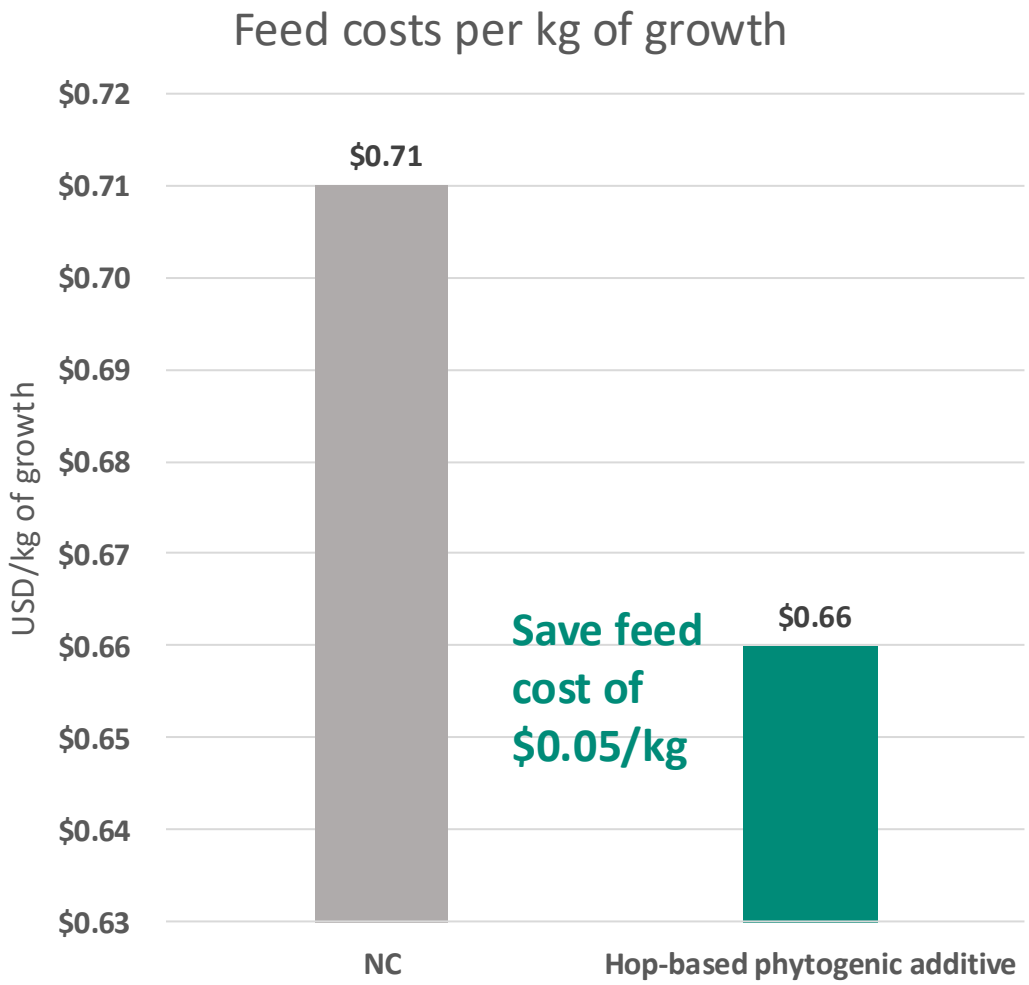
Hop-based phytogenic additive: A natural performance enhancer



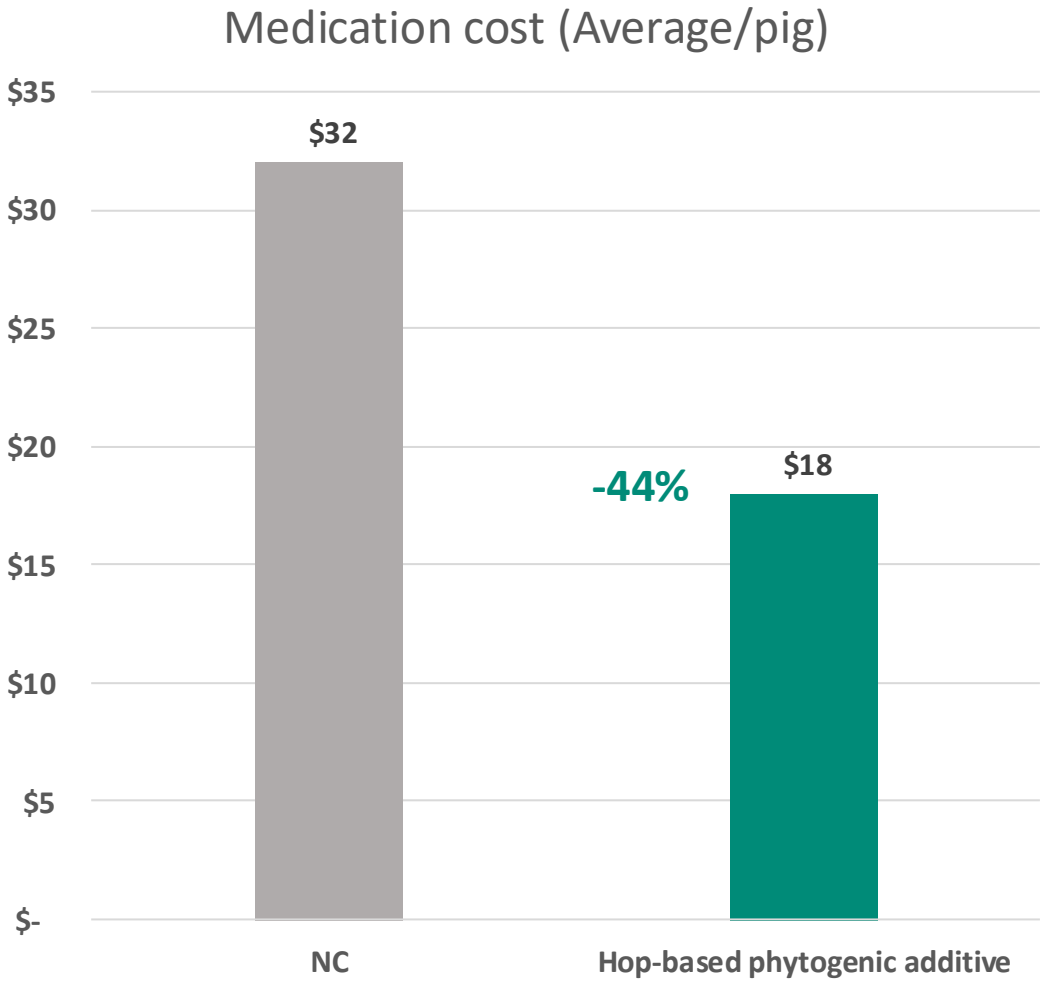


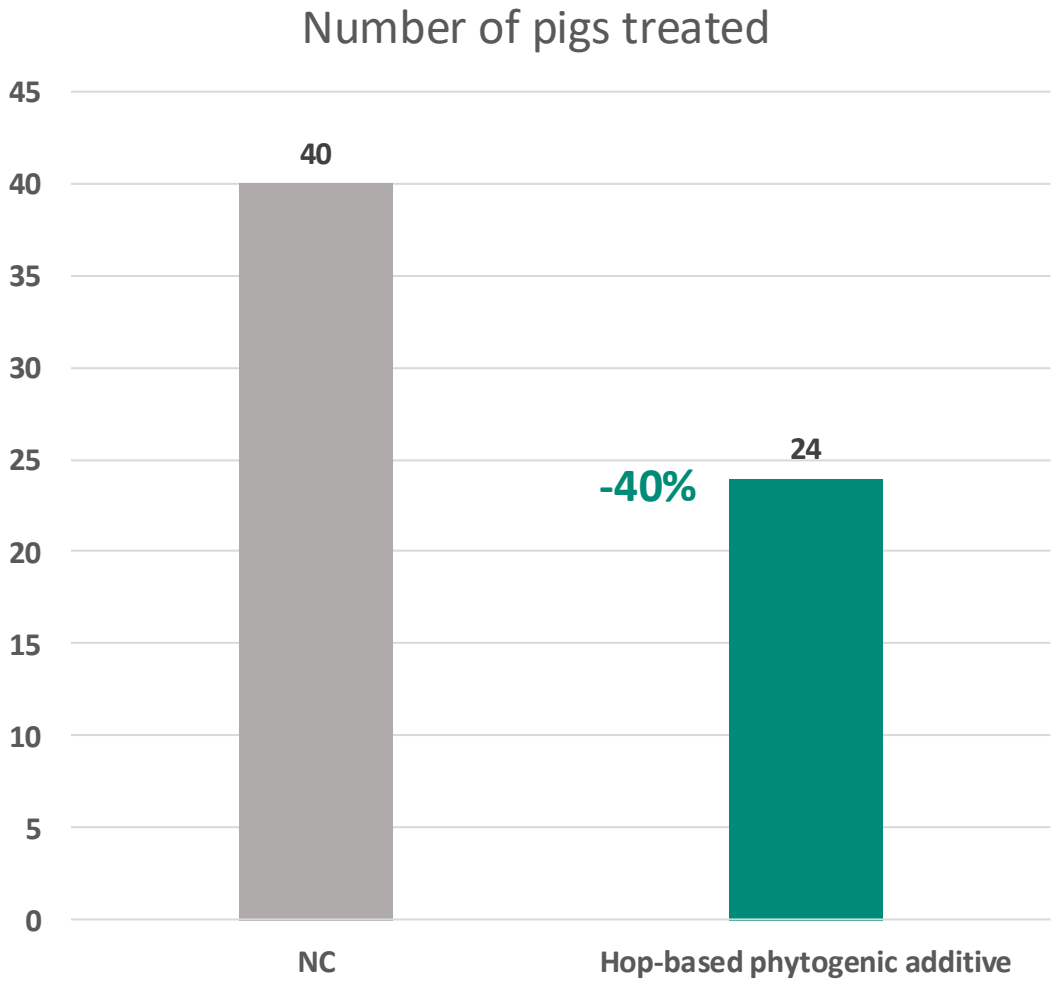
Hop-based phytogenic additive: Low production cost



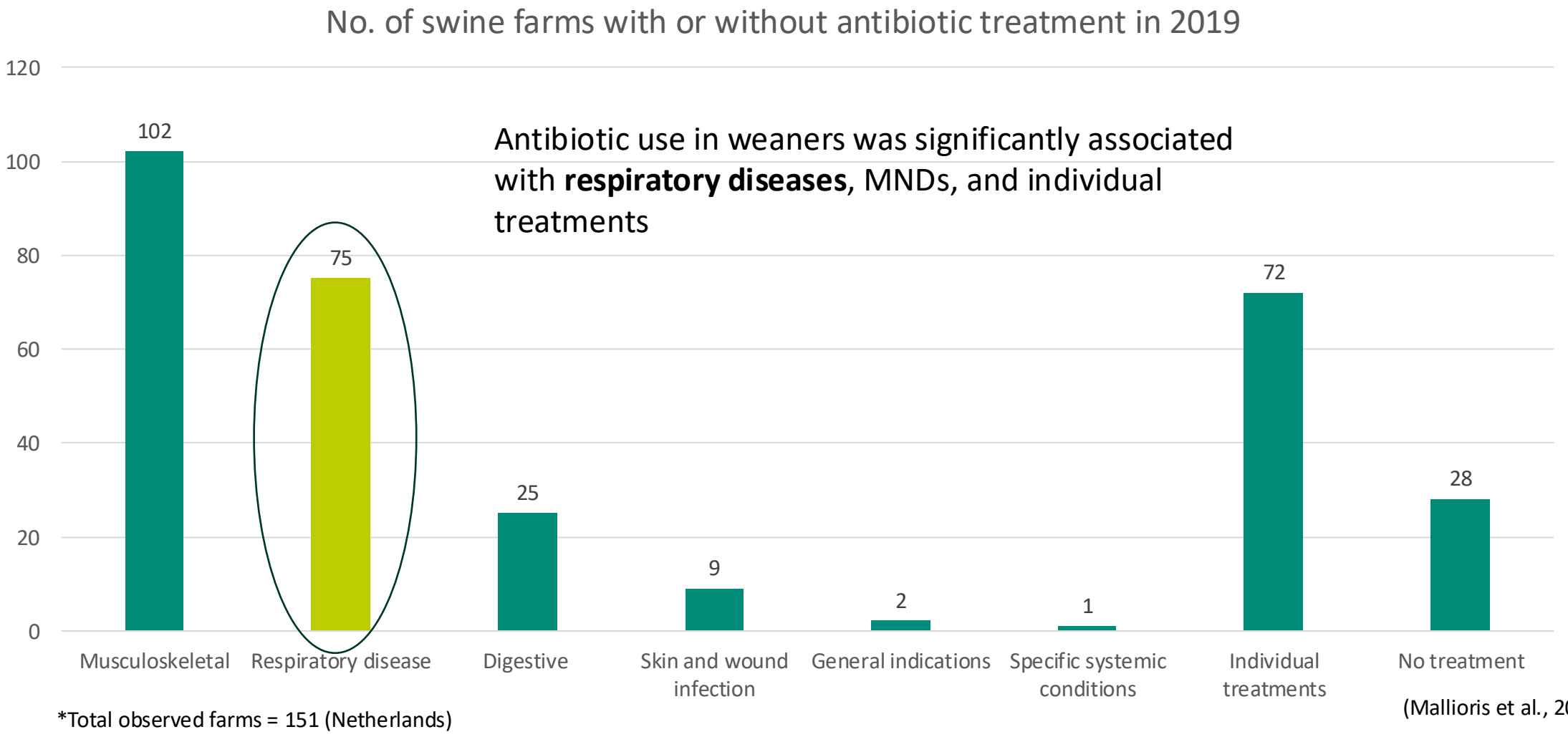


Hop-based phytogenic additive: Low production cost





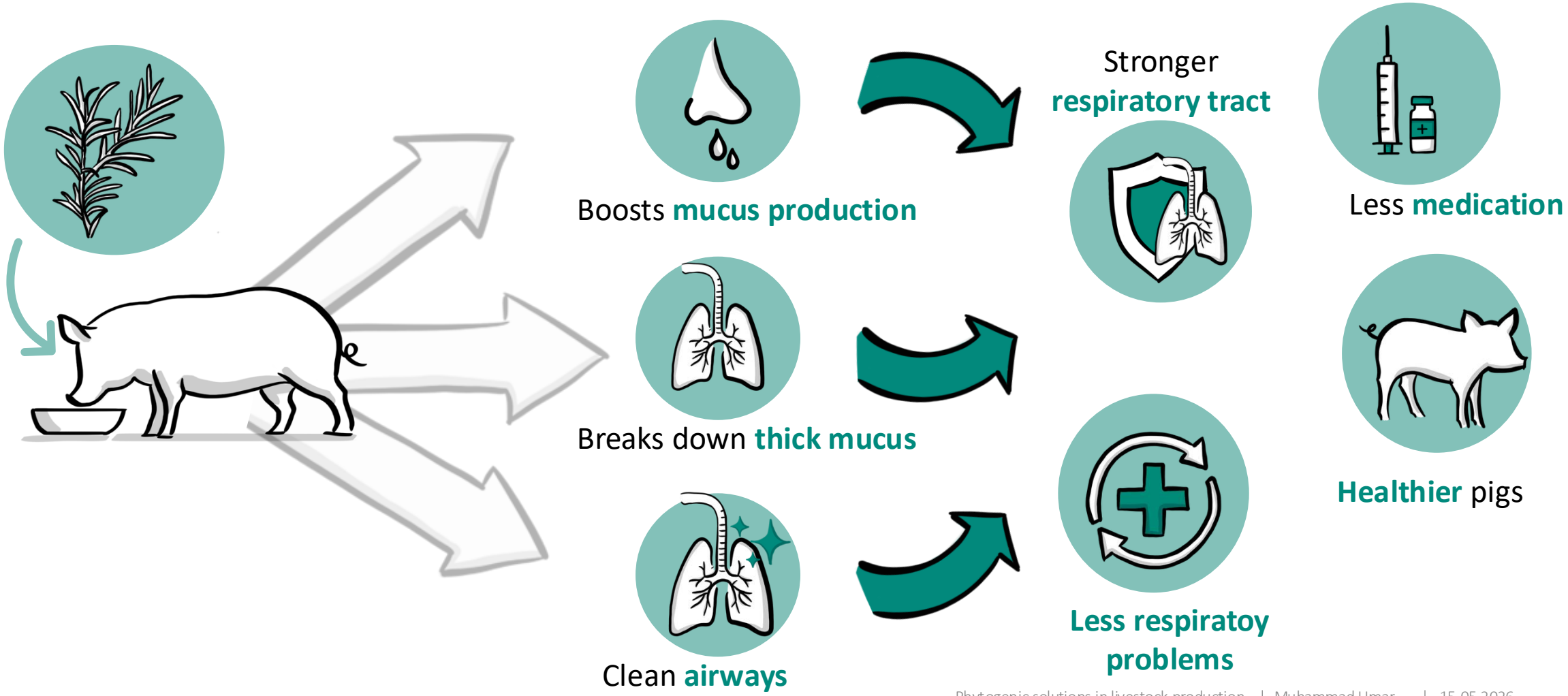
Antibiotic reduction: Why are we using antibiotics?



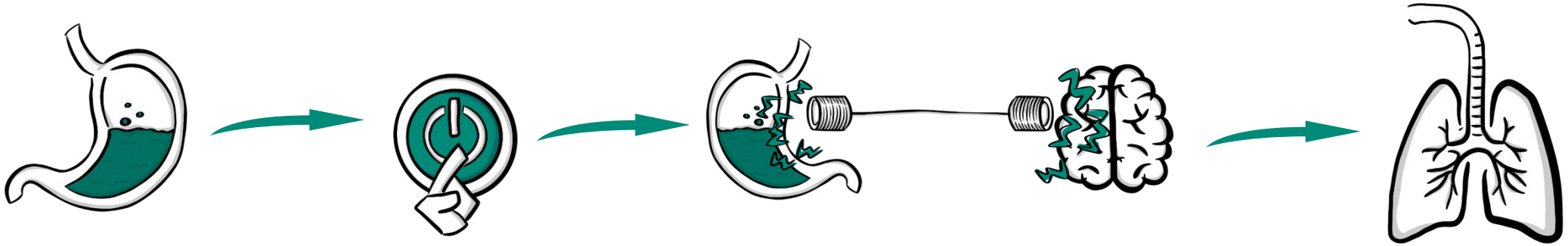
*Total observed farms = 151 (Netherlands)

(Mallioris et al., 2025)

Essential-oil based phytogenic additive (pigs): Less antibiotics, better results



Route of action (gut–lung axis)



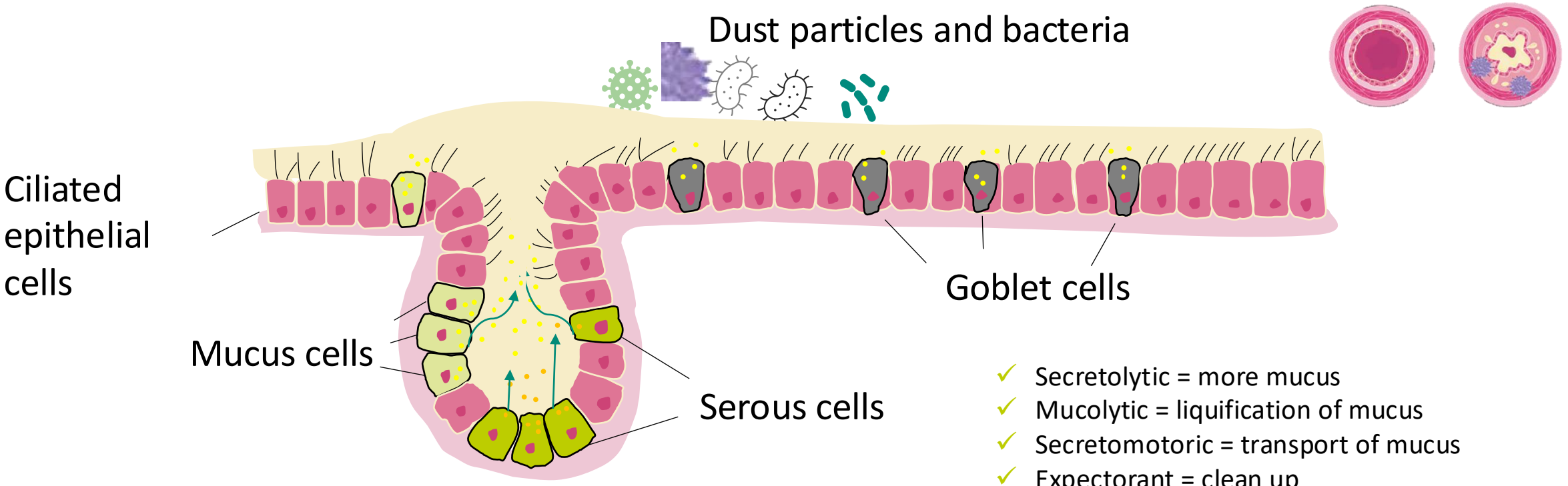
Digestive tract
Essential oils absorbed here

Gut receptors
Triggered by essential oils

Vagus nerve
Bidirectional neural signals

Respiratory tract
Improved mucus clearance
Reduced inflammation
Better immunity

Essential oils – Clearing the airways



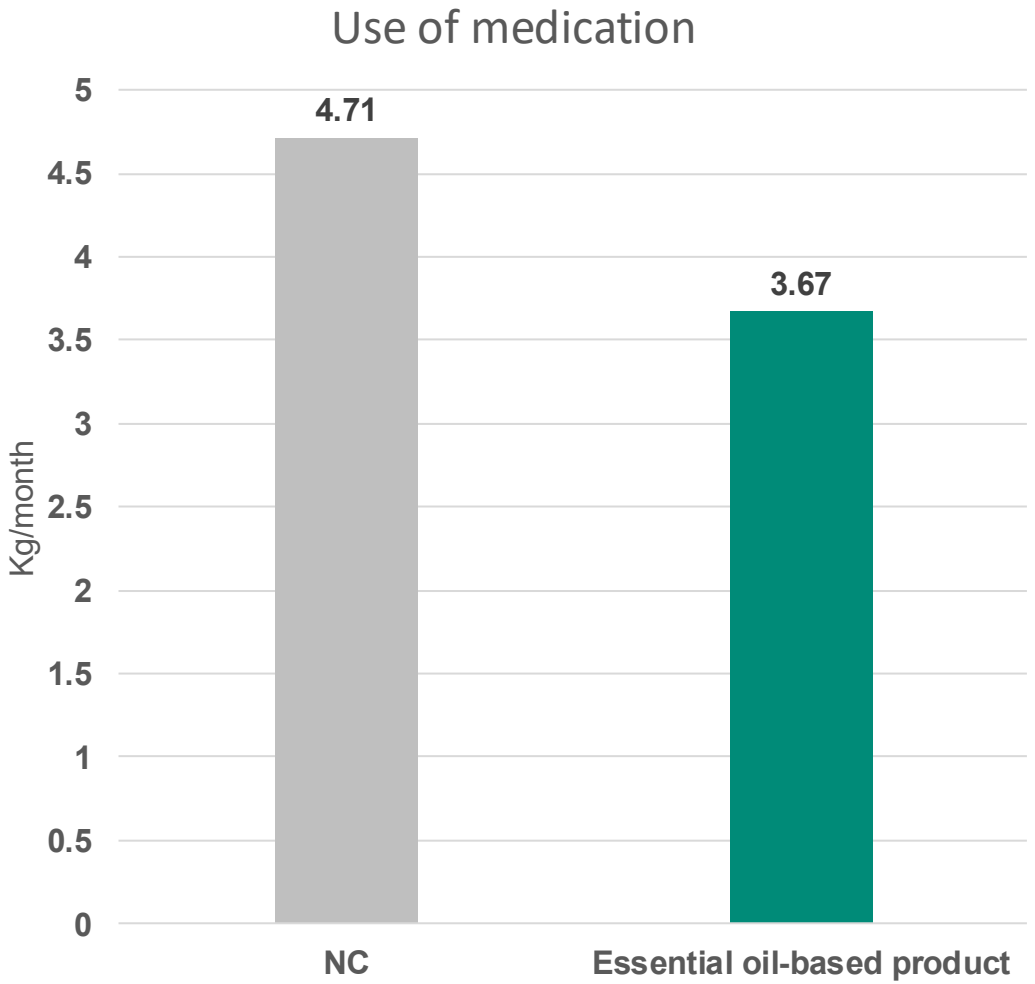
- ✓ Secretolytic = more mucus
- ✓ Mucolytic = liquification of mucus
- ✓ Secretomotoric = transport of mucus
- ✓ Expectorant = clean up

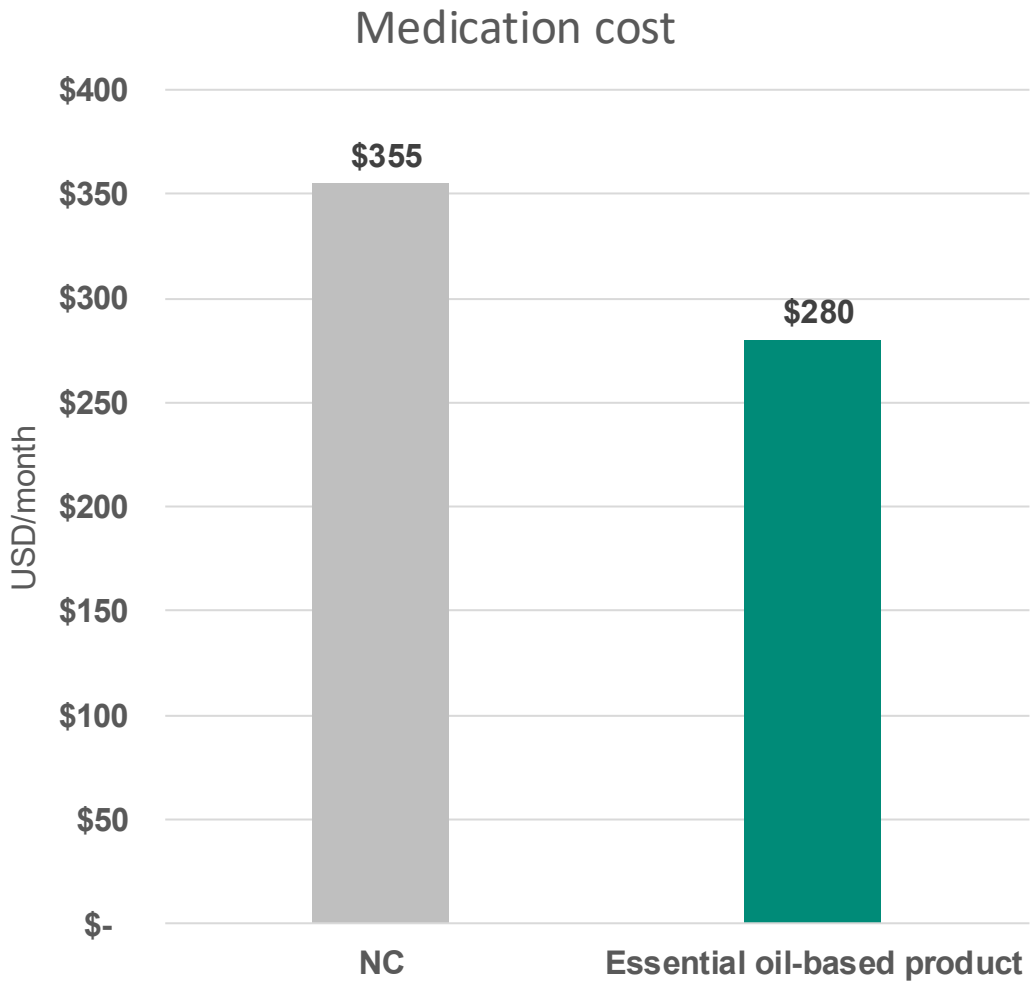
Put into practice…

- **Animals**
  - On-off trial
    (6 month without, 6 month with phytogenic product)
  - 2750 piglets on average
  - Live weight: ~5.3 kg, after weaning
- **Groups**
  - Negative control (NC): Standard feed
  - Phytogenic additive: Standard feed + Essential oil-based product at 800 g/t)
- **Parameters**
  - Medicine usage
  - Medical cost

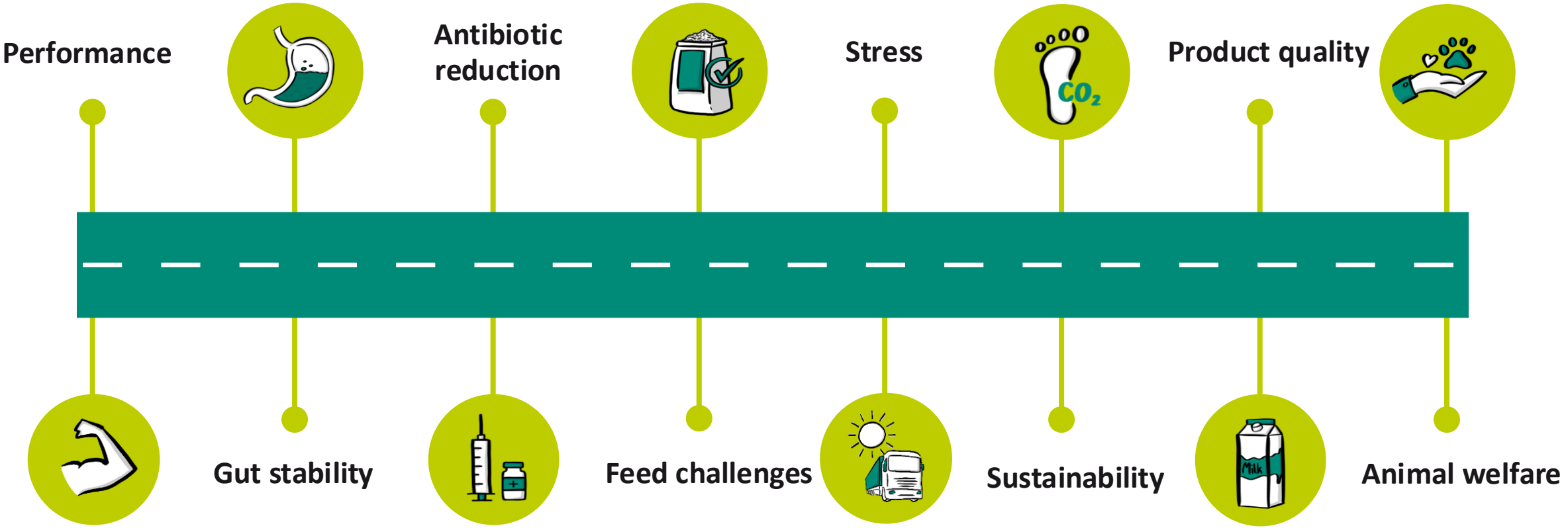
*(used drugs among others: Colistin, Amoxicillin, Tylosin, and Doxycyclin)

Essential oil-based product reduces use of medication in piglets





Conclusion: Goal is easy to reach if you know what you want!



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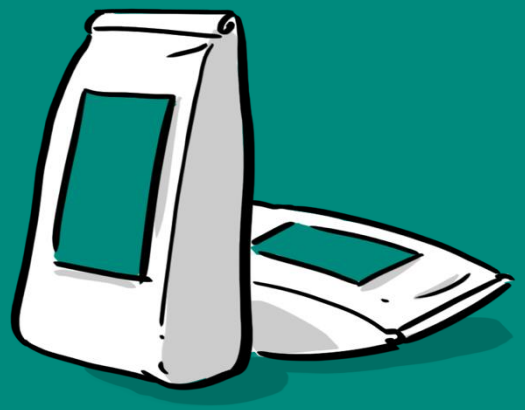
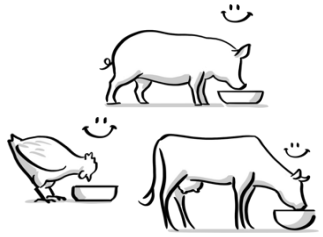
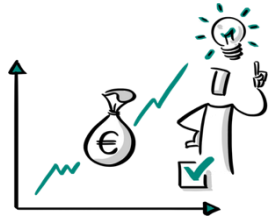
Phytogenics





– Innovative, profitable and support animal welfare

– Solve real problems



– Offer a way to reach your ambitious goals in a sustainable way

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