



Project ZincO - How to face therapeutic ZnO withdrawal

Research Dissemination Day 2018

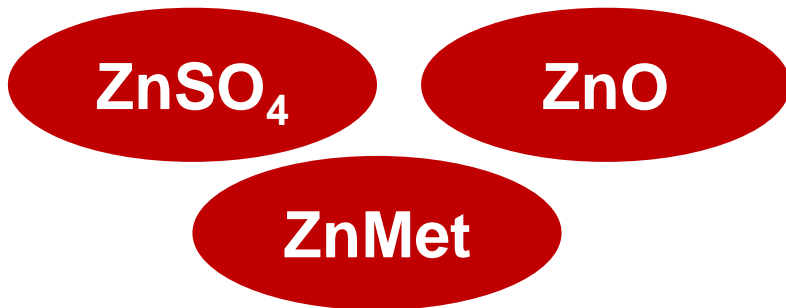
Edgar Garcia Manzanilla, Kaye Burgess, Paul Cotter - Teagasc
Nola Leonard, Seamus Fanning - UCD
Hector Argúello & Juanjo Garrido – Universidad de Córdoba



Uses of ZnO in pig diets

Nutritional vs. Therapeutic

| BW range | Dose Zn | Zn req (mg/day) |
|----------|---------|-----------------|
| 5-7 kg | 100 ppm | 26.6 |
| 7-11 kg | 100 ppm | 46.8 |
| 11-25 kg | 80 ppm | 72.4 |

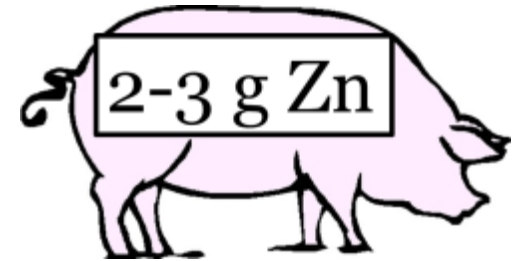


BAN in 5 years time

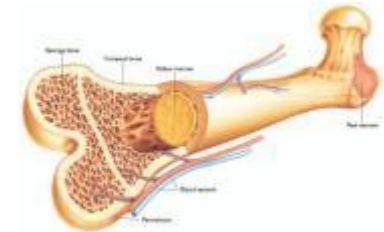
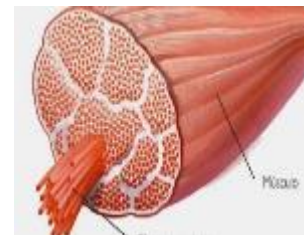
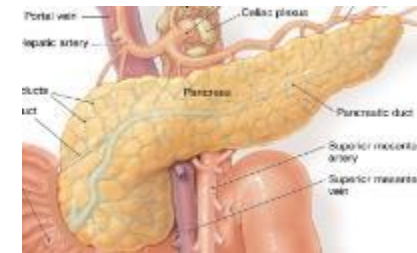
How does ZnO work?

- Empirical use for diarrhea

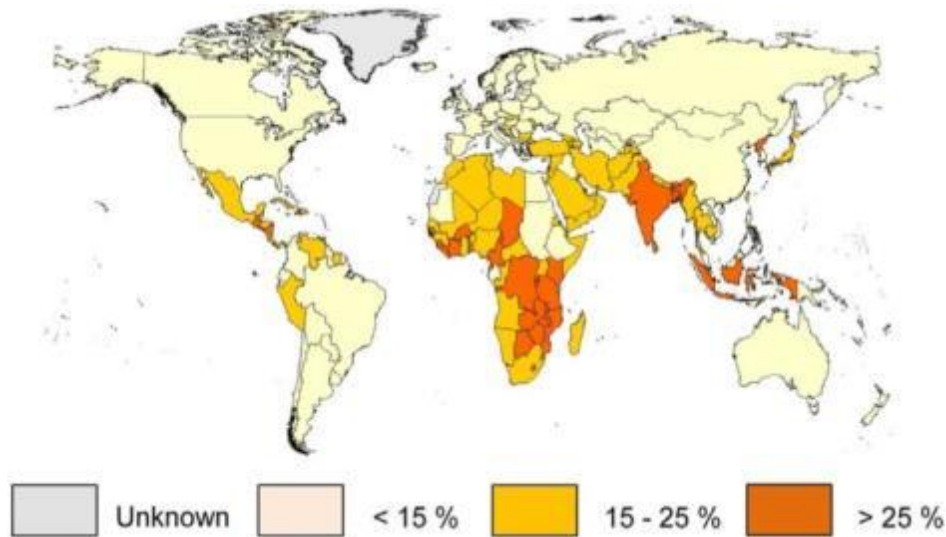
10% of all proteins



Affects all cell functions



How does ZnO work?



2 billion children in developing countries

How does ZnO work?

Microbiological effect:

increased microbial stability:

Higher n^o and diversity of enterobacteria
Reduced lactobacilli

Reduced
electrolyte
secretion

Gut & Mucosa
integrity and
permeability

Immunity:

Reduced innate
immune response
genes

What about the rest of the pig?!?!?

What about the environment?!?!?!?



Project ZincO

- Data from commercial farm (62 farms)
- Compare farms with:

Diarrhea vs No diarrhea
ZnO vs No ZnO (and Antibiotics)

- In farm trials to compare ZnO, Antibiotics and alternatives

How many farms?

| | Creep | Link | Weaner |
|--------------------|--------------|-------------|---------------|
| Antib + ZnO | 49 | 49 | 13 |
| ZnO | 12 | 10 | 7 |
| Antibiotics | 4 | 4 | 24 |
| None | 3 | 5 | 24 |

What are we measuring?

- Performance / Diarrhoea
- Management
- Bacterial populations in environment and pigs (Microbiome, Resistome)
- Immune response of the piglets
- Any other?

Alternatives?

- Better Hygiene
- Better Management
- Facilities
- Additives
- Protein reduction
- EUPiG – ideas from 13 countries
- Any idea???

What will we accomplish?

- Better understanding of the effects of ZnO and alternatives to it
- Information on how different farms have faced the ban in Ireland and in the EU
- Consequences of the ZnO ban on the use of antibiotics



Thanks