


SANFED[®] OPTIMAL PREMIUM for toxin management



Produced by
 **GEOHELLAS**

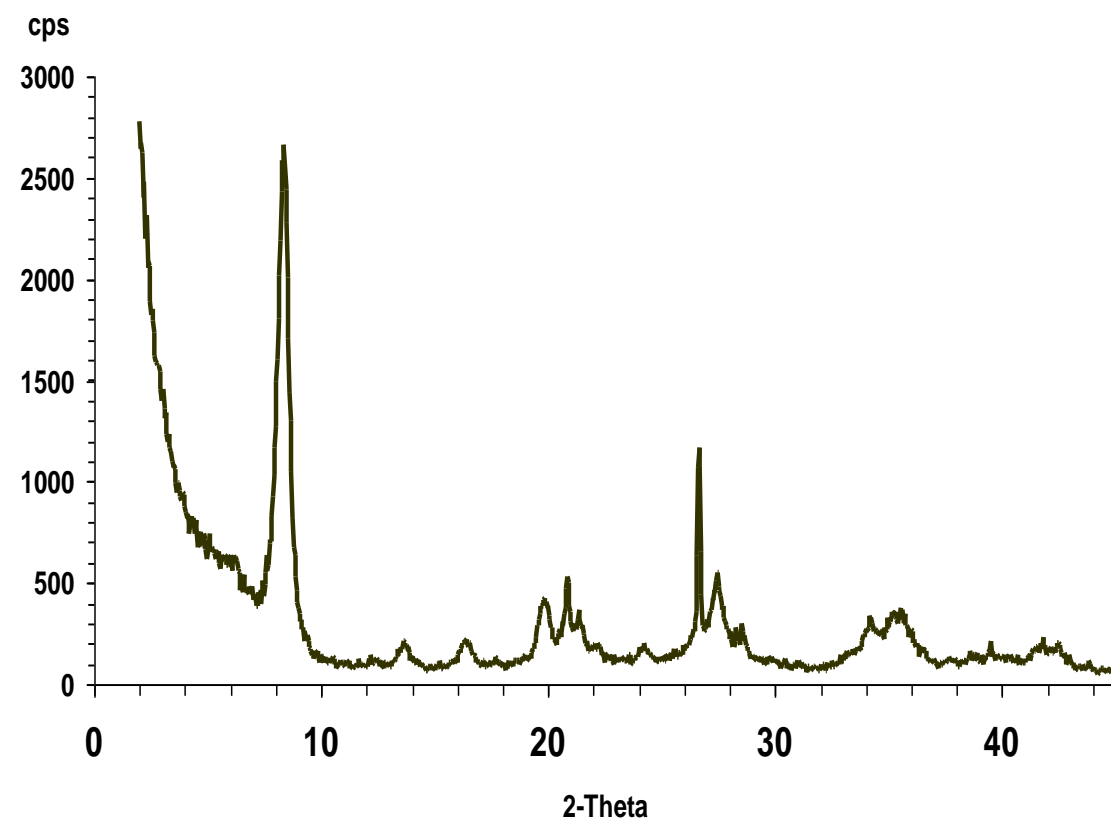
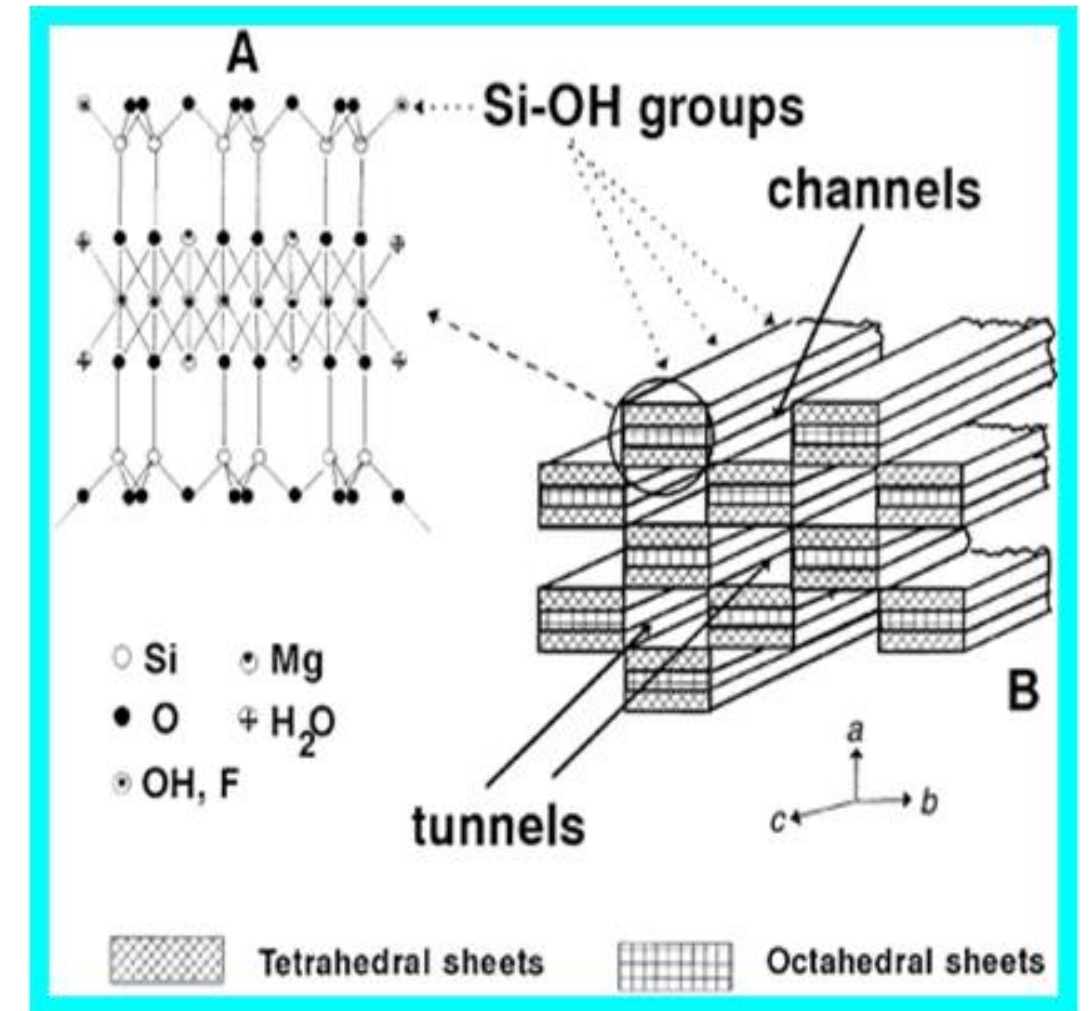
A unique source of Attapulgitite in Europe

- Geohellas SA, developed the unique Attapulgitite deposits in Europe discovered in Northern-Greece.
 - The factory has a yearly production capacity of 160.000 MT.
 - 350 final products in 11 applications / exports in 5 continents and > 50 countries.

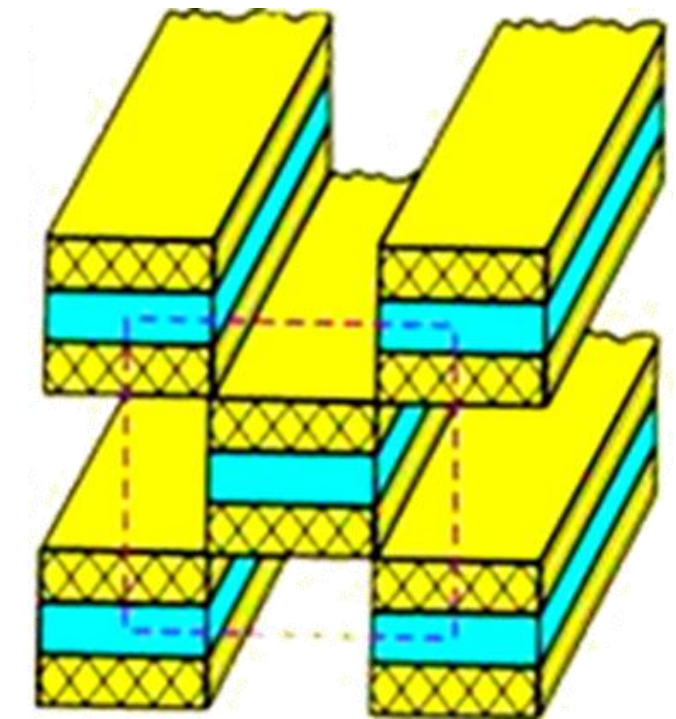


Attapulgite - Polygorskite

- 2-D channel-type structure
- High specific surface area 350 m² /g
- High water absorption > 200 %
- Micro / Meso / Macroporosity
- Increased absorption of organic compounds (toxins) when mechanically / thermally activated



SiO ₂	56,00
MgO	15,05
Al ₂ O ₃	4,97
Fe ₂ O ₃	10,60
CaO	0,33
Na ₂ O	0,06
K ₂ O	0,30
(%) Loss on Ignition	10,95



SANFED® OPTIMAL PREMIUM Innovative Production Process

1. Mechanical Activation of Attapulgite

2. Thermal Activation of Attapulgite

3. Ultrafine Milling for Attapulgite (HIM/PM/JM)

4. Air-Separation for Refining of Attapulgite particles

5. Attapulgite Feed Composites

6. Dynamic treatment of Attapulgite Feed Composites (JM)





Mechanical Activation of Attapulgite

SANFED OPTIMAL PREMIUM



**Mechanical Activation
– Enhancing
Hydrophilicity (anti-
diarrhea effect)**

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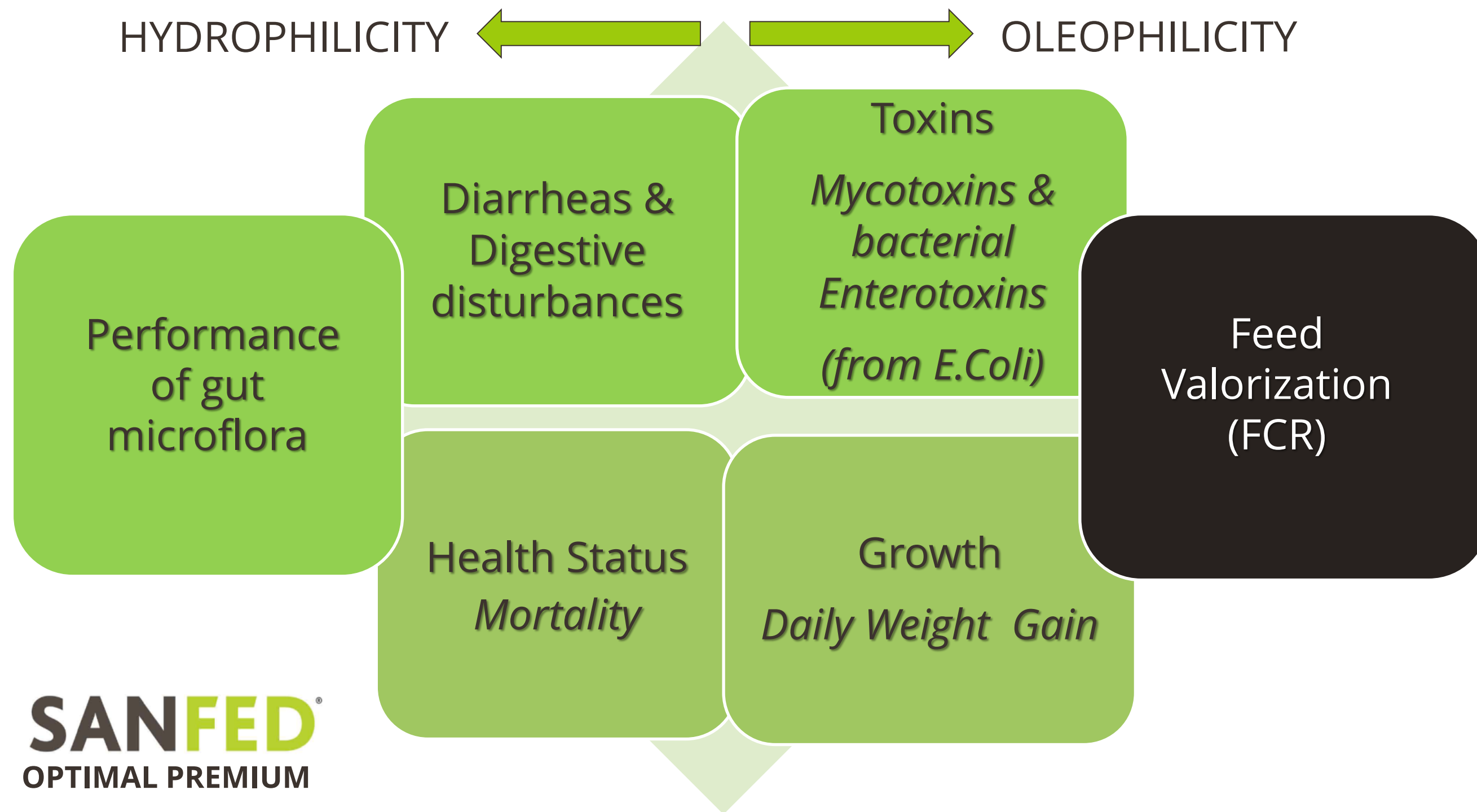
**Thermal Activation of
Attapulgite -
Enhancing toxin
binding selectivity &
efficiency**

SANFED OPTIMAL PREMIUM

 GEOHELLAS

How to improve Farm Economics

SANFED[®] OPTIMAL PREMIUM

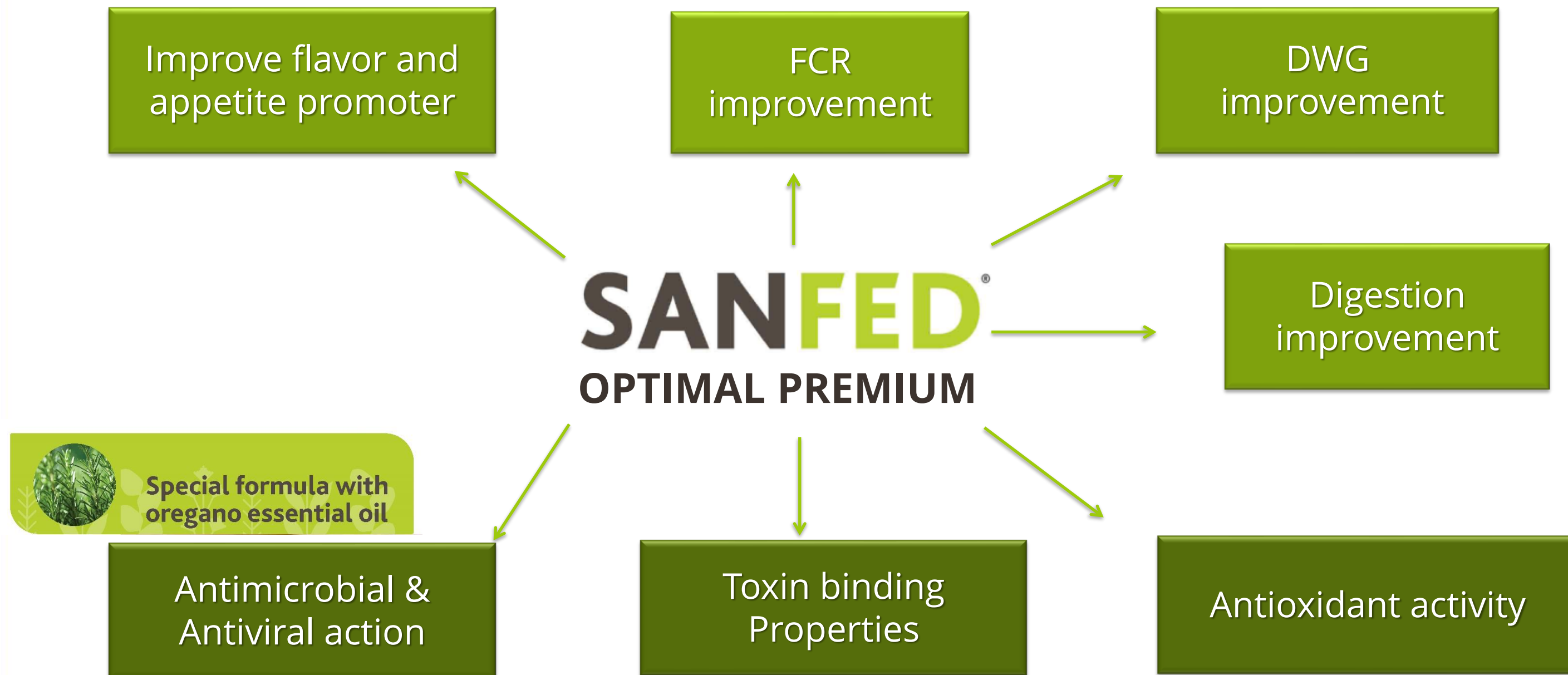


SANFED[®]
OPTIMAL PREMIUM



**SANFED
OPTIMAL
PREMIUM**








SANFED® OPTIMAL PREMIUM



- ✓ Sanfed Optimal Premium with essential of *Origanum vulgare* (Carvacrol > 85 %)
- ✓ Steam-distilled oregano with no solvents or preservatives, or additives.

1. SANFED® OPTIMAL PREMIUM

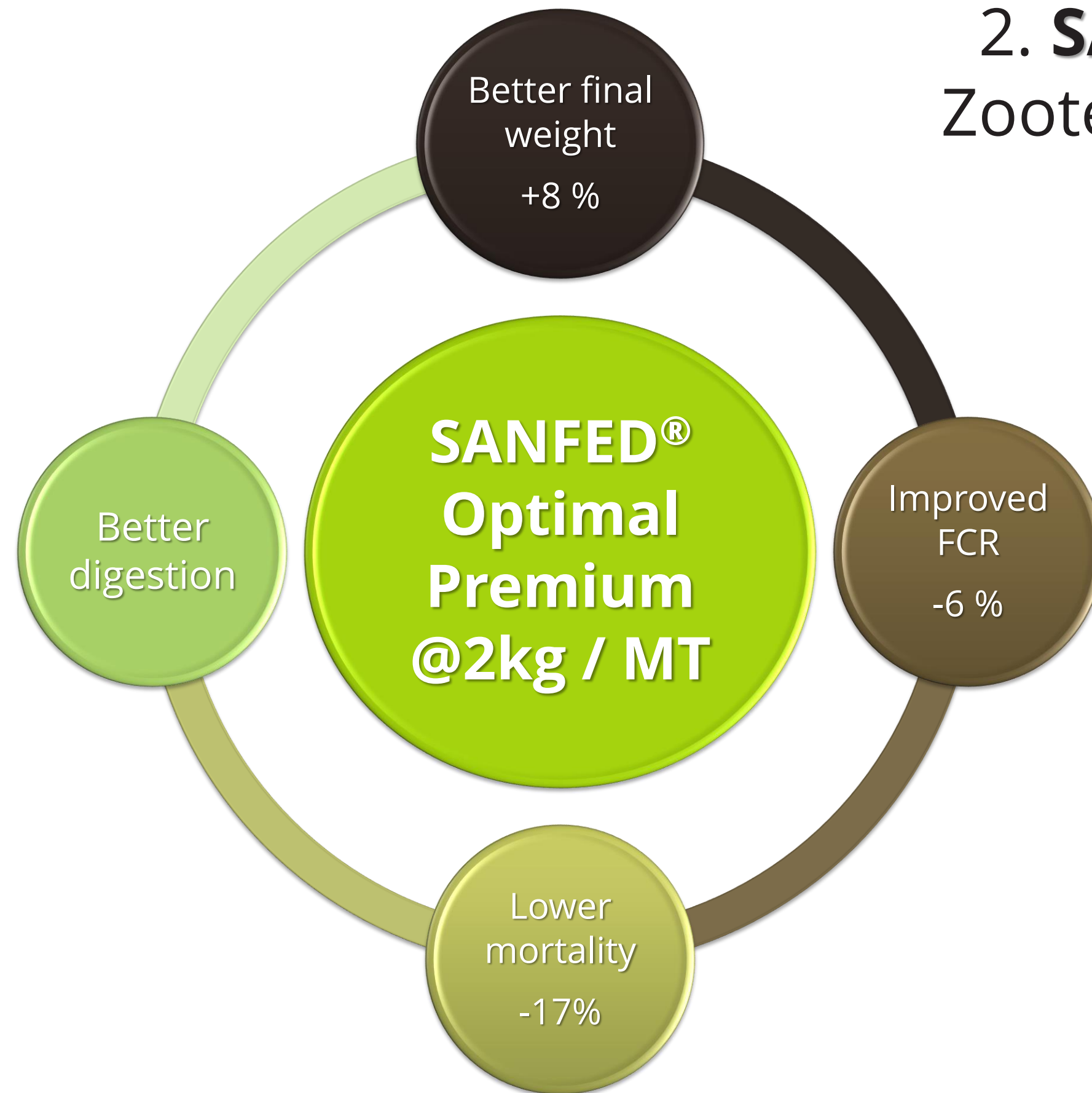
Average Toxin Binding Efficiency (%) versus other binders

PRODUCT	Average % Efficiency (AFB1, ZEN, T2, FUM, OTA, DON)
SANFED® OPTIMAL PREMIUM - GEOHELLAS	96.3
PRODUCT A 	26.9
PRODUCT B 	30.7
PRODUCT C 	31.8
PRODUCT D 	42.0
PRODUCT E 	45.6
PRODUCT F 	27.8
PRODUCT G 	41,1

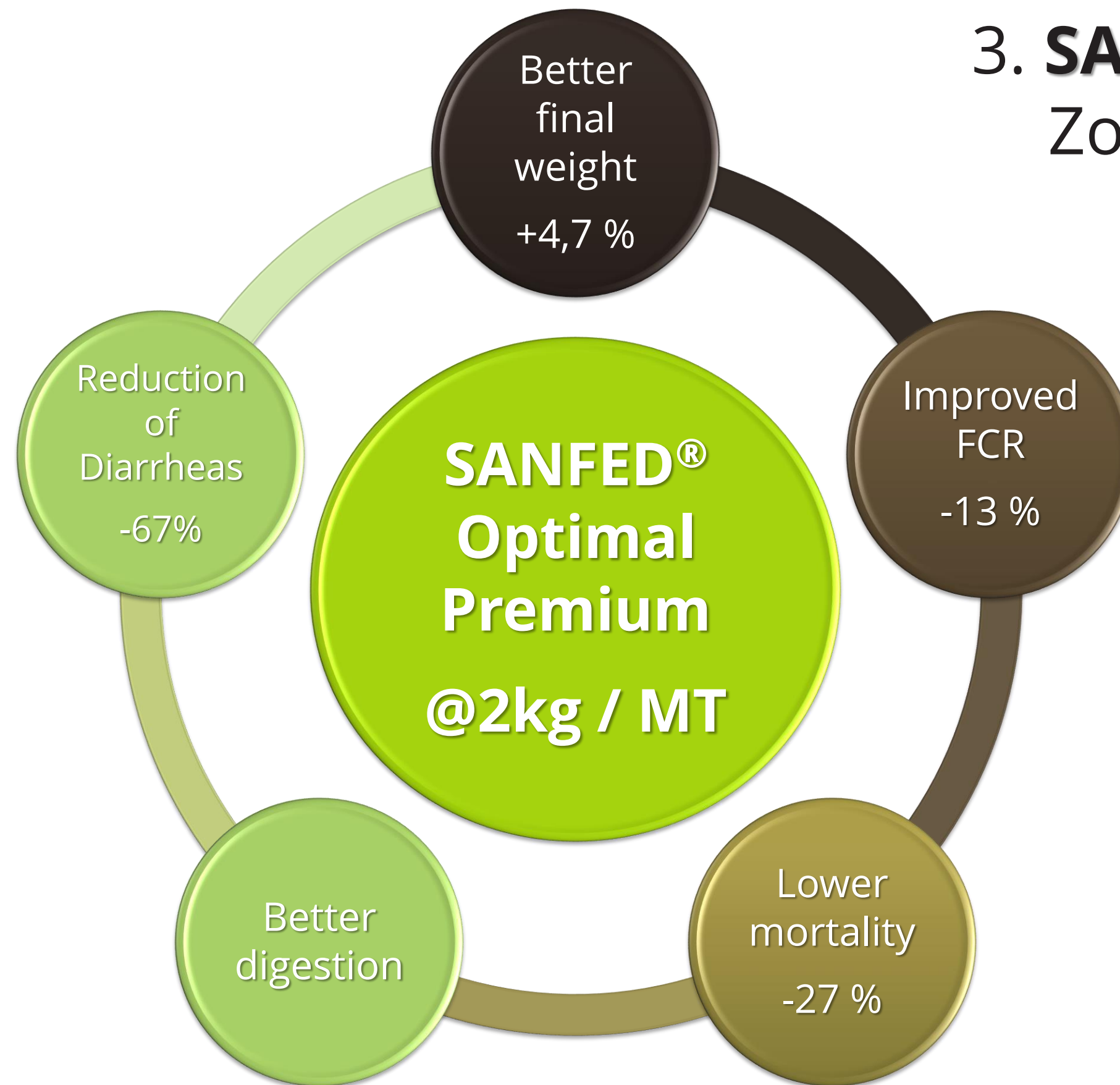


Trilogy Analytical Laboratory, Inc U.S.A.
Gut simulation pH measurements
(pH=3 & pH=6,5)

2. **SANFED**[®] OPTIMAL PREMIUM Zootechnical properties - Broilers



3. **SANFED**[®] OPTIMAL PREMIUM Zootechnical properties - Pigs



SANFED® OPTIMAL PREMIUM

Offering simultaneously **toxin binding**

&

antimicrobial properties

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 **GEOHELLAS**