

# valibiotics<sup>+</sup>

22. Února 2024

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# Valibiotics Skupina

- Agrobiotechnologická společnost
  - Valibiotics AG ve Švýcarsku, Švýcarsko
  - Valibiotics GmbH v Trainskirchen, Rakousko
- Sound scientific background
  - Valibiotics GmbH is a spin-off of the University of Natural Resources and Life Sciences (BOKU), Austria
- Centrum pro agromikrobiologii
  - Own microbial fermentation technology
  - Interní mikrobiální sbírka kmenů



Valibiotics GmbH

**Competence center  
for Agromicrobiology  
Traiskirchen, Austria**





Valibiotics GmbH

**Manufacturing site**  
Traiskirchen, Austria

Production capacity:  
63 t per week  
2,835 t per year

# International Network

## North America

### Canada:

Local producer

### USA (North Dakota):

Local producer

## Central America

### Mexico

First contacts

## EU

### Austria, Switzerland

Direct sales

### Poland, Germany, Hungary, Czech

### Republic, Romania

Local producer, Horsch project

### UK, Slovakia, Croatia

Local sales partners

## Africa

### Cameroon: ADA-Project

### Ghana:

Local sales partners

Rice project – EIB

### Kenya, Uganda:

Initial contacts

## Asia

### Turkmenistan:

Local producer

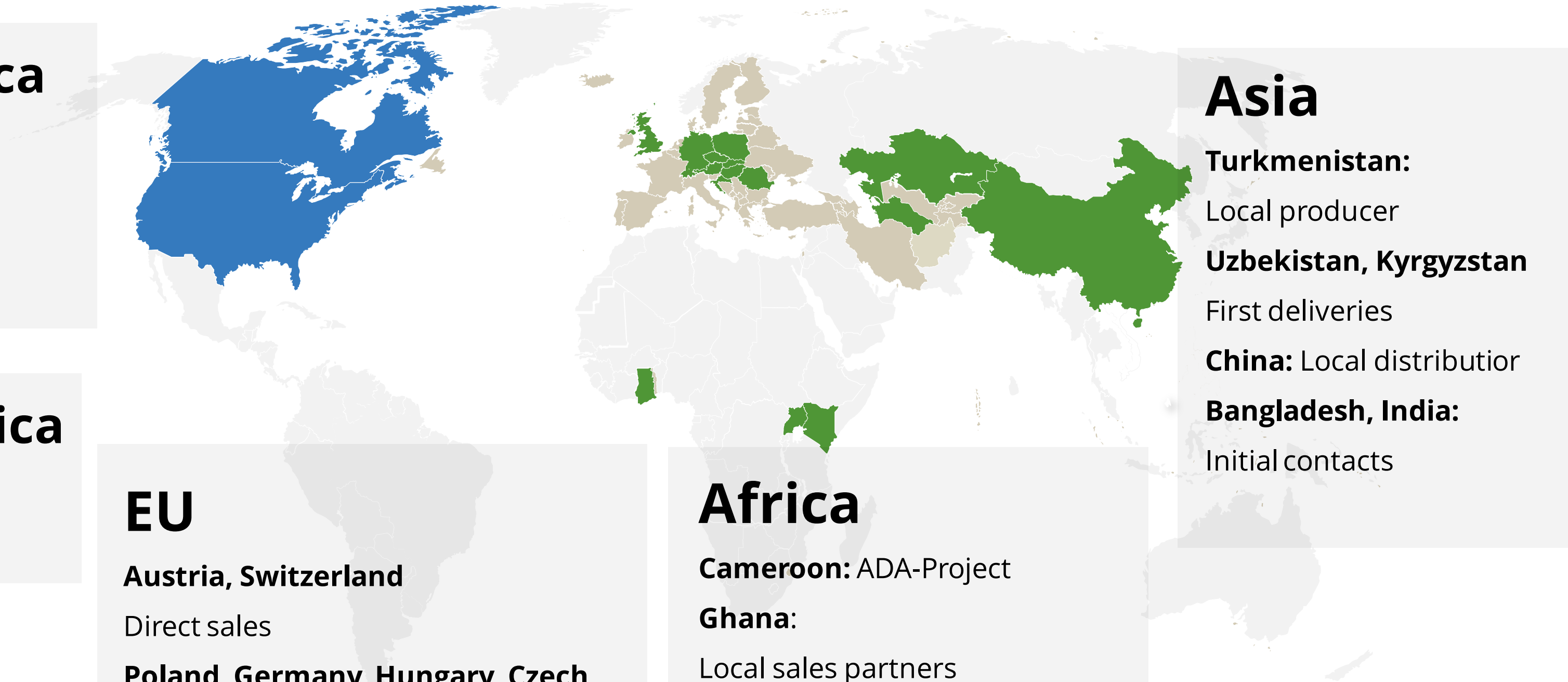
### Uzbekistan, Kyrgyzstan

First deliveries

### China: Local distributor

### Bangladesh, India:

Initial contacts



# Scientific Cooperation Partners

BOKU - University of Natural Resources and Life Sciences  
Prof. Lemmens  
Prof. Gierus



Institute of Agroecology - agroecology.science  
Prof. Niggli

agroecology.science

Research Institute of Organic Agriculture - FiBL  
Hans-Jakob Schärer

FiBL

TU Graz / Institute of Environmental Biotechnology  
Prof. Berg



Austrian Institute of Technology / Bioresources Unit  
Dr. Sessitsch / Dr. Brader



University of Wisconsin Madisons / Animal & Dairy Sciences  
Prof. Ferrareto



Our strategic goal

**-50%**

**Reduction of chemical/synthetic agents  
through  
application of biological agents**

- Improves soil health
- Maintains biodiversity & water quality
- Reduces input related CO2 emissions

# **Nourivit soil and plant technology builds on three pillars**

## **Soil treatment**

For sustainable nutrient-rich soils



## **Seed treatment / seedling treatment**

For uniform and faster germination and growth



## **Foliar treatment**

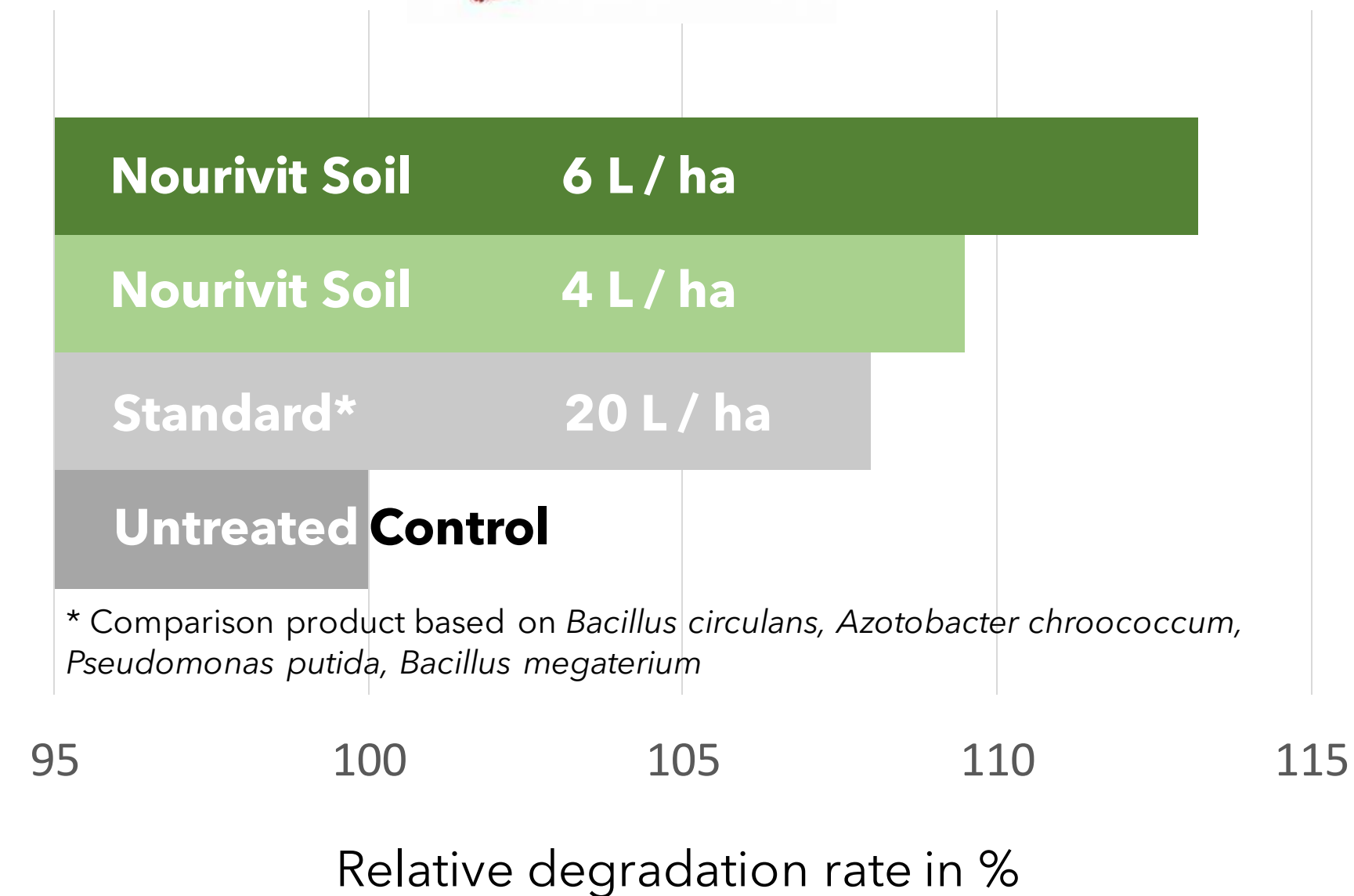
For healthy, drought-resistant and vital plants





# Nourivit Soil - Soil treatment

- Rapid decomposition of organic biomass into humus and plant-available nutrients
- Soil life is activated - increase in microbial biodiversity
- Life cycle of soil-borne pathogens is interrupted
- Availability of nutrients is improved
- Soil structure is improved

**NEW**

# Nourivit / Nourivit plus – Seed treatment / seedling treatment

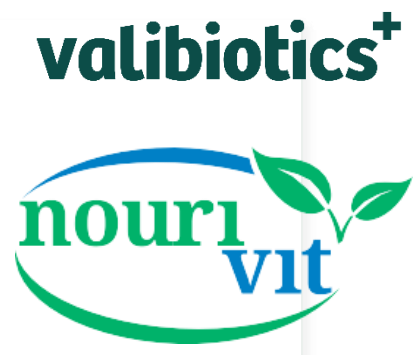
- Reduction of the "settling stress"
- Active colonization of the roots
- Faster growth of the seedlings
- Prevention of fungal diseases affecting the roots

## **Seed treatment / seedling treatment**

For uniform and faster germination and growth



# Nourivit / Nourivit plus – Foliar treatment



- Plant is optimally supplied with calcium during growth
- Calcium is essential for cell walls and chloroplasts
- Water balance of the plant becomes more efficient
- More vital and resistant plants (against drought, heat, pests and diseases)
- Shortening of the vegetation period

## **Foliar treatment**

For healthy, drought-resistant and vital plants



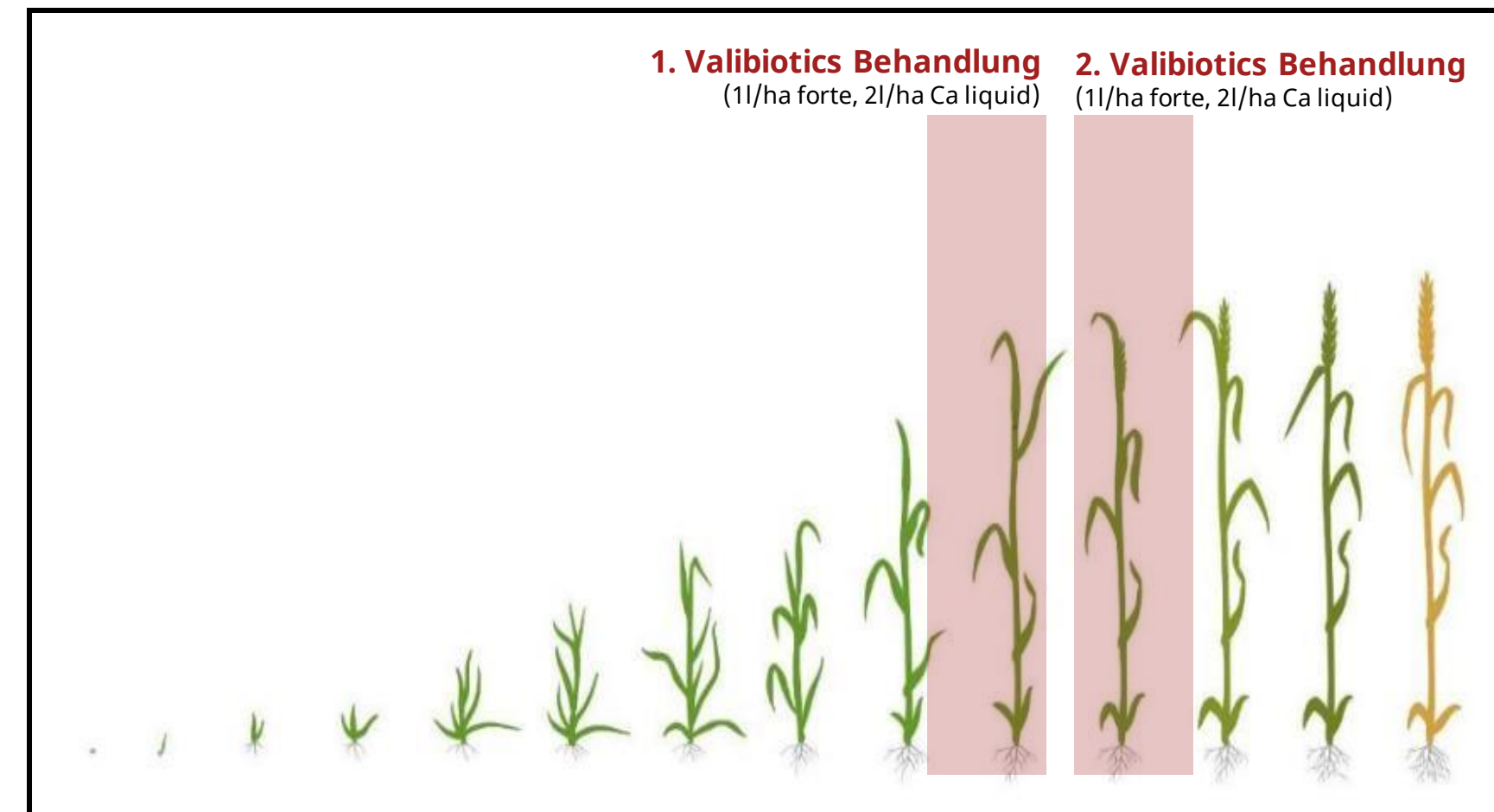
# Valibiotics forte / Valibiotics Ca liquid

## Prevention of fungal diseases

- Disruption of the life cycle of the harmful fungus
- Activation of the plant's natural defense system
- Competition for nutrients with the harmful fungi
- Strengthening of the cell wall through quickly available Ca<sup>2+</sup>.
- Products act synergistically

## Prevention of fungal diseases

Combination of efficiency with low toxicity





# Results - Winter wheat

# Winter wheat

## Application plan 2022



AGRO-SIEĆ<sup>®</sup>

valibiotics<sup>+</sup>

Date	STANDARD	BIO	HYBRID	Control
T1	0,75 l/ha Kroton + 0,25 l/ha Flexity 300 SC	5 l/ha Nourivit Plus + 3 kg/ha Nourivit Calcium	0,75 l/ha Kroton + 0,25 l/ha Flexity 300 SC	-
T2	0,75 l/ha Myresa Pro + 0,75 l/ha Imbrex XE	5 l/ha Nourivit Plus + 3 kg/ha Nourivit Calcium	5 l/ha Nourivit Plus + 3 kg/ha Nourivit Calcium	-
T3	1 l/ha Broteas 250 EC	1 l/ha Valibiotics forte + 3 l/ha Valibiotics Ca Liquid	1 l/ha Valibiotics forte + 3 l/ha Valibiotics Ca Liquid	-

# Winter wheat

## Application plan 2023

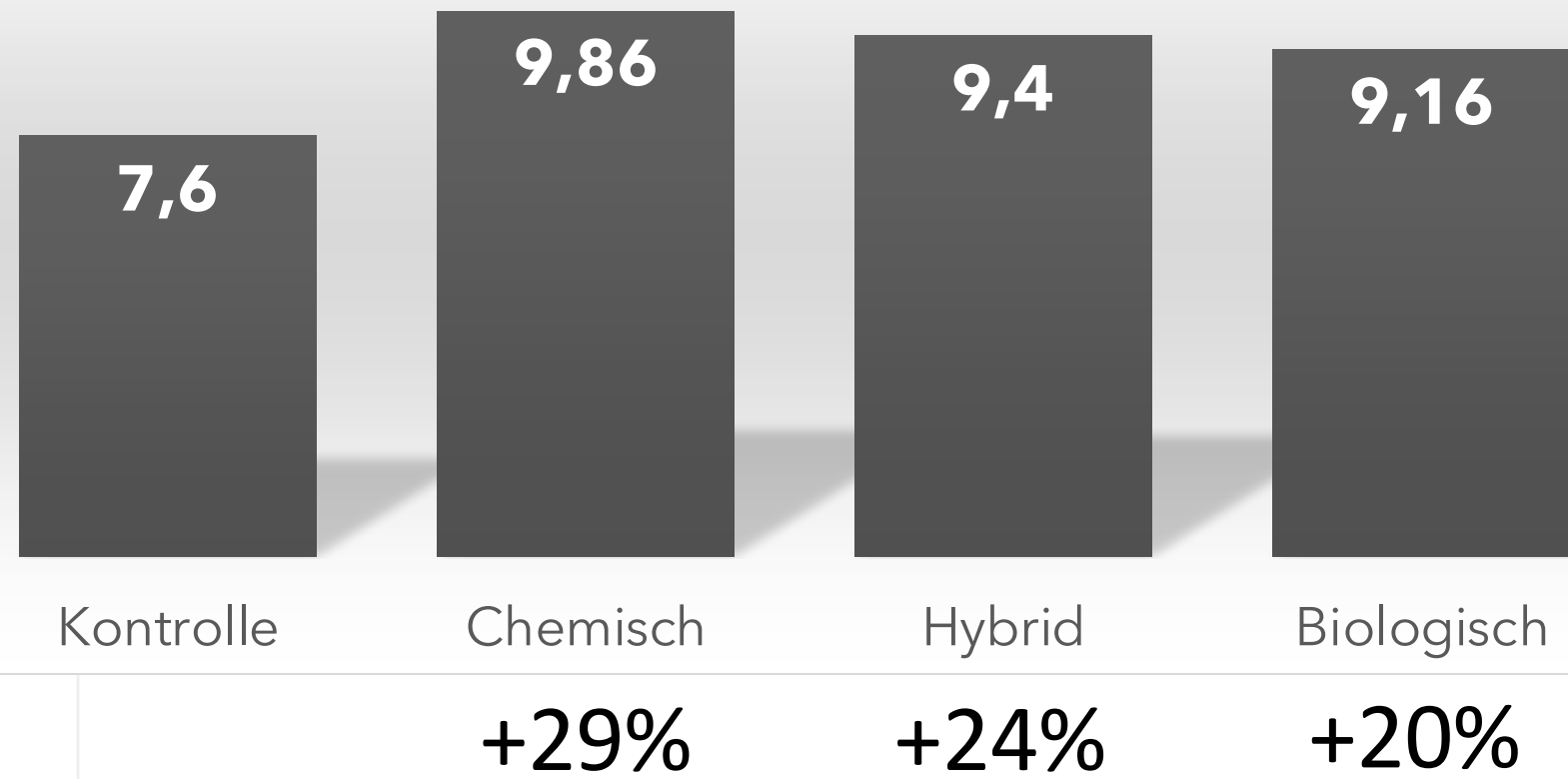
valibiotics<sup>+</sup>



Date	Control	BIO	HYBRID	STANDARD (Chemical)	LUXUS
<b>Before sowing</b>	-	5 l/ha Nourivit Soil	5 l/ha Nourivit Soil	-	5 l/ha Nourivit Soil
<b>T1</b>	-	Nourivit Plus + Nourivit Ca	Nourivit Plus + Nourivit Ca + cyflufenamid	Protiokonazol + spiroksamina + metrafenon	BIO + STANDARD
<b>T2</b>	-	Nourivit Plus + Nourivit Ca	Nourivit Plus + Nourivit Ca + protiokonazol	Piraklostrobina + fluksapyroksad + mefentriflukonazol	BIO + STANDARD
<b>T3</b>	-	Valibiotics forte + Valibiotics Ca liquid	Valibiotics forte + Valibiotics Ca liquid +tebukonazol	Protiokonazol + tebukonazol	BIO + STANDARD

# Winter wheat Results

2022 Yield winter wheat (t/ha)



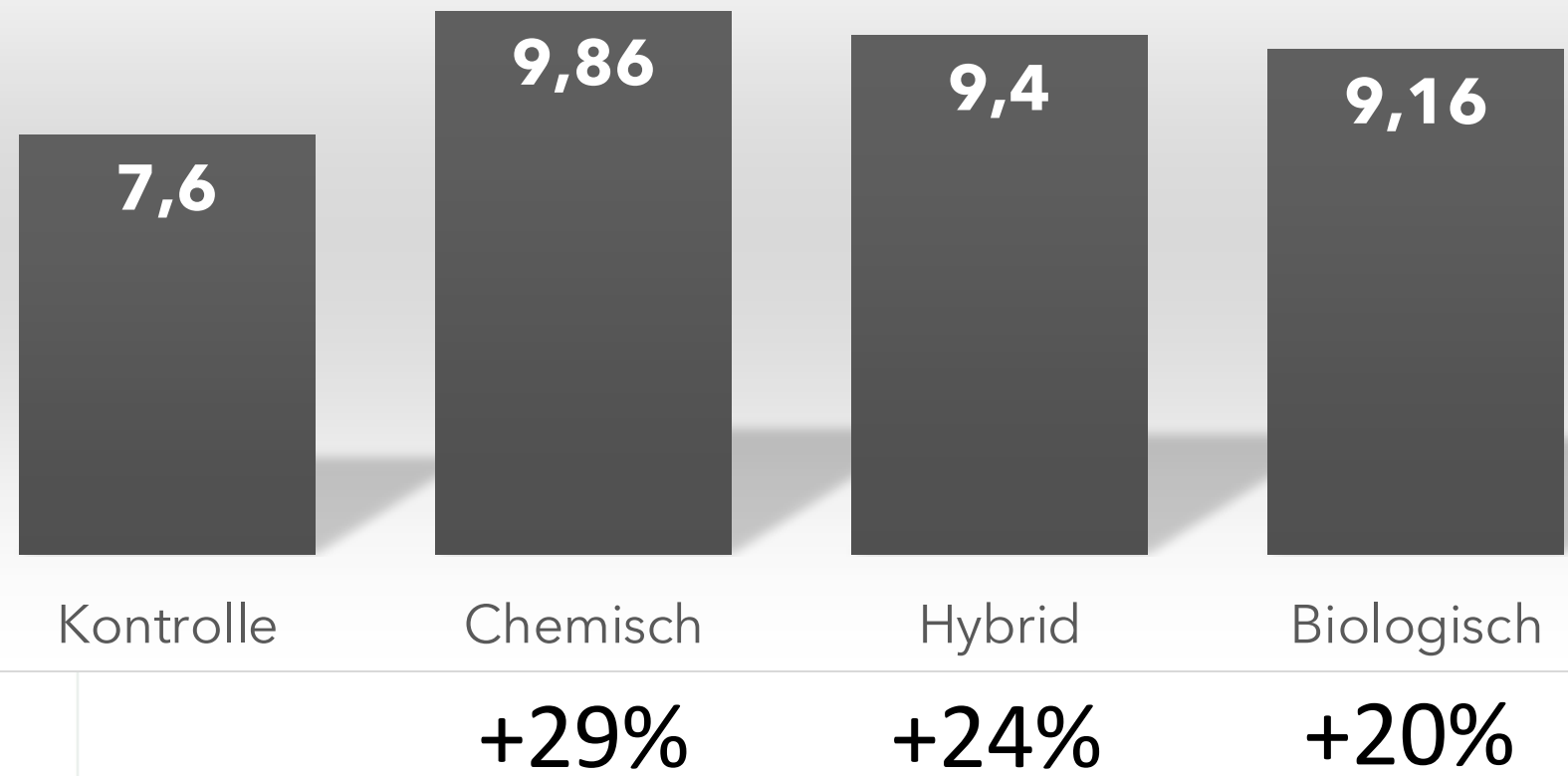


# Winter wheat Results

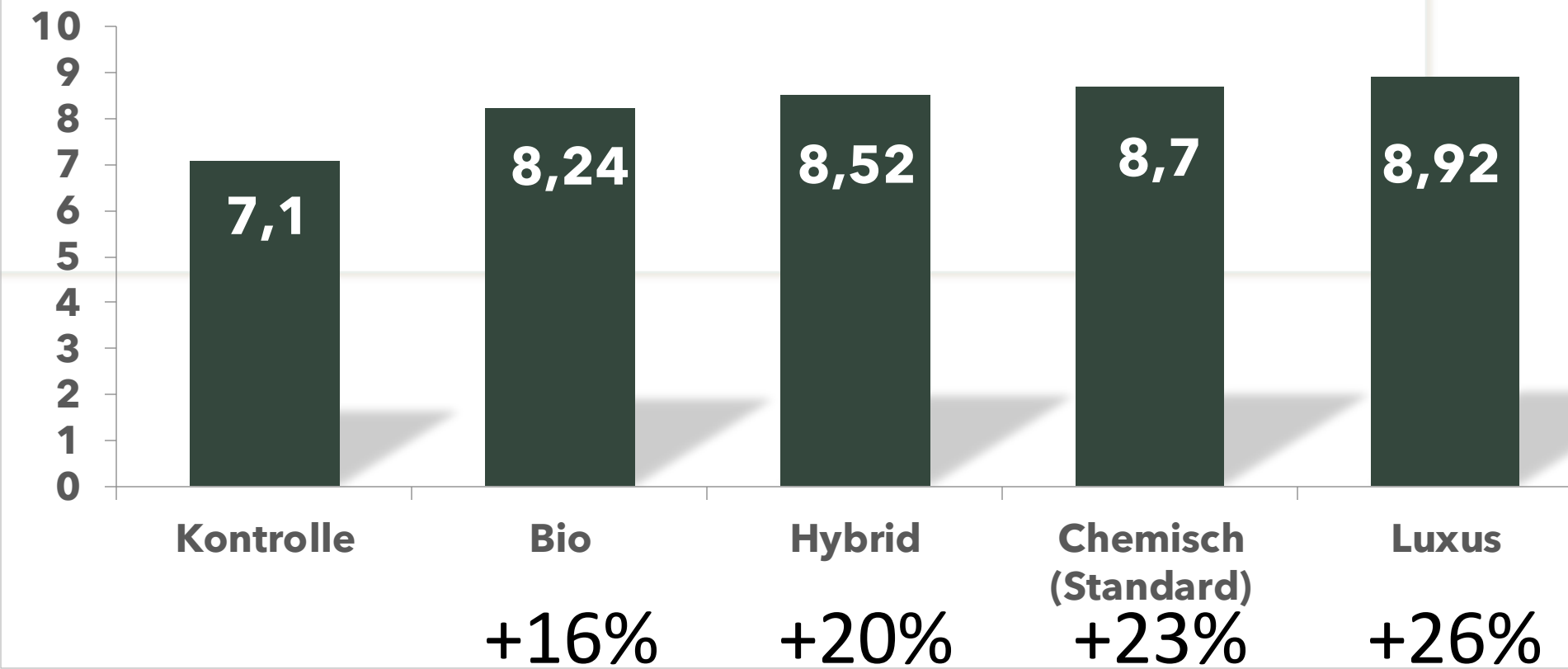


# AGRO-SIEĆ<sup>®</sup>

### 2022 Yield winter wheat (t/ha)



### 2023 Yield winter wheat (t/ha)





# Results – Winter rape

# Rape

## Application plan 2022

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Date	STANDARD	BIO	HYBRID	Control
<b>Schossen BBCH 30</b>	0,65 l/ha Orius 250 EW + 0,3 l/ha Caryx 240 SL	5 l/ha Nourivit Plus + 3 kg/ha Nourivit Calcium	0,65 l/ha Orius 250 EW 0,3 l/ha Caryx 240 SL 5 l/ha Nourivit Plus + 3 kg/ha Nourivit Calcium	–
<b>BBCH 51</b>	0,8 l/ha Pablo 250 SC	1 l/ha Valibiotics forte + 3 l/ha Valibiotics Ca Liquid	0,8 l/ha Pablo 250 SC	–
<b>Fallen der Blütenblätter</b>	0,5 l/ha Pictor 400 SC	1 l/ha Valibiotics forte + 3 l/ha Valibiotics Ca Liquid	1 l/ha Valibiotics forte + 3 l/ha Valibiotics Ca Liquid	–

# Raps

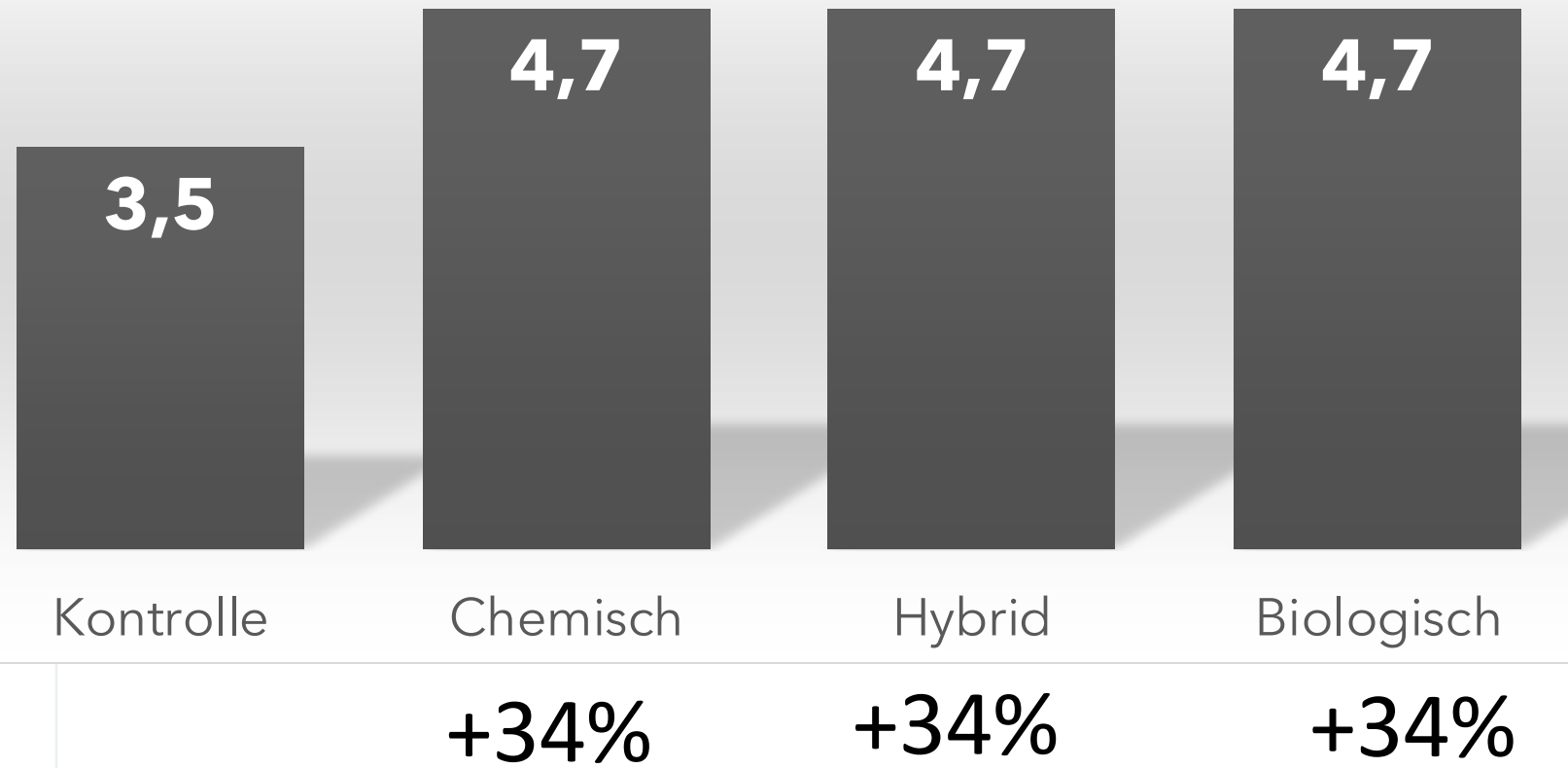
## Application plan 2023

Date	Control	BIO	HYBRID	STANDARD (Chemical)	LUXUS
<b>Before sowing</b>	-	5 l/ha Nourivit Soil	5 l/ha Nourivit Soil	-	5 l/ha Nourivit Soil
<b>BBCH 14</b>	-	Nourivit Plus + Nourivit Ca + CCC	Nourivit Plus + Nourivit Ca + + metkonazol + chlorek mepikwatu	Chlorek mepikwatu + metkonazol + tebukonazol	BIO + STANDARD
<b>BBCH 16-17</b>	-	Nourivit Plus + Nourivit Ca + CCC	Nourivit Plus + Nourivit Ca + + metkonazol + chlorek mepikwatu	Chlorek mepikwatu + metkonazol + tebukonazol	BIO + STANDARD
<b>BBCH 32</b>	-	Nourivit Plus + Nourivit Ca Ca + CCC	Nourivit Plus + Nourivit Ca + + metkonazol + chlorek mepikwatu	Chlorek mepikwatu + metkonazol + tebukonazol	BIO + STANDARD
<b>BBCH 63</b>	-	Nourivit Plus + Nourivit Ca +	Valibiotics forte + Valibiotics Liquid Ca + protiokonazol	Protiokonazol + boskalid	BIO + STANDARD

# Winter rape

## Results

2022 Yield Rape (t/ha)

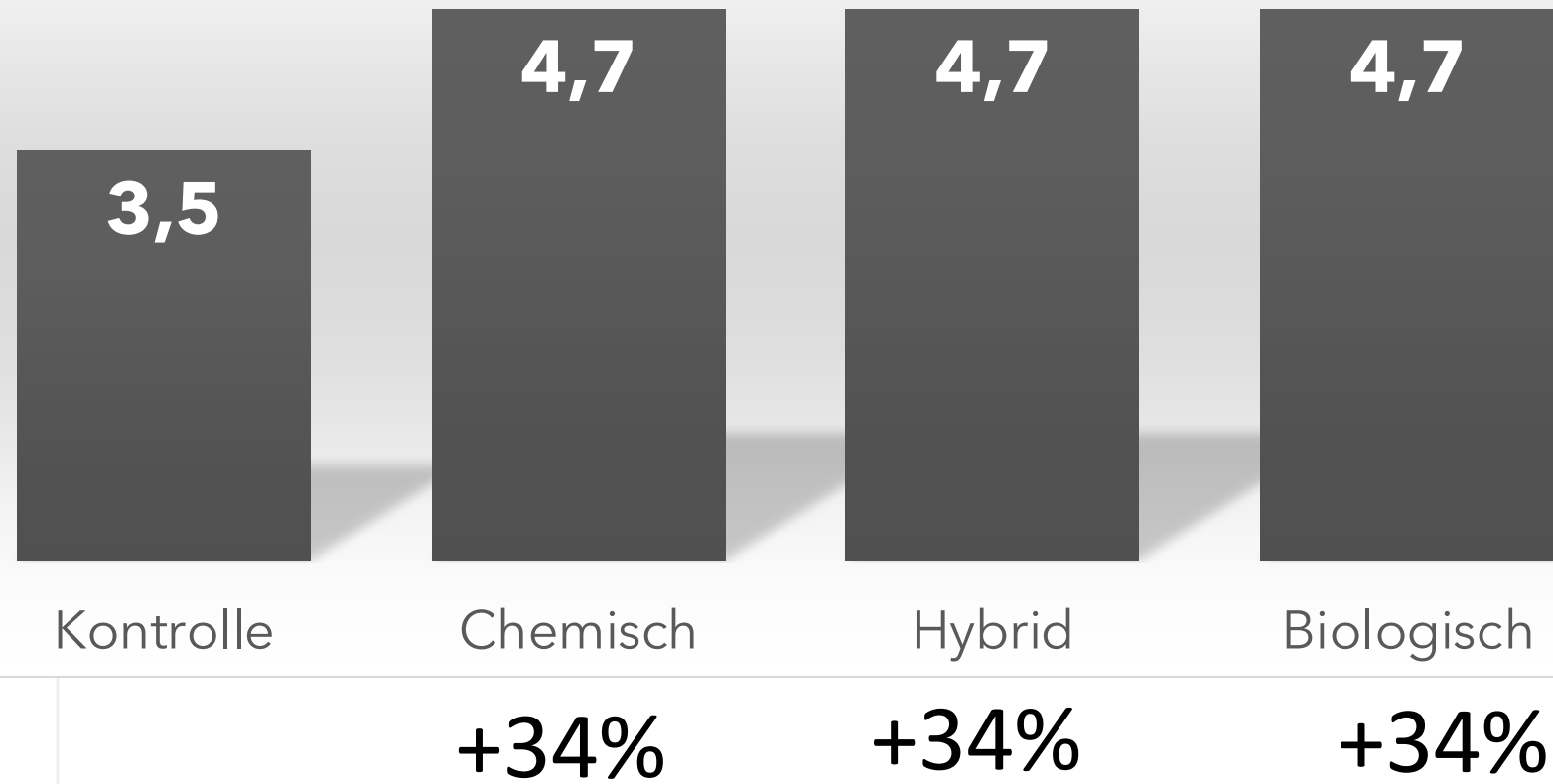


# Winter rape

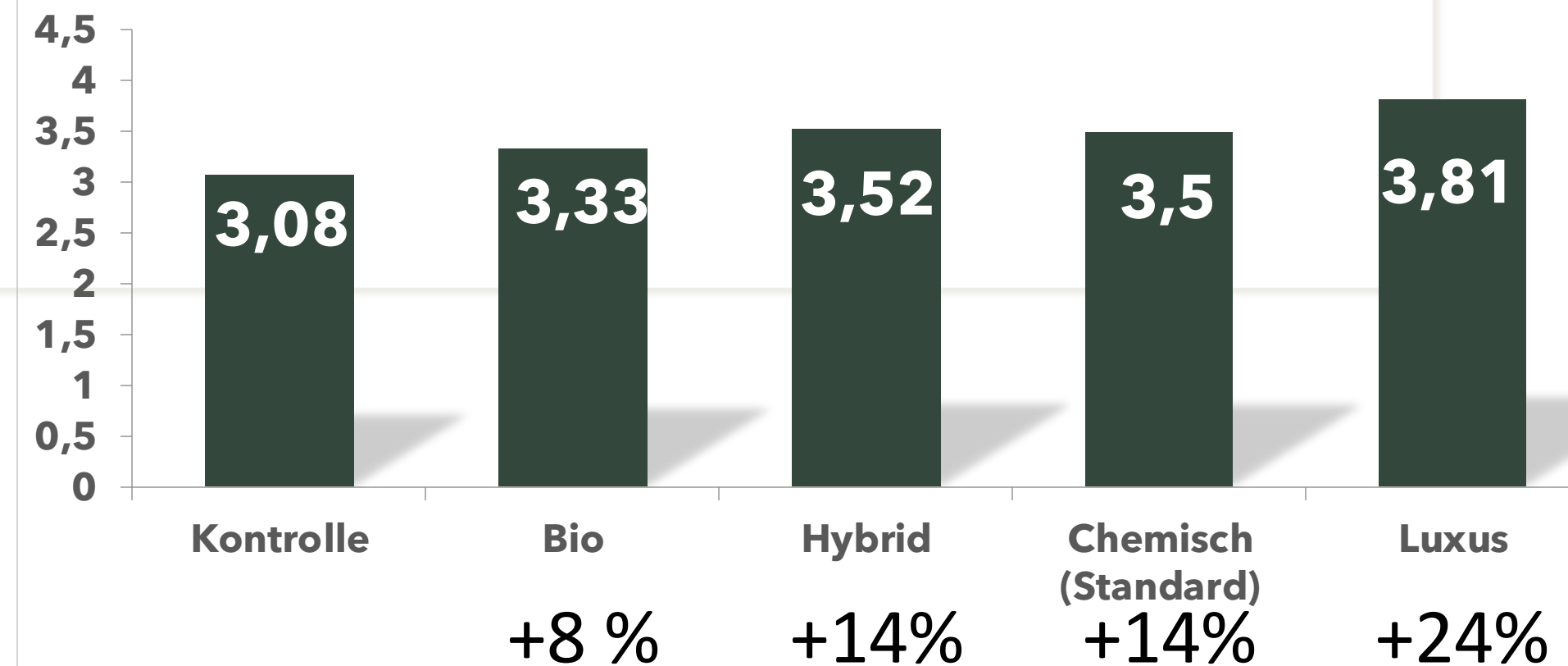
## Results



2022 Yield Rape (t/ha)



2023 Yield Rape (t/ha)



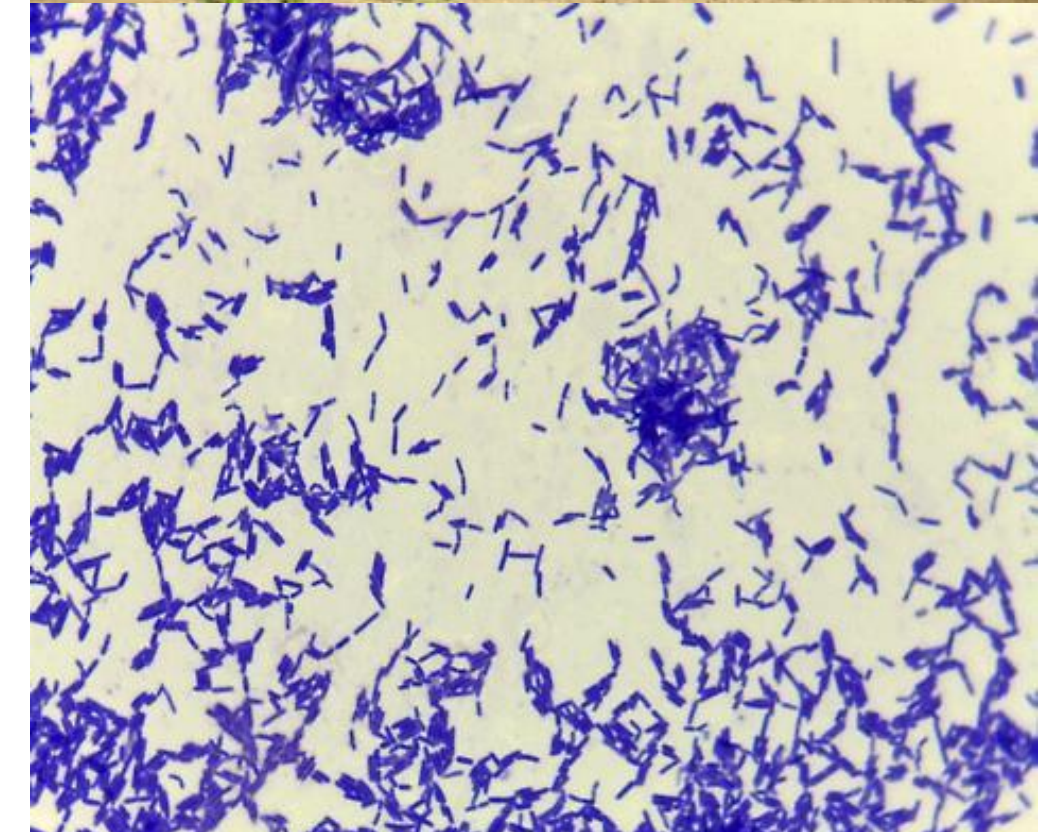


# Corn

# Ergebnisse Mais

## 2022 Nutrivet, CZE

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Parameter	Nourivit	Control	
<b>Microbiology</b>			
Fungi (CFU / g)	3,89	9,21	
Yeast (CFU / g)	16,7	22,67	
<b>Mycotoxins</b>			
DON µg / kg	1719,47	2321,43	→ -25%
ZON µg / kg	108,17	271,94	→ -60%
T2 Toxin µg / kg	292,13	945,70	→ -70%
<b>Total</b>	<b>2119,8</b>	<b>3538,80</b>	<b>→ -40%</b>

→ **Less fungal toxins (mycotoxins) on the feed**



# Mykotoxines / Trials Poland

## Winter wheat

TECHNOLOGY	OCHRATOXINE (OT)	ZEARALENON (ZON)	DEOXYNIVALENOL (DON)
UNTREATED CONTROL	<2	22,4	75,0
BIO	<2	13,5	45,3
HYBRID	<2	<10	<40
CHEMICAL	<2	<10	<40

## Corn

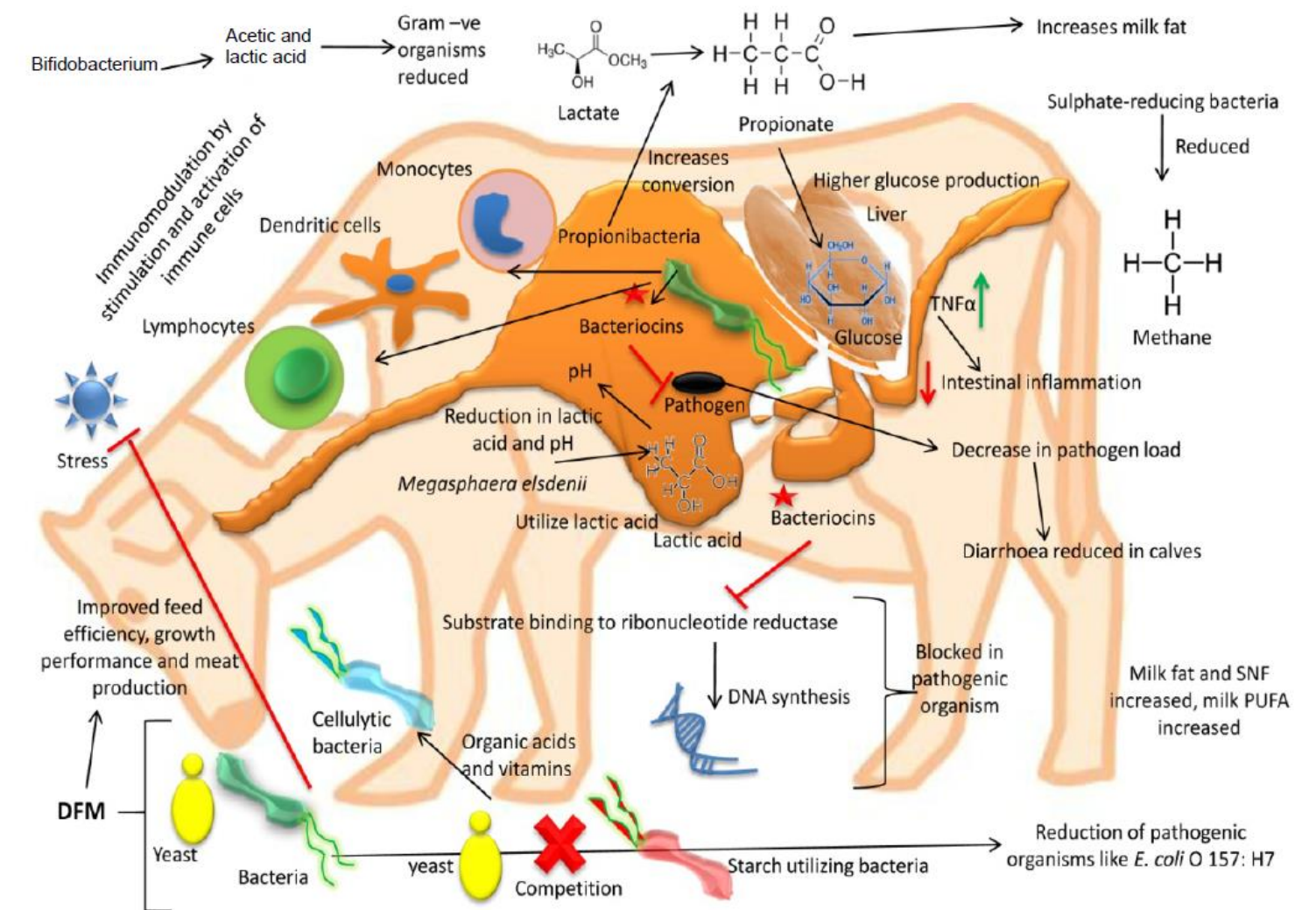
TECHNOLOGY	OCHRATOXINE (OT)	ZEARALENON (ZON)	DEOXYNIVALENOL (DON)
UNTREATED CONTROL	10,8	43,19	<40
BIO	2,9	24,8	<40

# Animal husbandry

 Fields of application

# Use of microbiology in animal husbandry

- Reduction of methane emissions
- Influence rumen microbiology/ stabilisation of the intestinal flora
- Rumen microbiology is still unstable in young animals
- Influence on rumen activity
- Protection against infection and pathogens
- Effect or activation of the immune system:
  - Formation of antimicrobial substances
  - Stimulation of immune cells

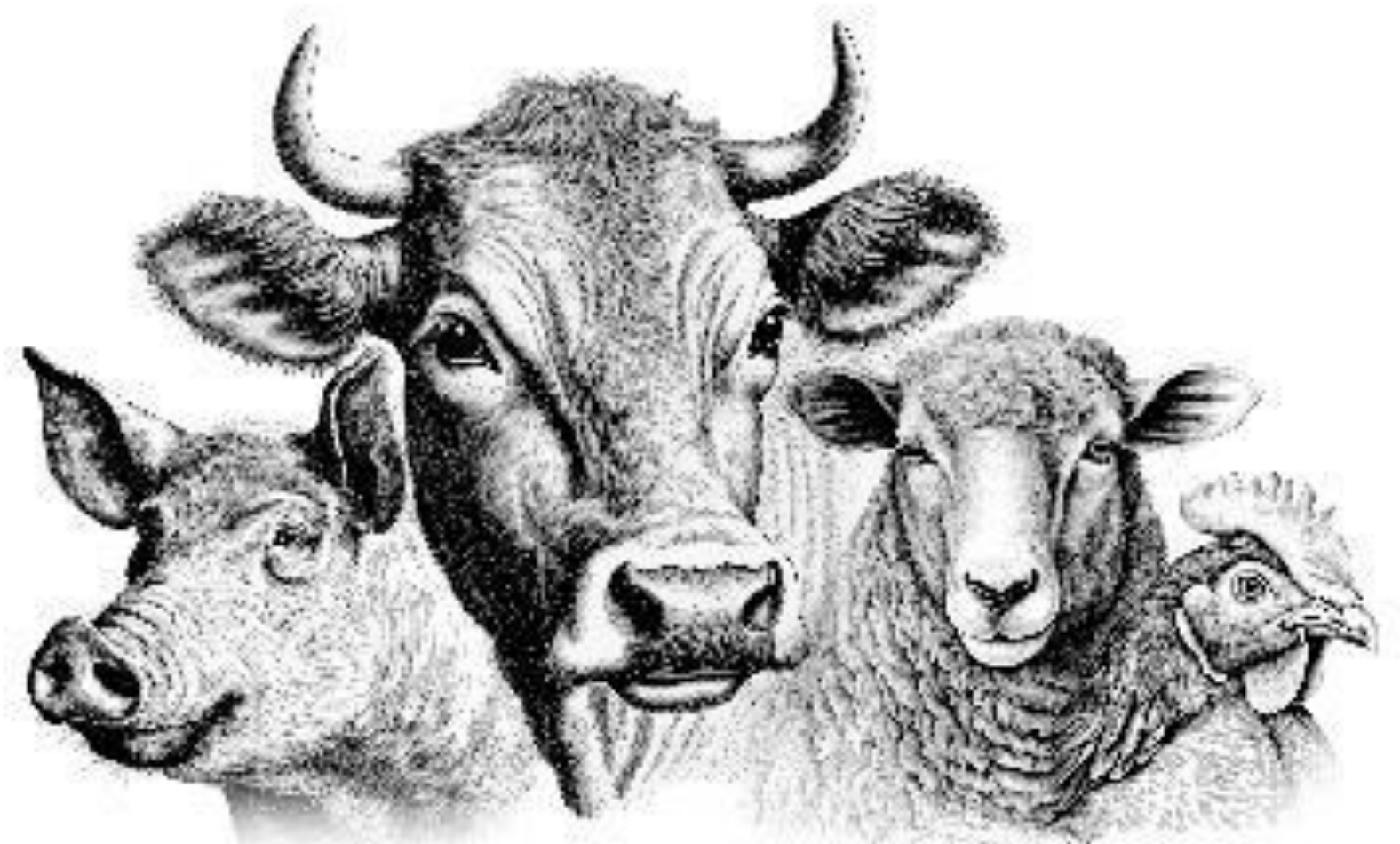


# Areas of application in animal husbandry



# VALIBIOM MIX – feed additive

- Mixture of
  - microbes (*Lactobacillus plantarum*, *Lactobacillus buchneri* and *Sacharomyces cerevisiae*) and
  - Herbs (mint, sage and mallow)
  - Fermented in sugar cane molasses
- Stabilises the feed ration in a biological way
- Increases the flavourfulness of the animals' feed
- Stabilises the digestion
- Increases the animals' resistance to heat stress



# Feeding recommendations

- Pig:
  - 5-10 litres **VALIBOM** MIX /tonne dry compound feed
  - 3-5 litres **VALIBOM** MIX /tonne liquid compound feed
- Cattle:
  - Calves: 15mL **VALIBOM** MIX /animal per day
  - Young cattle under 1 year: 25mL **VALIBOM** MIX /animal per day
  - Cattle over 1 year old & fattening cattle: 50mL **VALIBOM** MIX /animal per day
  - Dairy cows: 100 mL **VALIBOM** MIX /animal per day
- Poultry:
  - Layers: add 3 -5 litres of **VALIBOM** MIX of pressed feed
  - Broilers, turkeys, ducks, geese: add 5 - 10 litres of **VALIBOM** MIX of compound feed
- Sheep /goat: 15mL **VALIBOM** MIX /animal per day
- Silage: Spray 1 litre of **VALIBOM** MIX per m<sup>3</sup> of silage

# NOURIVIT PLUS - barn hygiene and manure treatment

- Mixture of
  - microbes (*Lactobacillus plantarum*, - *buchneri*, - *casei*; and *Sacharomyces cerevisiae*; *Bifidiobacterium bifidum* and - *animalis*; *Rhodopseudomonas palustris*; *Sacharomyces cerevisiae*)
  - Fermented in sugar cane molasses
- Forms a useful biofilm on barn surfaces
- Biologically ammonia binding in the manure
- Counteracts the formation of floating layers
- Improves compatibility as a fertiliser



# Barn hygiene and manure treatment

## Recommendations

- Barn hygiene:
  - Spray 5 litres **NOURIVIT PLUS** in a 25% solution with water on 100 m<sup>2</sup> of barn/solid manure after cleaning and after littering
  - Repeat this treatment at regular intervals (every 14 days)
- Liquid manure treatment:
  - Pig:
    - 1,5 litres of **NOURIVIT PLUS** /m<sup>3</sup> manure (fermentation begins after 1-3 weeks)
    - 3-5 litres of Valibiom Mix/tonne of liquid compound feed
  - Cattle:
    - 1,5 litres **NOURIVIT PLUS** /m<sup>3</sup> manure (fermentation starts after 1-3 weeks)
  - Poultry:
    - 2 litres **NOURIVIT PLUS** /m<sup>3</sup> manure (fermentation starts after 1-3 weeks)
  - Slurry:
    - Mix in 25 litres **NOURIVIT PLUS** /100m<sup>3</sup> before spreading (optimally 2 days before)
- Solid manure treatment:
  - Spray on 1 litre **NOURIVIT PLUS** /m<sup>3</sup>



# Feeding trial

Prof. Luiz Ferrareto, Animal & Dairy Sciences  
University of Wisconsin Madison

- 64 Holstein cows (herd average 14,000 kg)
- 4 treatments
  - Silage percentage low/ silage percentage high
  - +/- Nourivit **VALIBIOM MIX**
  - 2x factorial trial design
  - Duration: 11 weeks
- **Lower respiratory rate with Nourivit FKE → Improved heat resistance of the cows**
- **Improved stability of the TMR**



## Examples of effectiveness

Lemmens dairy company,  
Gablitz

- Stabilisation of the mixed ration by adding to the mixer wagon
- Reduces reheating
- Milk yield stabilised through continuous feed intake, especially during hot periods
- Enrichment of active microorganisms in the dairy cow's digestive tract
- Calms and stabilises digestion, prevents acidosis



# Case study

## Broiler Poland

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Feed conversion			
Control	1,57	kg feed/ kg live weight	
<b>VALIBIOM MIX / NOURIVIT PLUS</b>	1,50	kg feed/ kg live weight	<b>-4,5%</b>

Slaughter weight*			
Control	2,31	kg / Broiler	
<b>VALIBIOM MIX / NOURIVIT PLUS</b>	2,29	kg / Broiler	

\*No significant difference in carcass weight

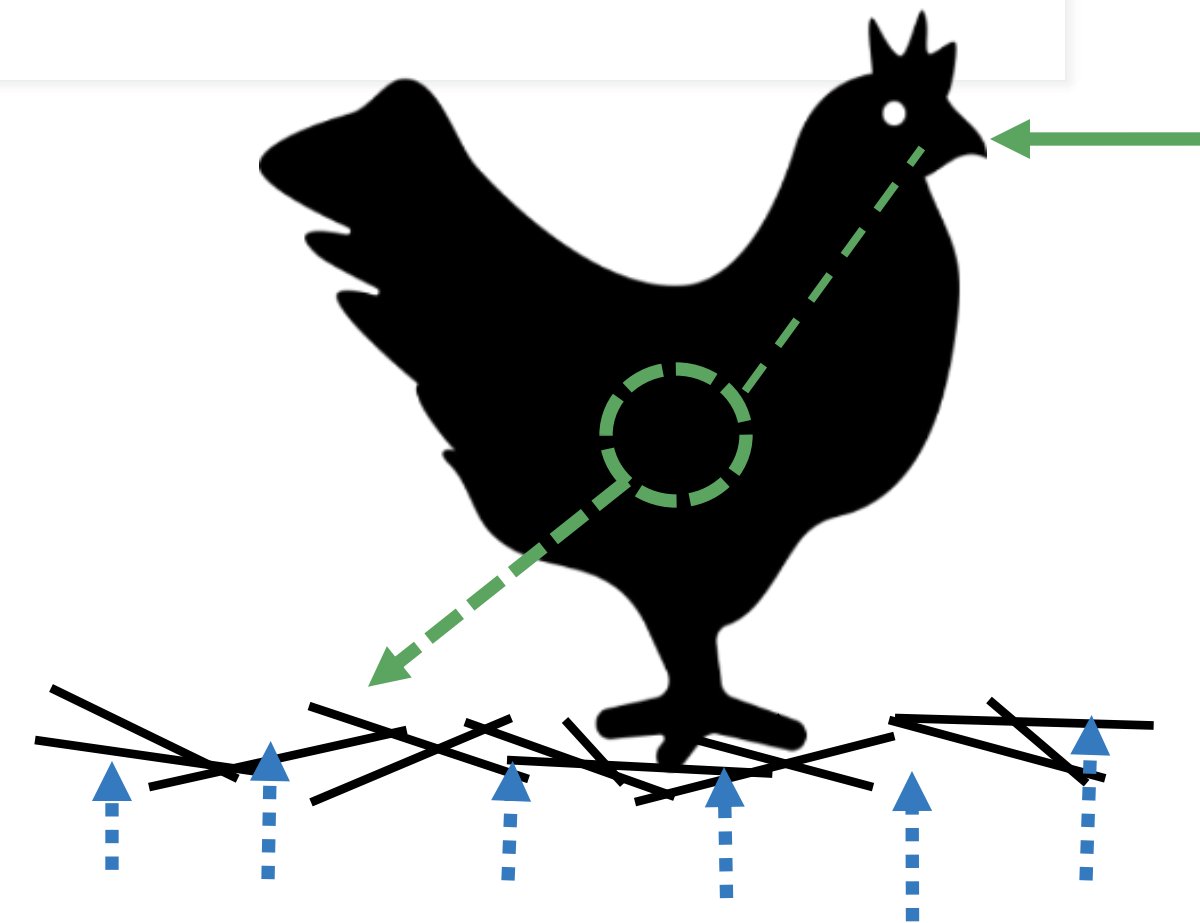
Day	Ammonia (NH <sub>3</sub> ) ppm		
	Control	VALIBIOM MIX / NOURIVIT PLUS	Difference
11	36	25	<b>-31%</b>
36	22	n.d.	<b>-100%</b>



**Improved feed conversion rate**



**Reduction of ammonia emissions**



# valibiotics<sup>+</sup>

22nd of February 2024

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