Monimax®

monensin + nicarbazin

Reveal

your Hidden Potential

HUVEPHARMA®
We add performance to your business

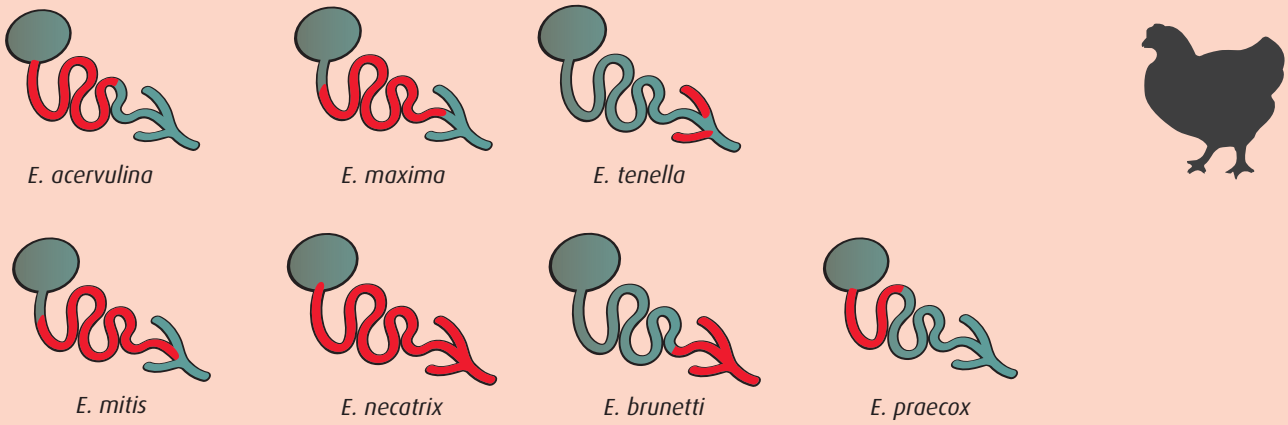
Coccidiosis

Coccidiosis remains one of the most important diseases in poultry production with an estimate global cost of more then 3 billion € per year.

Coccidiosis, caused by protozoan parasites of the genus *Eimeria*, is perhaps the most widespread and difficult to manage poultry disease, resulting in considerable economic losses.

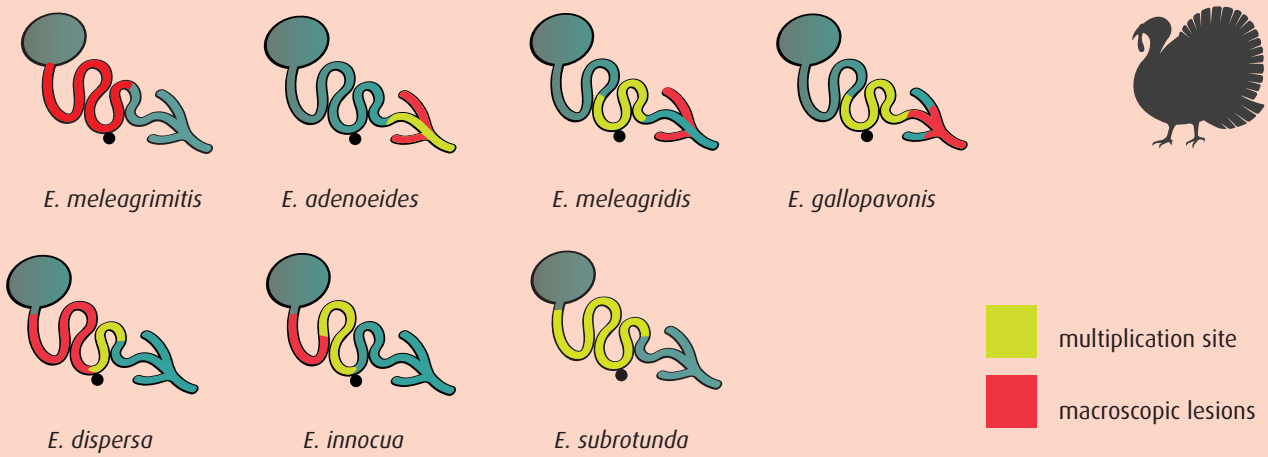
The parasites destroy intestinal cells decreasing the digestive capacity and cause poor intestinal health. As a consequence, the birds will underperform. In the case of clinical coccidiosis, diarrhoea, bloody droppings and increased mortality can be observed. Clinical coccidiosis however is merely the tip of the iceberg, much more important is subclinical coccidiosis, i.e. clinical signs are not apparent but the birds will not reach their genetic potential due to the intestinal damage. Furthermore, coccidiosis is one of the main triggers for gastrointestinal disorders like necrotic enteritis, dysbacteriosis and *Salmonella*.

In chickens, the seven recognized *Eimeria* species have different predilection sites in the intestinal tract and cause unique pathological changes which allow for identification based on lesion scoring.



Eimeria species are host specific, the majority of *Eimeria* that affect poultry will not infect turkeys and vice versa.

In turkeys identification by lesion scoring is less evident as the lesions caused by the different *Eimeria* species are less specific.



Coccidiosis control

Monimax® combines the strengths of the synthetic compound nicarbazin with the ionophore monensin, resulting in a unique new product for coccidiosis control.

- **Monensin** affects the parasite when it's in the gut lumen (sporozoites and merozoites) and does not penetrate the intestinal cells.
- **Nicarbazin** interacts later during the lifecycle of the parasite and can penetrate the intestinal cells (1st and 2nd generation schizonts).

Monimax® - synergy

MONENSIN

- Acts in early in the lifecycle of *Eimeria*

» Sporozoietes

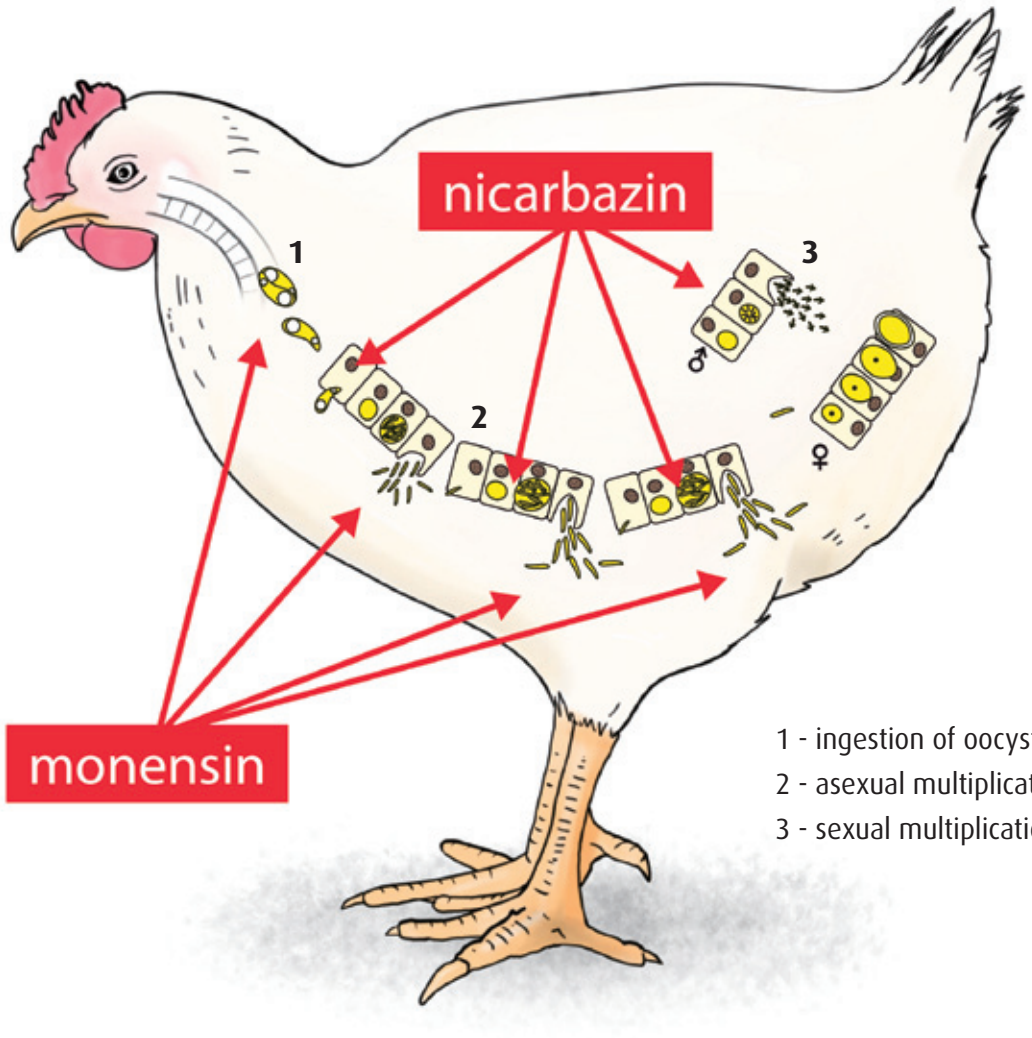
- Extracellular

NICARBAZIN

- Acts later in the lifecycle of *Eimeria*

» 1ste and 2nd generation schizonts

- Intracellular



Effect of Monimax® on different stages of the *Eimeria* lifecycle

Benefits when using Monimax®

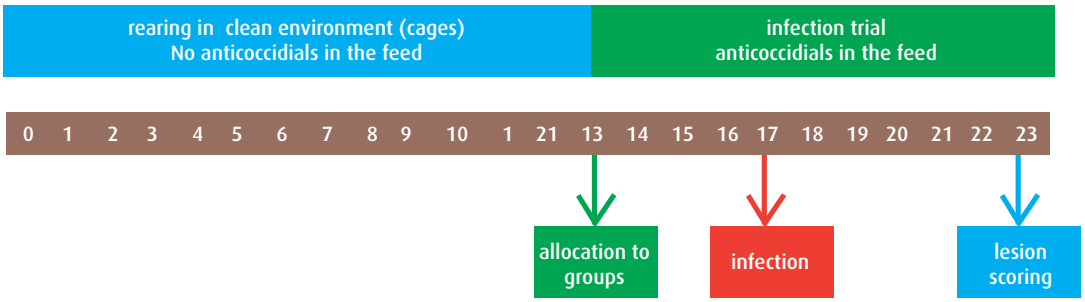
Monimax is a safe solution to increase your performance and welfare standards

1. INCREASED PERFORMANCE

As monensin and nicarbazin have a different mode of action they work in a synergistic way to prevent coccidiosis.

An anticoccidials sensitivity trial (AST) was conducted to demonstrate this synergy.

Protocol

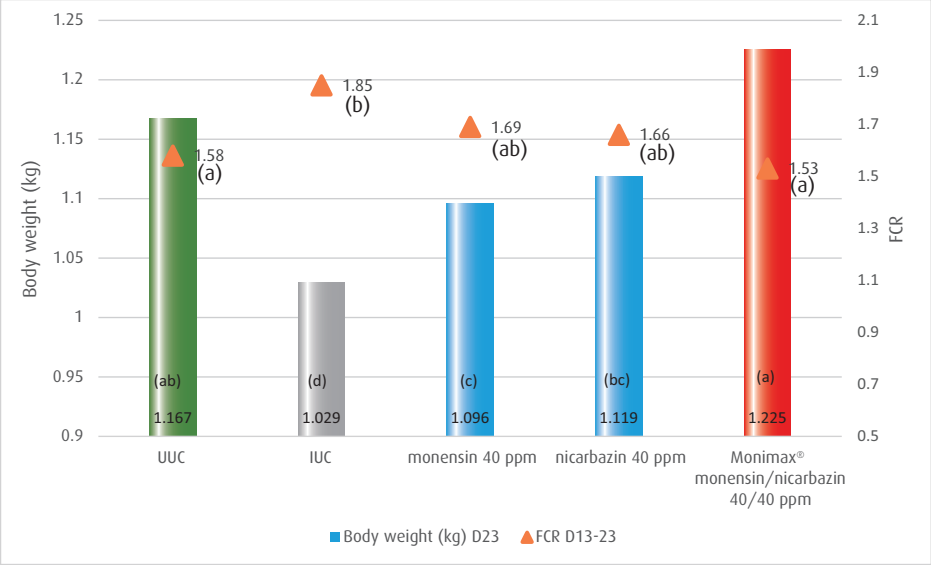


Parasitology results

Treatment	*E. acervulina*	*E. maxima*	*E. tenella*	TMLS
UUC	0.06^{a}	0.61^{ab}	0.00^{a}	0.67^{a}
IUC	1.94^{b}	1.03^{b}	1.72^{c}	4.69^{cd}
monensin 40 ppm	2.11^{b}	0.78^{b}	1.39^{c}	4.28^{c}
nicarbazin 40 ppm	2.00^{b}	0.72^{b}	0.61^{b}	3.33^{b}
nicarbazin/monensin 40/40 ppm	0.22^{a}	0.22^{a}	0.22^{ab}	0.67^{a}

Different letters indicate significant differences between treatments with p<0.05

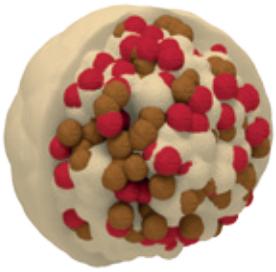
Performance results



Both parasitology and performance results demonstrate that the combination of monensin and nicarbazin is giving significantly better results than the sum of the individual results of monensin and nicarbazin.

2. SAFE SOLUTION

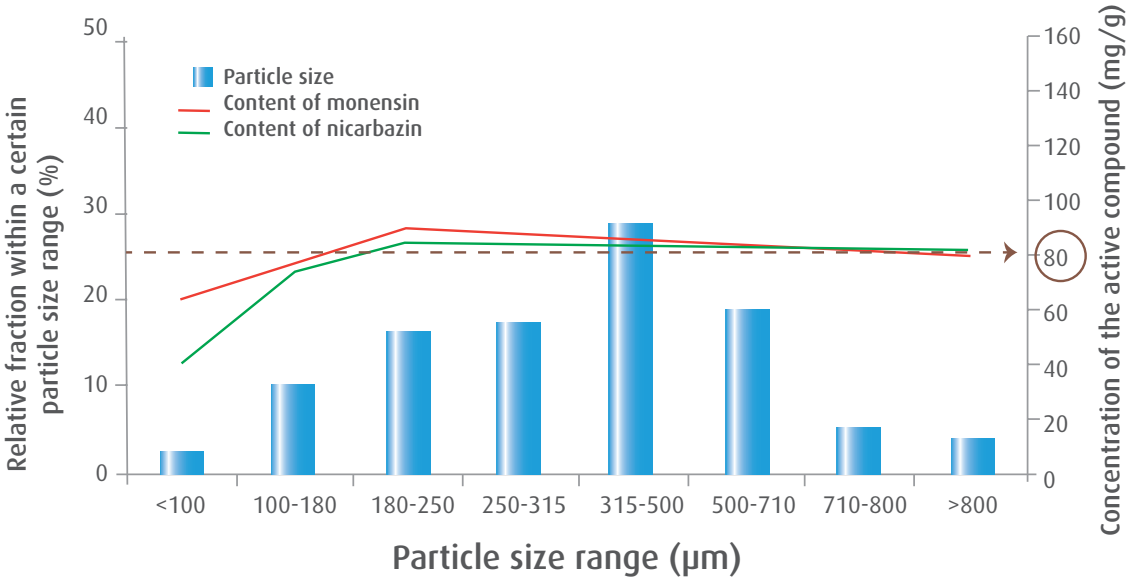
Monimax® is produced by means of microgranulation, which results in a product where the active ingredients and the carriers are inseparably combined in the granules, reduced risk for cross-contamination in the feedmills.



Visual Microgranulation

A sieving test of Monimax® demonstrates that Monimax® has an optimal granulometry and equal distribution of the active ingredients in the product. Ultimately this will result in correct mixing and dosing of the product in the feed.

Monimax® (nicarbazin-monensin)



3. INCREASED WELFARE

Monimax® increases welfare levels of the birds because of a positive effect on litter quality resulting in better foot pad scores. The positive effect on the litter is the result of improved coccidiosis control and the positive effect on litter moisture when using monensin.

In a recent field trial the level of feet with a perfect score was 32% higher (at slaughter age, 41 days) in the group receiving Monimax® compared to standard situation.

Product information

Registration number in the European Journal of feed additives: 51776

COMPOSITION

Each kilogram of Monimax® contains 80 g monensin (as monensin sodium) and 80 g of nicarbazin with calcium carbonate, wheat meal and starch as carriers.

- Appearance: brownish to green-yellowish
- Packaging: Monimax® is packed in 20 kg bags.
- Monensin is an ionophore produced by *Streptomyces cinnamonensis* in Huvepharma® fermentation production facilities in Bulgaria.
- Nicarbazin is a synthetic compound produced by chemical synthesis. Once ingested nicarbazin is rapidly split in its two components dinitrocarbanilide (DNC) and 2-hydroxy-4,6-dimethylpyrimidine (HDP).

Component	Content
Monensin (as monensin sodium)	8 g per 100 g
Nicarbazin	8 g per 100 g
Calcium carbonate, wheat meal and starch (carriers)	Up to 100 g

STORAGE AND STABILITY

Store in the original packaging, well closed, in dry and well ventilated facilities, protected from direct sunlight. Expiry date is 2 years from the date of manufacture. No influence due to pelleting is expected. The product will remain stable in the finished feedingstuff for 3 months and in a premix for a period of 6 months.

MIXING INSTRUCTIONS

To ensure thorough dispersion, Monimax® must be incorporated in a premix prior to mixing into the finished feed. Mixing and conveying equipment should be properly cleaned to prevent carry-over.

SAFETY

- The relative wall adhesion factor for Monimax® is 0.6. This factor correlates with the potential risk for carry-over during processing and is used to establish the multiplication factors taken into account to avoid carry-over.
- The margin of safety is 1.5, meaning that administration of Monimax® at 75/75 mg/kg did not result in any negative effects.
- The simultaneous use of Monimax® and certain antibiotic drugs (i.e. tiamulin) is contraindicated.
- For the complete list of contraindications and warnings, please consult your local product data sheet.

TARGET SPECIES, DOSAGE AND ADMINISTRATION

Target species	Minimum and maximum content of monensin/nicarbazin in complete feedingstuff (ppm)	Minimum and maximum quantity of Monimax® incorporated into the feedingstuff (g/ton)	Maximum age	Withdrawal time*
Chickens for fattening	40/40 – 50/50	500 – 625	-	0 days
Chickens reared for laying	40/40 – 50/50	500 – 625	16 weeks	
Turkeys for fattening	40/40 – 50/50	500 – 625	16 weeks	

**Monimax® has a 0 days withdrawal time in Europe, for other markets please check local registration*

HUVEPHARMA®

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