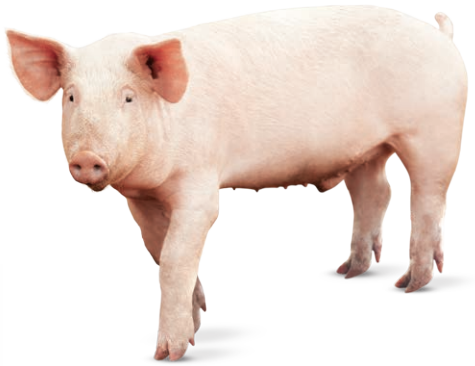
Pigfen®

40 mg fenbendazole/ g
Medicated premix for pigs



Easy deworming

HUVEPHARMA®
We add performance to your business

INTRODUCTION

Origin of the molecule

Fenbendazole is an anthelmintic belonging to the benzimidazole-carbamate group. The benzimidazoles were introduced into the animal health market primarily for the control of gastrointestinal nematodes. Their use quickly became widespread because they offered major advantages over previous medications in terms of spectrum, efficacy against immature stages and safety for the host animal. They did not cause a set-back due to drug toxicity and it was possible to demonstrate the economic advantage of strategic treatment, even under conditions of mild parasitism.

Activity

This molecule has a very broad spectrum anthelmintic activity against:

- ***Ascaris suum***: by far the most economically important nematode with a migrating larval stage
- ***Oesophagostomum dentatum***: the nodular worm associated with 'thin sow syndrome'
- ***Trichuris suis***: the whipworm residing in the colon and producing colitis in growing pigs
- ***Stephanurus dentatus***: the pig kidney worm
- ***Hyostrongylus rubidus***: the stomach worm particularly seen in outdoor kept sows
- ***Strongyloides***: rarely reported nematode, capable of passing through the milk to infest piglets
- ***Metastrongylus***: the pig lungworm requiring an earthworm as an intermediate host
- ***Trichinella spiralis***: an uncommon helminth with important zoonotic implications.

Pharmacodynamics

Fenbendazole acts by binding to beta-tubulin, thereby inhibiting the polymerisation of tubulin to microtubules and subsequently interfering with energy metabolism. The molecule is effective at killing all adult , larval stages and eggs of worm parasites.

Resistance

Resistance of pig nematodes to fenbendazole is not widespread nor viewed to be a major problem.

Indications for use

Pigs

Pigfen® medicated premix is indicated for the treatment of pigs infected with nematodes like *Ascaris suum* (adult worms, intestinal and migrating larval stages)

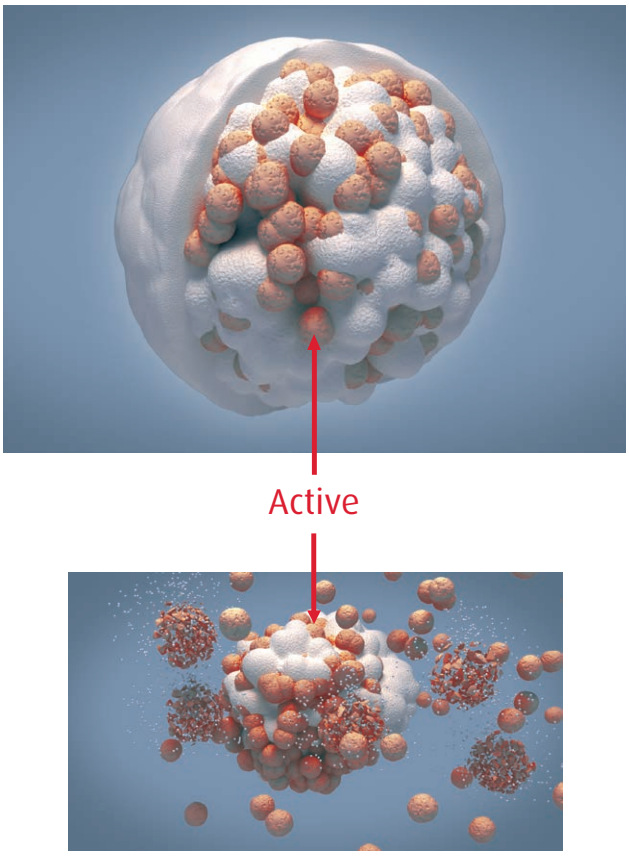
Formulation: Microgranulation

Pigfen® premix is developed by using a unique microgranulation technology. The encapsulation of the active ingredient in microgranules which are fully embedded in a matrix of starch results in:

- **The highest efficacy by improving:**

  1. Mixability and homogeneity
     - No segregation in the feed
  2. Stability
     - Protection from heat and humidity during processing, pelleting and storage
  3. Flowability
     - Convenience for feed production
  4. Bioavailability
     - Higher release of the active compound in the gut

- **More safety:** less carry-over and low dust levels



As *Ascaris suum* is the economically most important nematode in pigs, it's interesting to focus on the main cl

EGGS IN THE ENVIRONMENT

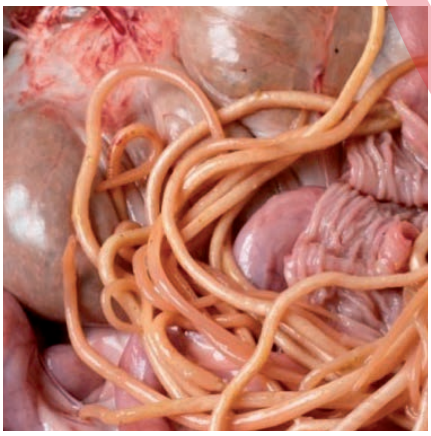
1

DAY 0

- Very high resistance
  - Sticky outer coating
  - Resistant to all kind of infections
  - Survive for 5 years
- Embryonating phase : L1 → L2 → L3
  - Intensity depends on humidity and temperature
  - Takes 14 to 40 days

SMALL INTESTINES

4



DAY 10-14

- L4 → L5 → adults : minimum 35 days after infection
- Female adults produce up to 200.000 eggs a day
- Intermittent excretion
- High infection pressure in very short time

digestive mucosa
passage in the mesenterial veins

DAY

PREPATENT PERIOD

A. SUUM

6 weeks

bronchi, trachea,
pharynx

DAY

Diagnostics

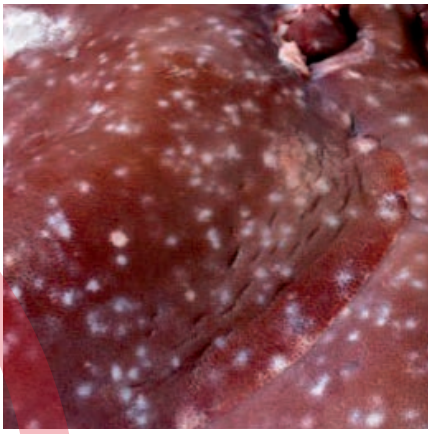
Worm infections are omnipresent but their presence is often underestimated due to their subclinical nature. Diagnosis can be based upon different diagnostic tools which should be interpreted correctly.

Diagnostic tools	Pro	Contra
White spots on the liver	Recent larval migration	Livers heal within 6 weeks Not related to the degree of infection
Eggs per gram of faeces count	Related to adult worms	Not representative
Serodiagnostic test	Reflects the total degree of infection High sensitivity and specificity	

haracteristics of the lifecycle of this roundworm.

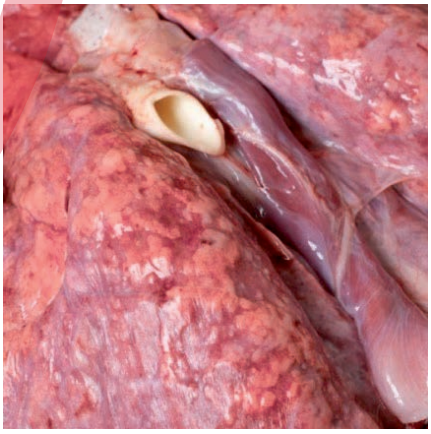
1-2

LIVER



- L3 larvae hatch the eggs in caecum and upper colon
- Migration of L3 causes hepatitis
- White spots

LUNGS

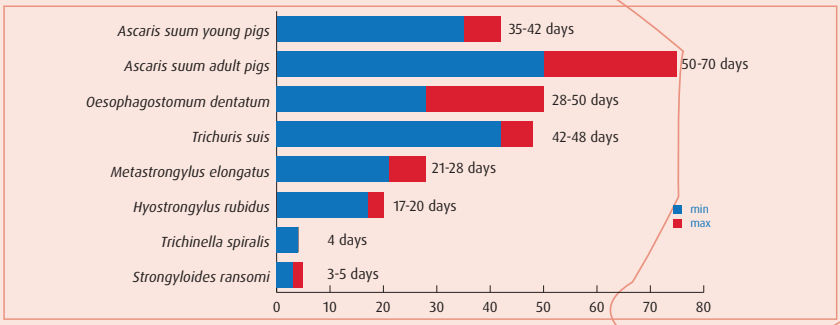


4-5

- L3 → L4
- Migration causes haemorraghia
- Triggers Porcine Respiratory Disease Complex

Prepatent period

The prepatent period (the time between infection and shedding of eggs) of *Ascaris suum* is 6 weeks.
The figure below shows the prepatent period for all porcine nematodes:



Piafen®

Contra-indications
Do not use in known cases of hyper-sensitivity to the active substance, other benzimidazoles or any of the excipients.

Special warnings for each target species
Care should be taken to avoid the following practices because they increase the risk of resistance development and could ultimately result in ineffective therapy:

- Too frequent and repeated use of anthelmintics from the same class over an extended period of time.
- Under dosing, which may be due to underestimation of body weight, misadministration of the product, or lack of calibration of the dosing device.

Suspected clinical cases of resistance to anthelmintics should be further investigated using appropriate tests (e.g. Faecal Egg Count Reduction Test). Where the results of the test(s) strongly suggest resistance to a particular anthelmintic, an anthelmintic belonging to another pharmacological class and having a different mode of action should be used. Inappetent animals should be treated individually.

Special precautions for use in animals
None

Special precautions to be taken by the person administering the medicinal products to animals
This product may cause eye irritation and skin sensitisation. Avoid contact with skin and/or eyes. When handling or mixing, care should be taken to avoid direct contact with the skin and eyes, and inhalation of dust, by wearing goggles, impervious gloves and a disposable half-mask respirator conforming to European Standard EN149 or a non-disposable respirator to European Standard EN 140 with a filter to EN 143. Wash hands after use. In case of skin and/or eye contact, immediately rinse with plenty of water. Do not eat or smoke during handling the premix or the medicated feed.

Special precautions for the disposal of unused veterinary medicinal product or waste materials derived from the use of such products, if appropriate
Any unused veterinary medicinal product or waste materials derived from this veterinary medicinal product should be disposed of in accordance with local requirements.The product should not enter water courses as this may be dangerous for aquatic organisms.

Adverse reactions (frequency and seriousness)
None known

Use during pregnancy and lactation
The product can be safely administered to pregnant animals. The safety of the veterinary medicinal product has not been established during lactation. Use only according to the benefit-risk assessment by the responsible veterinarian.

Interaction with other medicinal products and other forms of interaction
Exacerbation of paracetamol hepatotoxicity by fenbendazole cannot be excluded.

Incompatibilities
In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products.

DEWORMING STRATEGY

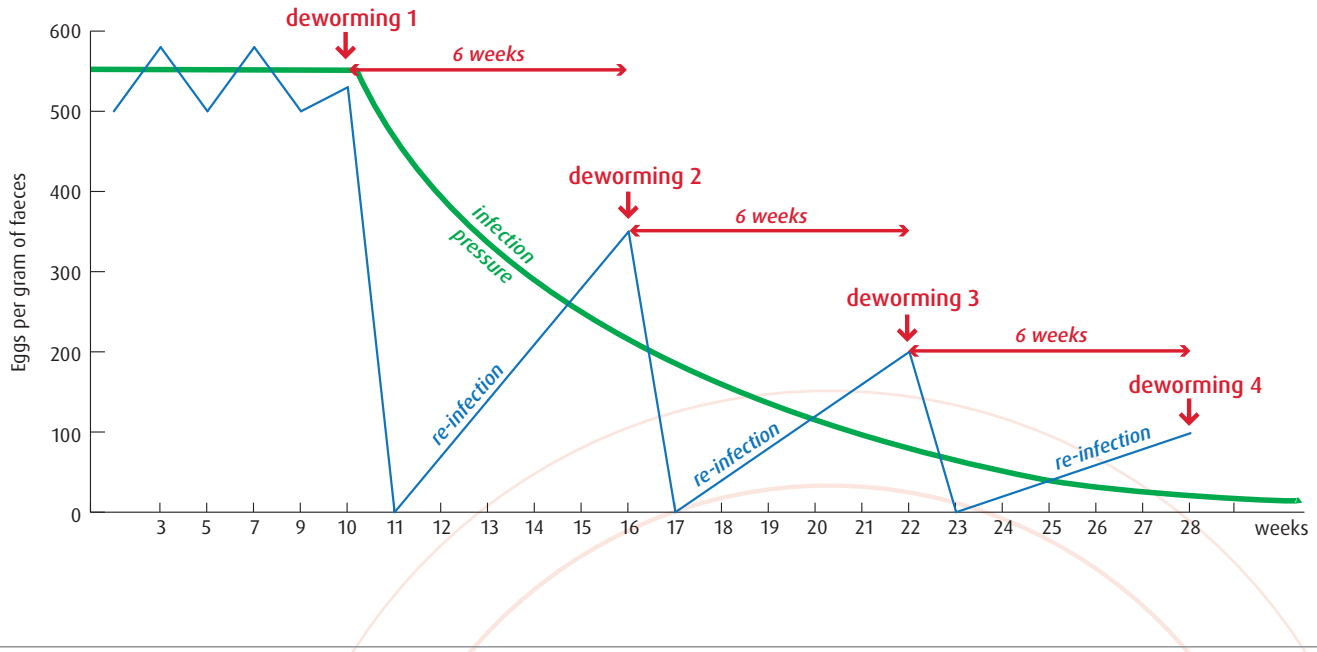
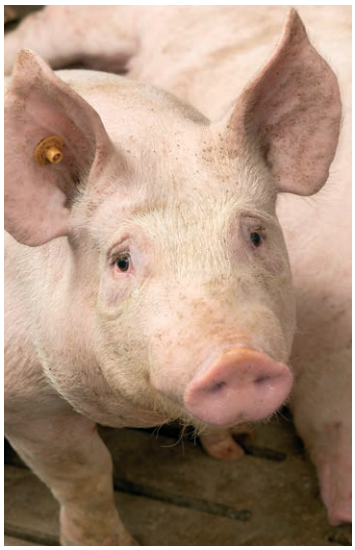


Fig.: Deworming strategy for fatteners

Deworming strategy: every 6 weeks

1. Improves pig performance significantly
2. High return on investment
3. Based on prepatent period of *Ascaris suum*
4. Several consecutive treatments are needed



Economical benefits of a deworming strategy:

1. Improved technical performances

▪ Feed conversion rate	5 % ↙	**3.6 €**
▪ Average daily weight gain	5 % ↗	**2.1 €**
▪ Mortality and dropouts	25 % ↙	**1.6 €**
▪ Better classification of carcasses	3 % ↗	**0.1 €**

2. Less condemnation of livers

▪ Cost of rejected liver	**1.5 €**

3. Reduction of medication cost **0.4 €**

- Respiratory and intestinal infections ↙
- Immune response ↗
- Efficacy of vaccinations ↗

Resulting in > 9 € income gain / fattener

> 9 €

Pigfen® 40 mg/ g medicated premix

Product specifications

- 1 gram corresponds to 40 mg fenbendazole
- Microgranulated formulation
- Off-white to light yellow granules

Dosing

- In feed use
- Total dose: 5 mg fenbendazole/ kg bodyweight (BW) can be administered over 1, 7 or 14 days

Treatment options	mg fenbendazole/ kg BW/ day
1 day	5 mg
Over 7 days	0.72 mg
Over 14 days	0.36 mg

- Practical dosing

		Gram Pigfen®/ tonne of feed	
		7 days treatment	14 days treatment
Fatteners	40 kg BW	0.5 kg	250 g
Sows	Lactation	1 kg	500 g
	Gestation	1.5 kg	750 g

- Flexible dosing per tonne of feed possible at 5 mg/ kg BW

Withdrawal period

Meat and offal: **4 days**

Shelf life and storage

Shelf life

- Of the veterinary medicinal product as packaged for sale: 3 years.
- After first opening the immediate packaging: 3 months.
- After incorporation into meal or pelleted feed: 3 months.

Pelleting temperature up to 85°C.
No special storage conditions required.

Overdose

Pigfen® administered as a single 25 mg fenbendazole/ kg dose for 3 consecutive days did not produce any clinically apparent adverse reactions in pigs.

Packaging

Multiple-layer paper bag with internal aluminium/ polyethylene layer of 20 kg. Polyethylene/ aluminium foil/ polyethylene terephthalate zipper bag of 1, 2 and 5 kg. Not all pack sizes may be marketed.

Deworming strategy

- Fatteners: **Every 6 weeks** from 10 weeks of age onwards
- Sows: Every 3 months
- Gilts: On arrival and repeat treatments every 6 weeks

**Used references can be obtained upon demand.*
**Pigfen® medicated premix brochure follows the authorized EU SPC (available on request).*
**Indications listed above are not necessarily authorized in all countries.*
**Please consult the local label for exact indications and posology.*
**Use medicines responsibly.*
**POM-V*
**VM 30282/4027*

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