SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

EQVALAN DUO, oral paste

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each g contains:

Active substances:
Ivermectin .....15.5 mg
Praziquantel .....77.5 mg

Excipients:
Titanium dioxide (E171): .....20 mg
Sunset Yellow (E110): .....0.40 mg
Butylhydroxyanisole (E320):.....0.20 mg

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Oral paste.
Smooth, homogeneous orange paste.

4. CLINICAL PARTICULARS

4.1 Target species

Horses.

4.2 Indications for use, specifying the target species

For the treatment of mixed cestode and nematode or arthropod infestations in horses. The following parasites of horses are sensitive to the antiparasitic effects of the product:

Adult Tapeworms:
Anoplocephala perfoliata
Anoplocephala magna

Large strongyles:
Strongylus vulgaris (adults and arterial larval stages)
Strongylus edentatus (adults and tissue larval stages)
Strongylus equinus (adults)
Triodontophorus spp (adults)
Triodontophorus brevicauda

Triodontophorus serratus
Craterostomum acuticaudatum (adults)

Adult and immature (intraluminal fourth-stage larvae) of small strongyles or cyathostomes, including benzimidazole-resistant strains:

Coronocyclus spp
Coronocyclus coronatus
Coronocyclus labiatus
Coronocyclus labratus
Cyathostomum spp
Cyathostomum catinatum
Cyathostomum pateratum
Cylicocyclus spp
Cylicocyclus ashworthi
Cylicocyclus elongatus
Cylicocyclus insigne
Cylicocyclus leptostomum
Cylicocyclus nassatus
Cylicodontophorus spp
Cylicodontophorus bicornatus
Cylicostephanus spp
Cylicostephanus calicatus
Cylicostephanus goldi
Cylicostephanus longibursatus
Cylicostephanus minutus
Parapoteriostomum spp
Parapoteriostomum mettami
Petrovinema spp
Petrovinema poculatum
Poteriostomum spp

Adult hairworms: *Trichostrongylus axei*
Adult and immature (fourth stage Larvae) pinworms: *Oxyuris equi*
Adult, third- and fourth-stage larvae of roundworms (ascarids): *Parascaris equorum*
Microfilariae of neck threadworms: *Onchocerca* spp
Adult intestinal threadworms: *Strongyloides westeri*
Adult large-mouth stomach worms: *Habronema muscae*
Oral and, gastric stages of bots: *Gasterophilus* spp
Adult and immature (inhibited fourth stage larvae) lungworms: *Dictyocaulus arnfieldi*

4.3 Contraindications

Do not use in mares producing milk for human consumption.
The product has been formulated for use in horses only. Cats, Dogs, especially Collies, Old English Sheepdogs and related breeds or crosses, and also turtles and tortoises may be adversely affected by the concentration of ivermectin in this product if they are allowed to ingest spilled paste or have access to used syringes

4.4 Special warnings for each target species

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

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

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.

Resistance to macrocyclic lactones (which includes ivermectin) has been reported in *Parascaris equorum* in horses in the EU. Therefore the use of this product should be based on local (regional, farm) epidemiological information about susceptibility of gastro-intestinal nematodes and recommendations on how to limit further selection for resistance to anthelmintics.

4.5 Special precautions for use

Special precautions for use in animals

Safety studies were not conducted in foals younger than 2 months of age, or in stallions, the use of the product, is not recommended in these categories of animals.

Special precautions to be taken by the person administering the veterinary medicinal product to animals

Wash hands after use.
Do not smoke, drink or eat while handling the product.

This product may cause skin and eye irritation. Therefore, the user should avoid contact of the product with the skin and the eyes. In case of contact, rinse immediately with plenty of water.

In case of accidental ingestion or eye irritation after contact seek medical advice immediately and show the package leaflet or the label to the physician.

4.6 Adverse reactions (frequency and seriousness)

Some horses with heavy infections of *Onchocerca* spp. microfilariae have experienced oedema and pruritis following treatment; such reactions were assumed to be the result of the death of large numbers of microfilariae. These signs resolve within a few days but symptomatic treatment may be advisable.

Following administration of the product, there have been rare reports of inflammation of the mouth, lip and tongue, which results in various clinical signs such as oedema, hypersalivation, erythema, tongue disorder and stomatitis. These reactions have been transitory in nature, appearing within 1 hour and abating within 24 to 48 hours

following administration. In case of severe oral reactions symptomatic treatment is recommended.

Digestive discomfort (colic, loose stool) has been observed in very rare cases based on post-marketing surveillance data.
The frequency of adverse reactions is defined using the following convention:

- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports).

4.7 Use during pregnancy, lactation or lay

Studies performed in laboratory animals showed no teratogenic or embryotoxic effect of either ivermectin or praziquantel at the recommended doses during therapy.

Ivermectin-Praziquantel combination can be used after the first three months of gestation and during lactation. In the absence of clinical data in early pregnancy the product can only be used in the first three months of gestation according to a risk benefit analysis by the veterinarian.

4.8 Interaction with other medicinal products and other forms of interaction

No data available.

4.9 Amounts to be administered and administration route

The recommended dosage is 200 mcg ivermectin per kilogram of bodyweight and 1mg praziquantel per kilogram of bodyweight corresponding to 1.29 g of paste per 100 kg bodyweight in a single administration.
Bodyweight and dosage should be accurately determined prior to treatment. For syringes intended to treat horses up to 600 kg and 1100 kg, calibrated markings are provided at 100 kg bodyweight intervals. For the syringe intended to treat horses up to 750 kg, calibrated markings are provided at 125 kg bodyweight intervals. The syringe should be adjusted to the calculated dosage by setting the ring on the appropriate place on the plunger.

Directions for use
The product is for oral administration only. While holding the plunger, turn the knurled ring on the plunger ¼ turn to the left and slide it so the stop ring is at the prescribed weight marking. Lock the ring in place by turning it ¼ turn to the right in order to bring the two arrows, the one visible on the ring and the one on the plunger rod, into alignment.
Make sure the horse’s mouth contains no feed. Remove the cover from the tip of the syringe. Insert the syringe tip into the horse’s mouth at the interdental space and deposit the paste on the base of the tongue. Immediately raise the horse’s head for a few seconds after dosing and ensure that the paste is consumed.

Parasite control Program
Veterinary advice should be given on appropriate dosing programs and stock management to achieve adequate parasite control for both tapeworm and roundworm infestations.

4.10 Overdose (symptoms, emergency procedures, antidotes), if necessary

No undesirable effects related to treatment were observed in 2 months old horses treated with the product at up to three times the recommended dose and in adult horses treated at ten times the recommended dose.

Transient decreased food consumption, increased body temperature, salivation and impairment of vision were noticed in horses treated twice with an ivermectin oral paste or once with the productat ten times the recommended dose (i.e., 2 mg/kg b.w.). All changes disappeared within five days.

No antidote has been identified; however, symptomatic therapy may be beneficial.

4.11 Withdrawal period(s)

Meat and offal: 30 days.
Do not use in mares producing milk for human consumption.

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: Anthelmintics
ATCvet code: QP54AA51 ivermectin, combinations.

The product is an endectocide containing an association of an anthelmintic active ingredient, ivermectin, and a cestocide active ingredient, praziquantel.

5.1 Pharmacodynamic properties

Ivermectin is a member of the macrocyclic lactone class of endectocides. Compounds of the class bind selectively and with high affinity to glutamate-gated chloride ion channels which occur in invertebrate nerve and muscle cells. This leads to an increase in the permeability of the cell membrane to chloride ions with hyperpolarization of the nerve or muscle cell, which results in paralysis and death of the parasite. Compounds of this class may also interact with other ligand-gated chloride channels, such as those gated by the neurotransmitter gamma-aminobutyric acid (GABA).

The margin of safety for compounds of this class is attributable to the fact that mammals do not have glutamate-gated chloride channels, the macrocyclic lactones have a low affinity for other mammalian ligand-gated chloride channels, and macrocyclic lactones do not readily cross the blood-brain barrier.

Praziquantel is a synthetic isoquinoline-pyrazine derivative with activity against several trematode and cestode parasites. *In vitro* and *in vivo* studies have found that trematodes and cestodes rapidly take up praziquantel within minutes; praziquantel causes tetanic contraction of the parasites' musculature and a rapid vacuolisation of their tegument. The net effect is that the parasite detaches from the host. Praziquantel affects membrane permeability in trematodes and cestodes, and influences divalent cation fluxes, particularly calcium ion homeostasis, which is thought to contribute to the rapid muscle contraction and vacuolisation. The margin of safety for the praziquantel is due to its rapid metabolism and excretion as well as its selective effect on susceptible parasites.

5.2 Pharmacokinetic particulars

After oral administration to horses of the recommended dose of the product, praziquantel is rapidly absorbed and excreted, whereas ivermectin is more slowly absorbed and persists during a longer period in the body. Praziquantel maximum plasma concentrations (of the order of 1 µg/ml) are reached rapidly (approximately in the hour following treatment). The praziquantel plasma residue depletes rapidly to non-quantifiable levels by 7.5 hours post dose. Praziquantel is excreted as metabolites in the urine and faeces and the total amount excreted accounts for 31% and 24%, respectively of the administered dose within 24 hours.

Ivermectin maximum plasma concentrations (C_{max}: 37.9 ng/ml) are reached in a longer period (t_{max}: approximately 9 hours after treatment) and levels fell to nondetectable / no quantifiable values on or before 28 days after administration. Faecal excretion is the major pathway of ivermectin elimination in all species studied. No pharmacological interference between ivermectin and praziquantel was noted.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Sunset yellow FCF (E110)
Titanium oxide (E171),
Butylhydroxyanisole (E320)
Hydroxypropylcellulose
Hydrogenated castor oil
Glycerol formal

6.2 Major incompatibilities

Not applicable.

6.3 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 3 years
Shelf life after first opening the immediate packaging: 2 years

6.4 Special precautions for storage

Store in the original container.
Replace the cap after use.

6.5 Nature and composition of immediate packaging

Immediate package
The product is available in syringes containing 7.74 g, 9.68 g or 14.19 g of paste:

For syringe intended for the treatment of horses up to 600 kg, containing 7.74 g of paste: White polypropylene syringes barrel with a white LDPE cap, a rubber rod tip and a white polypropylene plunger rod, with dose divisions calibrated by body weight with an orange polypropylene stop ring.

For syringes intended for the treatment of horses up to 750 kg and 1100 kg, containing 9.68 g or 14.19 g of paste respectively: White polypropylene syringes barrel with a orange rubber cap, a rubber rod tip and a white polypropylene plunger rod, with dose divisions calibrated by body weight with an orange polypropylene stop ring.

Outer package and sales presentations

Each syringe is sealed in a transparent polypropylene bag.

Carton box of 1 syringe for oral administration of 7.74g
Carton box of 1 syringe for oral administration of 9.68g
Carton box of 1 syringe for oral administration of 14.19g
Carton box of 50 syringes for oral administration of 7.74g
Carton box of 50 syringes for oral administration of 9.68g
Carton box of 50 syringes for oral administration of 14.19g

Not all pack sizes may be marketed.

6.6 Special precautions for the disposal of unused veterinary medicinal product or waste materials derived from the use of such products

EXTREMELY DANGEROUS FOR FISH AND AQUATIC LIFE. Do not contaminate surface waters or ditches with product or used syringes. Any unused product or waste material should be disposed of in accordance with national requirements.

7. MARKETING AUTHORISATION HOLDER

Boehringer Ingelheim Animal Health UK Ltd
Ellesfield Avenue
Bracknell
Berkshire
RG12 8YS
United Kingdom

8. MARKETING AUTHORISATION NUMBER

Vm 08327/3003

9. DATE OF FIRST AUTHORISATION

05 September 2003

10. DATE OF REVISION OF THE TEXT

April 2022

Approved 14 April 2022