SEVEN publicações acadêmicas
EM PARCERIA COM: IEMS UNIASSELVI

Immunization and deworming of cattle, horses, canines and domestic felines

Simone Tateishi[1], Werner Peter Marcon[2].

ABSTRACT
This expanded abstract addresses the importance of health management in Veterinary Medicine, emphasizing vaccine prophylaxis and deworming in horses, cattle, dogs and cats. Health management aims to prevent diseases such as Equine Influenza, Encephalomyelitis, Tetanus, Rhinopneumonitis, Rabies and Leptospirosis, which are relevant to public health and the efficiency of treatments.

Keywords: Health management, Vaccination, Vermifugation.

INTRODUCTION

The objective of this expanded summary is the importance of sanitary management regarding vaccine prophylaxis and deworming in Veterinary Medicine, with regard to the production of horses and cattle, and in the interaction with companion animals, such as dogs and cats.

MATERIALS AND METHODS

For the elaboration of this expanded abstract, notes were taken in the classroom and practical classes held during the second and fifth semester of the Veterinary Medicine course at Faculdade Gennari e Peartree (FGP), located in the city of Pederneira, in the interior of the State of São Paulo.

DEVELOPMENT

SANITARY MANAGEMENT IN HORSES

The importance of sanitary management in horses is due to the fact that it seeks to combat diseases such as Equine Influenza, Equine Encephalomyelitis (East and West); Equine Tetanus; Equine Rhinopneumonitis (EHV-1 and EHV-4); in addition to Rabies and Leptospirosis, which are two zoonotic diseases, that is, they can be transmitted from animals to humans, causing a burden on the public treasury when the search for treatment is in units managed by the Unified Health System (SUS).

For the equine vaccination schedule, it is recommended that foals be vaccinated from three months of age, and involves vaccines against Tetanus, Raiva, Influenza and Eastern and Western Encephalomyelitis which, in foals, are applied to the 1st dose at weaning and the 2nd dose 30 days after

[1] Gennari and Peartree College – São Paulo
[2] Gennari and Peartree College – São Paulo

the 1st dose. In adult animals it is a single annual dose and, in pregnant mares, vaccination is indicated in the final third of gestation, from the 10th month onwards.

Against Rhinopneumonitis (EHV-1 and EHV-4), vaccination in foals should be done with the 1st dose at weaning and the 2nd dose should be applied 30 days after the 1st dose. In adult animals, vaccination is semiannual, and a single dose should be applied every 6 months and, in pregnant mares, the vaccine should be applied in the 5th, 7th and 9th month of gestation. In addition to the Leptospirosis vaccine, applied at 4 months and 30 after the 1st dose for foals, then a semiannual booster, both for adult animals and pregnant mares.

For better visualization, take a look at the table below:

SICKNESS	**VACCINATION PROTOCOL**	
	FOALS (from two 3 months)	**ADULTS**
Tetanus Rabies Equine Influenza Encephalomyelitis East and West	1st dose at weaning; 2nd dose 30 days after the 1st dose	**Adults:** Single annual dose; **Pregnant mares:** Final third of gestation, from the 10th month onwards
Leptospirosis	1st dose at 4 months; 2nd dose 30 days after the 1st dose Semi-annual after 1st and 2nd doses	Semiannual
Rinopneumonite (EHV-1 e EHV-4)	1st dose at weaning; 2nd dose within 30 days after 1st dose	**Adults:** 1 dose every 6 months; **Pregnant mares:** 5th, 7th and 9th month of gestation

Source: Self-creation – class notes

On the other hand, the deworming scheme in horses is conditioned to the mode of rearing, feed provided and risk of environmental contamination. For animals raised in confinement, fed with feed, hay and mineral supplementation, with low risk of environmental contamination, the frequency is quarterly, as a preventive measure.

For animals raised in a mixed system of stable and stall, feed with feed, fresh cut grass and mineral supplementation, with medium risk of environmental contamination, the frequency is quarterly, as a preventive measure. For animals raised on pasture, feeding on the pasture and receiving mineral supplementation, with a high risk of environmental contamination, deworming is bimonthly, as a preventive measure.

For better visualization, take a look at the table below:

CRAFTING SYSTEM	**FEEDING**	**ENVIRONMENTAL RISK**	**FREQUENCY**	**STATUS**
Confinement	Ration Hay Mineral supplementation	Low	Quarterly	Preventive
Mixed system	Ration Fresh sliced capim	Medium	Quarterly	Preventive

	Mineral supplementation			
Pasture	Pasture Mineral supplementation	High	Bimonthly	Preventive

Source: Self-creation – class notes

SANITARY MANAGEMENT IN CATTLE

Regarding the sanitary management of cattle, the main importance is the fight against diseases such as Brucellosis; Clostridiosis; Leptospirosis; IBR; BVD; BRSV; and Rabies, many of them also zoonotic. We can also mention Foot-and-Mouth Disease, however, according to Ordinance no. 665, of March 21, 2024, the Ministry of Agriculture and Livestock (MAPA) nationally recognizes the State of São Paulo as a zone free of the disease without vaccination.

Vaccination against Brucellosis, Clostridiosis, Leptospirosis, IBR, BVD, BRSV and Rabies in adult animals occurs annually. In calves, the vaccination protocol begins at 3 months of age, and vaccination against Brucellosis from 3 to 8 months of age, between the months of May and November; against Clostridiosis occurs at 3 months of age, between the months of May and November; against Leptospirosis, occurs at 3 months, in the months of January, May, August and December; against IBR, BVD, BRSV, vaccination occurs at 3 months, from January to July; and against rabies, vaccination takes place at 3 months, from January to July.

For better visualization, take a look at the table below:

SICKNESS	**VACCINATION PROTOCOL**	
	CALVES	**ADULTS**
Brucelose	1 dose between 3 and 8 months of age; **PERIOD:** May to November	Single Annual Dose
Clostridiosis	1 dose at 3 months of age; **PERIOD:** May to November	Single Annual Dose
Leptospirosis	1 dose at 3 months of age; **PERIOD:** May to November	Single Annual Dose
IBR, BVD, BRSV	1 dose at 3 months of age; **PERIOD:** January to July	Single Annual Dose
Anger	1 dose at 3 months of age; **PERIOD:** January to July	Single Annual Dose
Colibacilose Pasteurelose Salmonelosis Bovine coronavirus Rotavirus	From 14 days of age	Pregnant females in the final third of gestation
Keratoconjunctivitis	1 time a year, only when there is an outbreak	

Source: Self-creation – class notes

The deworming protocol for cattle should be carried out at the right times in each region, and should be started in calves from 2 to 3 months of age until weaning, occurring every 60 or 90 days, with

the most appropriate period between the second half of April and the end of the first half of May. due to vaccination against FMD in states that are not free of the disease.

The second deworming should take place in the first week of July, the third in the second half of August or September; and the fourth deworming is expected to take place in the first half of December. However, it is worth mentioning that, with the passage of time, due to the good management and sanitary control of the pastures, the fourth deworming may no longer be performed, in order to avoid parasite resistance. It is also important to emphasize that the change of active ingredients should not be carried out without the indication of the Veterinarian and the dosage indicated by the professional must be respected.

For good control of worms, in order to suppress the fourth deworming, the property must follow some basic recommendations such as: provide clean water free of contaminants to the animals, the drinkers and troughs must be cleaned and disinfected frequently, the waste from the corral must not be destined to the calf paddocks.

SANITARY MANAGEMENT OF FELINES

It is important to emphasize that the sanitary management presented here is about domestic felines. The main diseases that affect domestic felines, due to lack of vaccination, are Feline Panleukopenia, Feline Rhinotracheitis, Feline Calicivirus, Feline Chlamydiosis, Feline Leukemia, Feline Immunodeficiency and Rabies.

The vaccination protocol for immunization of domestic felines should be individualized, taking into account factors such as: the animal's life stage, domestication and environmental risks to which they are exposed; the lifestyle being more solitary or communal; whether the animals are kept *indoor* or *outdoor*; frequency of trips by the owners and stays, whether the felines will be staying in hotels or daycare centers; and the risks and benefits of immunization in oneself.

With the above, for better visualization, observe the table below:

SICKNESS	**VACCINATION PROTOCOL**	
	PUPPIES (from 45 days)	**ADULTS**
Panleucopenia Felina Feline Rhinotracheite Feline Calicivirose Clamidiose Felina	V-4 VACCINE 3 doses, with intervals from 21 to 28 days; 4th dose at 6 months of age (confirmatory booster).	**Indoor adults:** Individualized protocol; **Adults outdoor:** Annual dose; **Wandering adults:** Reinforcement; **Pregnant females:** Consult a veterinarian due to the condition of the pregnant female
Leucemia Felina Feline Immunodeficiency	Felines are protected against these diseases if the V-5 vaccine is applied, in the same schedule as V-4, but it can only be administered if they test serologically negative for them	
Anger	Between 4 and 6 months of age	Annual

Source: Self-creation – class notes

The deworming scheme in felines is conditioned to the mode of rearing, feeding provided and risk of environmental contamination, considering the particularities of predation habits, feces and licking habits of felines, and zoonotic pathologies. Due to the fact that many domestic felines are raised *indoors*, without contact with stray animals, or *outdoors*, with contact with stray animals, the deworming protocol must be individualized and personalized, and deworming must be administered in case of infestation by:

- Nematodes, such as *Ancylostoma* spp, which can cause anemia, emesis, weight loss, etc., and *Toxacara cati*, which can cause cachexia, apathy, emesis, diarrhea, bloating, etc.;
- Cestodes, such as *Dipylidium caninum*, which can cause inflammation in the intestinal mucosa, diarrhea, colic, changes in appetite and weight loss;
- Fleas, which can cause Flea Allergy Disease (PAD);
- Trematodes, such as *Platynosomum fastosum*, which can cause inappetence, anorexia, emaciation, hepatomegaly, emesis, etc., due to accidental ingestion of contaminated geckos; and
- Protozoan *Giardia duodenalis* and *Giardia cati*, which can cause enteritis, abdominal pain, diarrhea, etc.

The route of administration of dewormers can be oral, topical or transdermal. If the route of choice is oral, the presentation of dewormers can be in tablets, in suspension, in paste or even in biscuits, depending on the difficulty of handling the animals by the tutors, since some domestic felines have a withdrawn or feral behavior when manipulated for drug administration.

Although the ideal for domestic felines is a personalized and individualized deworming protocol, many dewormer manufacturers recommend, for kittens, the administration in three doses, the first at fifteen days of age, the second at thirty days, and the third at sixty days, with an interval of about seven days after the start of the vaccination protocol. For animals over twelve months of age, the manufacturers' recommendation is that deworming should occur every six months or annually, considering the risk of exposure of the felines, their habits and whether they are domesticated *indoors* or *outdoors*. However, it is necessary to make owners aware that deworming acts curatively, and not preventively, in order not to cause parasitic resistance if infestation occurs.

SANITARY MANAGEMENT OF CANINES

It is important to emphasize that the sanitary management presented here is about domestic canines. The main diseases that affect domestic dogs, due to lack of vaccination, are Distemper, Parvovirus, Coronavirus, Canine Infectious Hepatitis, Adenovirus, Canine Parainfluenza, Canine Leptospirosis, Kennel Cough, Giardiasis and also Rabies.

The vaccination protocol for immunization of domestic canines is more standardized than that of domestic felines, given that the incidence of dogs with access to the street without less in canines than in felines, however, must also be individualized when taking into account factors such as: the animal's life stage, domestication and environmental risks to which they are exposed; the lifestyle being more solitary or communal (kennels, shelters and stray animals); frequency of trips of the owners and stays, whether the dogs will be staying in hotels or daycare centers; and the risks and benefits of immunization itself

For a better observation of the basic protocol, we have put together the table below:

SICKNESS	**VACCINATION PROTOCOL**	
	PUPPIES (from 45 days)	**ADULTS**
Cynomose Parvovirus Coronavirose Canine Hepatitis Infecciosa Adenovirose Canine parainfluenza Leptospirose canina	V-10 3 doses, with intervals from 21 to 28 days; 4th dose at 6 months of age (confirmatory booster if there has been a break between 3 doses).	**Adults:** Annual dose; **Wandering adults:** Reinforcement; **Pregnant females:** Consult a veterinarian due to the condition of the pregnant female
Anger	Between 4 and 6 months of age	Annual
Bordetella canis	2nd doses, with intervals of 21 to 28 days, and the doses may be concomitant with 1 of the V-10 doses and the anti-rabies dose	**Adults:** Annual dose; **Wandering adults:** Reinforcement; **Pregnant females:** Consult a veterinarian due to the condition of the pregnant female
Giardia		

Source: Self-creation – class notes

The deworming scheme in canines, as well as the scheme in felines, is conditioned to the mode of breeding, food provided and risk of environmental contamination, considering the particularities of the olfaction habits of the adanal gland among dogs, and zoonotic pathologies. Due to the fact that many dogs have the habit of walking outdoors with their owners, going to *pet stores* with some frequency and socializing in training schools and daycare centers/hotels for dogs, the deworming protocol must be individualized and personalized, and deworming should be administered in case of infestation by intestinal worms (cestodes and nematodes, transmissible to humans), lungworms, heartworms (*Dirofilaria immitis*), eyeworms (*Thelazia*). It is extremely important that tutors be aware of clinical signs such as: diarrhea, fever, cough, decreased appetite or total inappetence, changes in the texture, odor and color of the stool, emesis, weakness and even the presence of worms in the stool or vomit, which indicates a more advanced stage of infestation.

FINAL CONSIDERATIONS

Due to the fact of living with farm animals and companion animals, whose human-animal relationship is increasingly close, such as dogs and cats being often called "sons" and "daughters", it is

important that owners and rural workers with frequent contact with production animals keep the health of animals under attention. In the same way as pet owners.

REFERENCES

Silva, T. A. C. (2022). Interação parasito-hospedeiro. In: V Curso de Parasitologia voltado à Saúde Pública. São Paulo: Instituto Adolfo Lutz Laboratório Central.

Tateishi, S. (2024, March 16). Manejo sanitário de equinos. Anotações de palestra na disciplina Projeto Integrador V, palestrante Médico Veterinário Dr. Eric Rosa dos Santos. Pederneiras: Faculdade Gennari & Peartree.

Tateishi, S. (2024, April 20). Manejo sanitário de bovinos. Anotações de palestra na disciplina Projeto Integrador V, palestrante Médico Veterinário Esp. Ruberval Doniteze da Silva. Pederneiras: Faculdade Gennari & Peartree.

Tateishi, S. (2024, May 4). Medicina Felina: Imunização e vermifugação. Anotações de palestra na disciplina Projeto Integrador V, palestrante Médica Veterinária Esp. Adriana Cristina Januário. Pederneiras: Faculdade Gennari & Peartree.