WHAT IS CLAIMED IS:

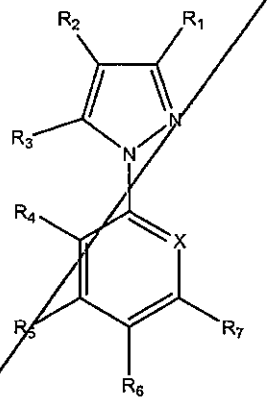
1. A topical veterinary composition for treating or preventing a parasitic infection or infestation in an animal comprising:

(a) a combination of at least one 1-arylpyrazole active agent, at least one macrocyclic lactone active agent, at least one insect growth regulator active agent, and at least one anthelmintic active agent;

(b) a pharmaceutically acceptable carrier; and

(c) optionally a crystallization inhibitor.

2. The topical veterinary composition of claim 1, wherein the 1-arylpyrazole active agent has the formula (I)



wherein:

R_1 is hydrogen, cyano, nitro, halogen, R_3, R_8, formyl, $-C(O)R_8$, $-C(O)OR_8$, $-C(O)NR_9R_{10}$, $-C(=NOH)NH_2$, $-C(=NNH_2)R_9$, or $-C(S)NH_2$;

R_2 is R_8, halogen, cyano, nitro, -SCN, 4-5-dicyanoimidazol-2-yl, or $-S(O)_mR_{11}$;

R_3 is hydrogen, halogen, alkyl, haloalkyl, OH, OR_8, $S(O)_mR_{11}$, $-C(O)R_8$, $-C(O)OR_8$, NR_9R_{10}, $-N=C(R_9)(R_{14})$, $-N=C(R_{10})-Z-(R_9)$, $-N=C(R_{10})-NR_9R_{10}$, $-N(R_8)-C(R_{10})=NR_9$, $-N(R_{11})C(O)CR_{15}R_{10}R_{11}$, $-N(R_{11})C(O)$aryl, $-N(R_{11})C(O)$heteroaryl or $-N(R_{11})C(O)OR_{10}$;

R_4, R_5 and R_7 are independently hydrogen, halogen, alkyl, haloalkyl, cyano or nitro;

R_6 is halogen, alkyl, haloalkyl, alkoxy, haloalkyloxy, cyano, nitro, $-C(O)R_{12}$, $-S(O)_nR_{12}$ or SF_5;

X is a nitrogen atom or C-R_{13};

Z is O, $S(O)_m$ or NR_9

R_8 is alkyl or haloalkyl;

R_9 is hydrogen, alkyl, haloalkyl or alkoxy;

R_{10} is hydrogen, alkyl, haloalkyl, alkoxy, or $-C(O)R_8$;

R_{11} is alkyl, haloalkyl, alkenyl, haloalkenyl, alkynyl, haloalkynyl, alkoxyalkyl, or haloalkoxyalkyl;

R_{12} is alkyl or haloalkyl;

R_{13} is hydrogen, halogen, cyano, nitro, alkyl, haloalkyl, alkoxy or haloalkoxy;

R_{14} is optionally substituted aryl or optionally substituted heteroaryl;

R_{15} is hydrogen, halogen, alkoxy, haloalkoxy, alkoxyalkyl, haloalkoxyalkyl, formyloxy, alkylcarbonyloxy, haloalkylcarbonyloxy, althilthio, haloalkylthio, alkylsulfinyl, haloalkylsulfinyl, alkylsulfonyl, haloalkylsulfonyl, alkylamino, dialkylamino, haloalkylamino, di(haloalkyl)amino, aryloxy or alrylalkoxy;

wherein said alkyl, haloalkyl, alkoxy, groups are optionally substituted with alkyl, haloalkyl, alkoxy, aryl, or heteroaryl; said aryl or heteroaryl groups are optionally substituted with one or more of alkyl, haloalkyl, aryl, halogen, $C(O)R_8$, $-C(O)OR_8$, $-C(O)NR_9R_{10}$, $-C(S)NH_2$, or $-S(O)_mR_{11}$

m is 0, 1 or 2; and

n is 0, 1 or 2; or

a pharmaceutically acceptable salt, hydrate or solvate thereof.

3. The topical veterinary composition of claim 2, wherein:

R_1 is cyano, $-C(O)R_8$, $-C(O)OR_8$, $-C(O)NR_9R_{10}$, $-C(=NOH)NH_2$, $-C(=NNH_2)R_9$, or $-C(S)NH_2$;

R_2 is -SCN, 4-5-dicyanoimidazol-2-yl, or $-S(O)_mR_{11}$; and

R_3 is alkyl, haloalkyl or NR_9R_{10}.

4. The topical veterinary composition of claim 2, wherein:

R_1 is cyano;

R_2 is $-S(O)_mR_{11}$;

R_3 is C_1-C_4alkyl, C_1-C_4haloalkyl, or NR_9R_{10};

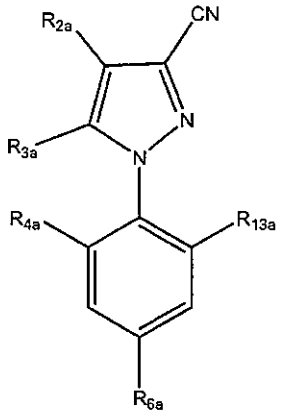
R_4, R_5 and R_7 are independently hydrogen, or halogen;

R_6 is halogen, C_1-C_4alkyl, C_1-C_4haloalkyl, or SF_5;

X is C-R_{13}; and

R_{13} is halogen or C_1-C_4haloalkyl.

5. The topical veterinary composition of claim 1, wherein the 1-arylpyrazole active agent has the formula (IA)



(IA)

wherein:

R_{2a} is $-S(O)_mR_{11a}$;

R_{3a} is methyl, ethyl or C_1-C_4 haloalkyl;

R_{4a} is halogen;

R_{6a} is C_1-C_4 alkyl or haloalkyl;

R_{13a} is halogen;

R_{11a} is C_1-C_4 haloalkyl; and

m is 0, 1 or 2; or a pharmaceutically acceptable salt, hydrate or solvate thereof.

6. The topical veterinary composition of claim 1, wherein the 1-arylpyrazole active agent is fipronil.

7. The topical veterinary composition of claim 1, wherein the at least one macrocyclic lactone active agent is an avermectin or milbemycin.

8. The topical veterinary composition of claim 7, wherein the avermectin or milbemycin is eprinomectin, ivermectin, selamectin, milbemectin, milbemycin D, milbemycin oxime, or moxidectin.

9. The topical veterinary composition of claim 1, wherein the at least one insect growth regulator is (S)-methoprene, pyriproxyfen, hydroprene, cyromazine, fluazuron, lufenuron, or novaluron.

10. The topical veterinary composition of claim 1, wherein the at least one anthelmintic active agent is thiabendazole, oxibendazole, mebendazole, fenbendazole,

oxfendazole, albendazole, triclabendazole, febantel, levamisole, pyrantel, morantel, praziquantel, closantel, clorsulon, an amino acetonitrile active agent, or an aryloazol-2-yl cyanoethylamino active agent.

11. The topical veterinary composition of claim 1, wherein the pharmaceutically acceptable carrier is a C_1-C_{10} alcohol or ester, a C_{10}-C_{18} saturated fatty acid or esters, a C_{10}-C_{18} monounsaturated fatty acid or ester, a monoester or diester of an aliphatic diacid, a glycerol monoesters, a glycerol diester, a glycerol triester, a glycol, a glycol ether, a glycol ester, a glycol carbonate, a polyethylene glycol, a polyethylene glycol monoether, a polyethylene glycol diether, a polyethylene glycol monoester, a polyethylene glycol diester, or a mixture thereof.

12. The topical veterinary composition of claim 1, wherein the pharmaceutically acceptable carrier is acetone, acetonitrile, benzyl alcohol, ethanol, isopropanol, diisobutyl adipate, diisopropyl adipate, glycerol formal, butyl diglycol, dipropylene glycol n-butyl ether, ethylene glycol monoethyl ether, ethylene glycol monomethyl ether, dipropylene glycol monomethyl ether, liquid polyoxyethylene glycols, propylene glycol monomethyl ether, propylene glycol monoethyl ether, dimethyl isosorbide, 2-pyrrolidone, N-methylpyrrolidone, diethylene glycol monoethyl ether, triacetin, butyl acetate, octyl acetate, propylene carbonate, butylene carbonate, dimethyl sulfoxide, dimethylformamide, dimethylacetamide, or any combination thereof.

13. The topical veterinary composition of claim 1, wherein the pharmaceutically acceptable carrier is triacetin, glycerol formal, diethylene glycol monoethyl ether, dimethyl isosorbide, or mixtures thereof.

14. The topical veterinary composition of claim 1, wherein the at least one 1-arylpyrazole is fipronil, the at least one macrocyclic lactone is eprinomectin, ivermectin, selamectin, milbemectin, milbemycin D, milbemycin oxime, or moxidectin; the at least one IGR is (S)-methoprene, pyriproxyfen, hydroprene, cyromazine, fluazuron, lufenuron, or novaluron; and the at least one anthelmintic is thiabendazole, oxibendazole, mebendazole, fenbendazole, oxfendazole, albendazole, triclabendazole, febantel, levamisole, pyrantel, morantel, praziquantel, closantel, clorsulon, an amino acetonitrile active agent, an aryloazol-2-yl cyanoethylamino active agent.

15. The composition of claim 1 or 13, wherein the at least one 1-arylpyrazole is fipronil, the at least one macrocyclic lactone is eprinomectin; the at least one IGR is (S)-

methoprene; and at least one anthelmintic is praziquantel.

16. The topical veterinary composition of claim 1, wherein the composition is in the form of a spot-on or a pour-on formulation.

17. A method for the treatment or prevention of a parasitic infestation or infection in an animal comprising administering to the animal in need thereof an effective amount of the topical veterinary composition of claim 1.

18. The method of claim 17, wherein the at least one 1-arylpyrazole is fipronil, the at least one macrocyclic lactone is eprinomectin; the at least one IGR is (S)-methoprene; and at least one anthelmintic is praziquantel.

19. The method of claim 17, wherein the parasite is an ectoparasite.

20. The method of claim 17, wherein the parasite is an endoparasite.

WHAT IS CLAIMED IS:

1. A topical veterinary composition for treating or preventing a parasitic infection or infestation in an animal comprising:

(a) a combination of four active agents comprising,

i. two contact-acting active agents, wherein one of the contact-acting active agents is fipronil and the other of the contact-acting active agents is an insect growth regulator active agent selected from the group consisting of (S)-methoprene, pyriproxyfen, hydroprene, cyromazine, fluazuron, lufenuron and novaluron; and

ii. two systemically-acting active agents, wherein one of the systemically-acting active agents is praziquantel and the other of the systemically-acting active agents is a macrocyclic lactone active agent selected from the group consisting of eprinomectin, ivermectin, selamectin, milbemectin, milbemycin D, milbemycin oxime and moxidectin;

(b) a pharmaceutically acceptable carrier comprising dimethylisosorbide and glycerol formal; and

(c) optionally a crystallization inhibitor;

wherein said composition is a liquid for topical administration;

wherein fipronil is present in a concentration of about 5 to about 15% (w/v), the insect growth regulator active agent is present in a concentration of about 5 to about 15% (w/v), the macrocyclic lactone active agent is present in a concentration of about 0.01 to about 2% and praziquantel is present in a concentration of about 5 to about 15% (w/v); and wherein the composition exhibits broad spectrum efficacy against endoparasites and ectoparasites.

2. The topical veterinary composition of claim 1, wherein the macrocyclic lactone active agent is eprinomectin, ivermectin, selamectin, milbemycin oxime or moxidectin.

3. The topical veterinary composition of claim 1, wherein the insect growth regulator active agent is (S)-methoprene, pyriproxyfen, lufenuron or novaluron.

4. The topical veterinary composition of claim 1, wherein the macrocyclic lactone active agent is eprinomectin, ivermectin, selamectin, milbemycin oxime or moxidectin; and the insect growth regulator active agent is (S)-methoprene, pyriproxyfen, lufenuron or novaluron.

5. The composition of claim 4, wherein the macrocyclic lactone active agent is eprinomectin; and the insect growth regulator active agent is (S)-methoprene.

6. The composition of claim 5, wherein:
fipronil is present at a concentration of about 8 to about 12% (w/v);
eprinomectin is present at a concentration of about 0.1 to about 1 % (w/v);
(S)-methoprene is present at a concentration of about 8 to about 12% (w/v); and
praziquantel is present at a concentration of about 8 to about 12% (w/v).

7. The composition of claim 1, 5 or 6, wherein the composition is a spot-on composition.

8. The composition of claim 1, wherein the composition is a pour-on composition.

9. The composition of claim 1, wherein the composition further comprises about 0.01 % to about 2.0% (w/w) of an antioxidant selected from the group consisting of an alpha tocopherol, ascorbic acid, ascorbyl palmitate, fumaric acid, malic acid, sodium ascorbate, sodium metabisulfate, n-propyl gallate, butylated hydroxy anisole, butylated hydroxy toluene and monothioglycerol.