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World Association for the Advancement of Veterinary Parasitology (W.A.A.V.P.) guidelines for evaluating the efficacy of ectoparasiticides against biting and nuisance flies on ruminants

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Abstract

These guidelines have been prepared to assist in the planning, conduct and interpretation of studies for the assessment of the efficacy of ectoparasiticides (excluding repellents) against the biting and nuisance dipteran flies of ruminants. Information is provided on the selection of animals, dose determination and dose confirmation studies, field studies, record keeping and result interpretation. These guidelines advocate the use of pen facilities for dose determination and dose confirmation studies. These guidelines also are intended to assist investigators on how to conduct specific studies, to provide specific information for registration authorities involved in the decision-making process, to assist in the approval and registration of new ectoparasiticides, and to facilitate the worldwide adoption of standard procedures.

Keywords: Biting flies; Nuisance flies; Ectoparasiticides; Ruminants; Therapeutic efficacy; Persistent efficacy; Guidelines

1. Introduction

These guidelines for evaluating the efficacy of ectoparasiticides (excluding repellents) against biting and nuisance flies follow similar publications from the World Association for the Advancement of Veterinary

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Parasitology (W.A.A.V.P.) for anthelmintic efficacy data generation in a variety of species (Jacobs et al., 1994; Wood et al., 1995; Duncan et al., 2002; Yazwinski et al., 2003; Hennessy, pers. comm.) together with the guidelines pertaining to anticoccidial efficacy data generation in chickens and turkeys (Holdsworth et al., 2004). The acceptance of these guidelines by regulatory authorities worldwide will provide a basis for the harmonization of the studies performed in various countries. These guidelines are part of a new ectoparasiticide guideline series also dealing with efficacy data generation for ticks, myiasis flies, mites, lice and sheep keds.

The aim of these W.A.A.V.P. guidelines is to establish consensus on international standards on the efficacy of new ectoparasiticides. These guidelines attempt to identify and reflect principles recommended by the scientific community as appropriate and necessary for the collection of scientific data. Many sources have been used in the collation of the information used in these guidelines. Consideration was given to the regulatory requirements for the generation of efficacy data as given by the European Union (EMEA/CVMP/625/03; http://www.emea.eu.int/pdfs/vet/ewp/062503en.pdf); the United States Environmental Protection Agency (EPA712-C-98-409, http://www.epa.gov/opptsfrs/OPPTS_Harmonized/810_Product_Performance_Test_Guidelines/Series/810-1000.pdf), the Australian Pesticides and Veterinary Medicines Authority (Guideline no. 19, http://www.apvma.gov.au/guidelines/vetguidelines.shtml); the South African Bureau of Standards (SOP 5441/E100B and 5441/E160C and D) and SENASA, Argentina (RS256/98, http://infoleg.mecon.gov.ar/txtnorma/49864.htm; RS1024/99, http://infoleg.mecon.gov.ar/txtnorma/60271.htm).

There have been considerable developments in relation to the application of new ectoparasiticides as well as pest vulnerabilities to such compounds. These developments are likely to impact on the effects on either the dipteran parasitic or its free-living stages. Strict adherence to these guidelines should not be considered as a requirement for all potential new ectoparasiticides.

Testing of efficacy should be carried out according to the principles of ''Good Clinical Practice'' (VICH GL9, 2000 http://vich.eudra.org/pdf/2000/Gl09_st7.pdf). Detailed statistical guidance will not be given in these guidelines; it should be sought for each protocol.

Since ectoparasite studies cannot be undertaken without the use of host animals, care must be taken to ensure the welfare of all animals used. Parasite levels in/on the animals must not become so high that they cause undue stress. Studies should not extend for unnecessarily long periods of time. Where the test product is clearly not working and satisfactory fly management is not achieved, the study should be terminated.

Results from all studies conducted with the test product should be documented. Extenuating circumstances, which could explain anomalous results, should be detailed. Adverse effects causing discomfort to particular species or use limitations in relation to age, breed, sex or lactation status should be noted.

All therapeutic and persistent efficacy field studies should be conducted at times consistent with the usual peak parasite seasons for the region.

2. Biting and nuisance flies

2.1. Introduction

Many Diptera (true flies) are parasitic on livestock. Certain adult flies cause severe irritation by biting and blood sucking and in the process transmit the causal agent of many diseases to hosts.

Management of biting and nuisance flies is at best difficult, even when based on a sound knowledge of life cycles. It is possible in some species to destroy immature stages at their breeding sites provided that these sites are easily accessible and not widely dispersed. Management measures can be aimed at the adults during their contacts with the host or at their resting places. Fly management is generally best achieved with chemicals when both the immature and adult stages of the fly are targeted.

For clarity and simplicity in these guidelines two groups are used to describe biting and nuisance flies. Biting flies are listed as buffalo/horn flies (*Haematobia* spp.), stable flies (*Stomoxys calcitrans*) and tsetse flies, while nuisance flies are listed as *Musca* spp., *Fannia* spp. and *Muscina* spp., etc. Flies such as tabanids and hippoboscids, etc., are not listed here, as