

Press release

New strategies for worm control in ruminants

– „Treat as few as possible and as many as required!“

That was the message emerging from the final meeting of the PARASOL (Parasite solutions) project, which was held in Edinburgh recently. The findings from the three year EU-funded project were presented to the numerous invited guests including policy makers and representatives from industry and agriculture.

The development of anthelmintic resistance by gastro-intestinal nematodes of ruminants to the commonly used anthelmintics is a major problem which threatens the sustainability of livestock production in many countries worldwide.

The aim of the PARASOL project was to identify novel, sustainable approaches to the control of these parasites and to exploit the principles of Targeted Treatment (TT)) where the entire flock/group is treated based on diagnostic information and Targeted Selective Treatment (TST) where only those individuals which will benefit in some way are treated.

These approaches are very different to current whole herd treatment strategies and through the use of these methods it may be possible to limit the development of anthelmintic resistance as well as provide sustainable worm control for optimal performance and animal health.

On the basis of their research, the PARASOL-team made specific recommendations for changes in the way the drugs are used. They demonstrated that the TT and TST approaches are effective, practicable, reduce selection for resistance and are economically competitive.

Several practical methods were presented to identify those animals in need of treatment. These methods measure the infection or production status of the animal or herd to reveal those that are underperforming because of worm infections and need treating. Recommendations from the project were that, TT or TST approaches should be promoted to allow effective and sustainable worm control and slow the development of anthelmintic resistance, and anthelmintic efficacy should be monitored regularly.

Introducing these new approaches to worm control will require the active co-operation of veterinarians, agricultural advisory services, farmers and the animal health industry.

Current results, specific recommendations and background information concerning the PARASOL-project can be seen on the PARASOL-website (www.parasol-project.org) and are ready for download.

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Notes for the editor:**1. European Framework 6 Program (FP6):**

The Framework Program (FP) is the European Union's main instrument for funding research in Europe. Six Framework Programs (FPs) have been implemented since 1984, each covering a period of five years with the last year of one FP and the first year of the following FP overlapping.

The current sixth FP (FP6) aims to contribute to the creation of a true "European Research Area" (ERA). ERA is a vision for the future of research in Europe, an internal market for science and technology. It fosters scientific excellence, competitiveness and innovation through the promotion of better co-operation and coordination between relevant actors at all levels. The biggest part of FP budget will be spent on focussing and integrating future research activities on seven thematic priority areas such as Food Quality and Safety.

2. Ghent University, Faculty of Veterinary Medicine, Laboratory of Parasitology, Merelbeke, Belgium

The Laboratory of Parasitology of the Ghent University, Faculty of Veterinary Medicine, employs a total of about 22 veterinarians, biotechnologists and laboratory technicians with expertise ranging from parasite epidemiology and immunology to helminth molecular biology. The research group has extensive experience with the epidemiology and control of gastrointestinal nematode infections in cattle and small ruminants in Belgium and the tropics and strong expertise in a broad range of biochemical and molecular techniques including anthelmintic resistance. Laboratory techniques such as ELISA, (Real-Time) PCR, polymorphism and proteomic techniques, recombinant protein production and chromatography are applied routinely.

3. Faculty of Veterinary Science, University of Pretoria, Departments of Veterinary Tropical Diseases and Large Animal Production, 0110 Onderstepoort, South Africa

The main role of the Departments of Veterinary Tropical Diseases and Large Animal Production of the South African Faculty of Veterinary Science is development of TST systems for controlling helminths in small ruminants in a subtropical environment, and for devising methods of Technology Transfer for developing countries.

The Departments are pioneers in the TST approach to worm control, concentrating on prevention and control of infectious and parasitic animal diseases to improve sustainable socio-economic development in the subcontinent. About 40 international postgraduate students are employed at present. Due to the wide range of tropical infectious diseases and inimical conditions for small ruminant production in the region, the Departments are very well placed for research in this field. Their dynamism can be judged from production of more scientific papers in refereed journals than the total of the rest of the Faculty. With a staff of about 50 persons (40% academic), they are well equipped for modern research, including cutting-edge research on molecular biology on tropical diseases and parasitology, and are renowned for their wide-ranging international teamwork which includes joint funding (e.g. a present EU grant for external parasites, coordinated from The Netherlands). The research team has extensive experience in the field of parasitology (particularly epidemiology, anthelmintic resistance and sustainable Integrated Parasite Management - IPM) and knowledge of the sheep industry. The instigators and developers of the original method for targeted selective treatment (TST) for haemonchosis (FAMACHA method) and pioneers as regards

using body condition scoring (BODCON) for TST, they were the first to report resistance of nematodes to closantel, rafoxanide, disophenol and nitroxylnil and the first case of a helminth population resistant simultaneously to all five the available activity groups. The present global focus on the phenomenon of refugia in relation to selection for anthelmintic resistance and sustainable helminth control was also largely stimulated by inputs from this research team.

4. National Wool Growers' Association, P.O. Box 2242, Noordeinde, 6056 Port Elizabeth, South Africa

The NWGA, under general management of Mr Leon de Beer, is an SME with a strong infrastructure and the prime function of technology transfer to all walks of farmers in South Africa. Particularly dramatic results have already been obtained with the limited funds at their disposal, in uplifting a large number of resource-poor farmers in the East Cape Province by improving wool production through the provision of infrastructure like wool shearing sheds, training of the farmers concerned in animal breeding, in wool classing and handling, and in marketing of the finished product. This is underlined by recent funding, after a comprehensive investigation of the NWGA, from the prestigious ComMark Trust (DFID South Africa, for the poor, with the declared dictum: "Translating research into action").

The NWGA has a long record of close collaboration with the two departments of the South African Faculty of Veterinary Science.