

Press Release

Breaking new ground for sustainable parasite control

PARASOL – a European Framework 6 funded project

Gent, April 2006. The European Union has provided 2.9 Million Euro for an international research project to investigate and develop sustainable, low-input methods for internal parasite control in ruminants (Target Selective Treatments). The project known as PARASOL (Parasite Solutions), an abbreviation for “Novel solutions for the sustainable control of nematodes in ruminants”, has been designated for a period of three years and involves 12 academic partners and 5 business ventures from 7 EU countries as well as Africa. The project is coordinated by Professor Jozef Vercruysse of the University of Gent. Among the partners are the Faculty of Veterinary Science, University of Pretoria, Departments of Veterinary Tropical Diseases and Large Animal Production, Onderstepoort, represented by Dr. Jan van Wyk and Prof. Gareth Bath as well as the National Wool Growers’ Association, Port Elizabeth, represented by Leon de Beer.

Announcing the new project which has begun in March, Professor Vercruysse stressed the importance of effective chemical anthelmintics for the control of gastro-intestinal worms of ruminants as these pose the greatest threat to animal welfare and production. He also pointed out that current conventional treatment methods, such as the repeated dosing of whole herds with synthetic anthelmintics, are not sustainable as they produce food and environmental residues and promote the spread of anthelmintic resistance (AR) by failing to leave an untreated parasite population in refugia. As discontinuing the use of effective chemical anthelmintics is neither practical on animal welfare or economical grounds, the PARASOL-Project aims to reduce the need for drugs by developing Target Selective Treatments (TST) for animals showing clinical signs of parasitic disease or reduced productivity only. Animals with low worm burdens do not show symptoms and therefore do not require treatment. These strategies will thus reduce the risks of residues in food and in the environment and provide a parasite population *in refugia* to limit the development of anthelmintic resistance.

In order to achieve their goal, the PARASOL-Partners will: (1) determine the best methods of identifying animals and herds requiring anthelmintic intervention; (2) standardise existing tests for detecting anthelmintic resistance and develop new tests, if the current ones are inadequate; (3) optimise the efficacy and bioavailability of anthelmintics by modulating parasite P-glycoprotein detoxification systems and (4) assess the effect of targeted selective treatments on productivity, animal welfare and the spread of AR genes under a wide range of farming conditions. “By the end of the project, we will provide farmers, veterinarians and advisors with clear guidance and protocols for sustainable, low-input, user- and consumer-friendly nematode control”, so Professor Vercruysse.

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Further information:

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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 post-graduate 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 ac-

tivity 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.