



**WAAVP**  
**2021**

**WAAVP 2021**

**Book of Abstracts**

**O-4034****Evaluation of the Abamectin plus Oxfendazole Combination to Control Resistant Nematodes in Cattle**

Candela Canton<sup>1</sup>, Miller Chris<sup>2</sup>, Laura Ceballos<sup>1</sup>, Paula Dominguez<sup>1</sup>, Tania Waghorn<sup>2</sup>, Carlos Lanusse<sup>1</sup>, Luis Alvarez<sup>1</sup>, Dave Leathwick<sup>2</sup>

<sup>1</sup>Laboratorio de Farmacología; Centro de Investigación Veterinaria de Tandil (CIVETAN), UNCPBA-CICPBA-CONICET, Facultad de Ciencias Veterinarias, UNCPBA, Tandil, Argentina. <sup>2</sup>AgResearch Grasslands, Palmerston North, New Zealand

**Abstract**

The current study evaluated the efficacy and the potential pharmacokinetic (PK) interactions occurring after the oral administration of abamectin (ABA) and oxfendazole (OXF) given both separately and co-administered to calves in two farms (A and B). On each farm sixty (60) male calves infected with gastrointestinal nematodes were randomly allocated into four groups (n= 15): Control: animals did not receive anthelmintic treatment; ABA: orally treated with ABA (0.2 mg/kg); OXF: orally treated with OXF (4.5 mg/kg); ABA+OXF: simultaneously treated with ABA and OXF (at the above route and doses). Seven (7) animals from each treated group (from Farm B) were randomly selected to perform the PK study with blood samples being taken from these animals at regular intervals. A significantly (P<0.05) higher C<sub>max</sub> value was obtained for ABA alone (38.8±6.5 ng/mL), compared to that estimated after its co-administration with OXF (25.4±10.3 ng/mL). However, the ABA systemic exposure (expressed as AUC) obtained after administration of ABA alone (166±30.8 ng.d/mL) was similar to that observed in the ABA+OXF group (118±52.3 ng.d/mL). Likewise, OXF AUC values were similar after OXF administration alone (8.2±1.5 µg.h/mL) or combined with ABA (9.1±2.6 µg.h/mL). Overall, no adverse PK interactions were observed after the combined treatment. On Farm A, the *Cooperia* spp. were resistant to OXF, and the *Ostertagia* spp. were resistant to both ABA and OXF. Under this scenario the combined treatment only achieved an 84% efficacy against the multiple resistant *Ostertagia* spp. In contrast, on Farm B the *Haemonchus* spp. were resistant to ABA, the *Ostertagia* spp. were resistant to OXF and both anthelmintics failed to control the *Cooperia* spp. However, under the epidemiological conditions on Farm B, the combination was the only treatment that achieved 99.9% efficacy against all genera, indicating an evident additive effect of the combined treatment. Overall, an ABA+OXF combination can be useful to optimise the control of resistant gastrointestinal nematodes of cattle. However, its use must be necessarily supported by previous diagnosis of the resistant status of the nematode population.

### **Presenting author biography**

I graduated from the School of Veterinary Medicine at Universidad Nacional del Centro, Tandil, Argentina. Since my graduation, I have started a PhD program, supported by a fellowship from the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). I completed my doctoral training in 2018 and currently, I work as a CONICET researcher. The main goal of my research is to study different pharmaco-parasitological approaches with particular emphasis on the assessment of anthelmintic drug combinations in cattle. I aspire to transfer and apply all my knowledge to the productive sector, in order to optimize the parasitic control in animal production.