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**Book of Abstracts**

**P-2052****A comparison between two *in vitro* techniques to detect resistance to ivermectin in field populations of *Cooperia* spp. in cattle**Mariana Fuentes<sup>1</sup>, Mercedes Lloberas<sup>2</sup>, Sonia Luque<sup>2</sup>, Gisele Bernat<sup>1</sup>, Eliana Riva<sup>1</sup>, César Fiel<sup>1</sup>, Silvina Fernández<sup>1</sup><sup>1</sup>CIVETAN (CONICET - Fac. Cs. Veterinarias-CIC), Tandil, Argentina. <sup>2</sup>Instituto Nacional de Tecnología Agropecuaria (INTA), Balcarce, Argentina**Abstract**

Anthelmintic resistance in beef cattle production is a well-known worldwide problem, contributing to the economic losses caused by gastrointestinal nematodes. Resistance to ivermectin (IVM) is present in 93.5% of farms in Argentina, *Cooperia* spp. being the most prevalent genus (100%). Diagnosing AR under field conditions is currently done using the faecal egg count reduction test, which has been long used but lacks sensitivity to detect resistance in its early stages. In trying to improve this, *in vitro* techniques have been developed for different compounds and different parasites, and tested mainly in sheep parasites. As part of a large study on IVM-resistant populations of *Cooperia* spp. in beef farms, this assay was designed to evaluate two *in vitro* techniques, the micro-agar larval development test (MALDT) and the larval migration inhibition test (LMIT), on proven resistant (R) and susceptible (S) field populations. Both populations had been previously characterised by controlled-efficacy tests, showing that the efficacy of ivermectin against R and Se *Cooperia* was 66.3% and 99.5%, respectively. For the MALDT, eggs of both *Cooperia* isolates were exposed to twelve anthelmintic concentrations, from  $4.7 \times 10^{-10} \text{M}$  to  $2.18 \times 10^{-11} \text{M}$ . The obtained  $\text{EC}_{50}$  values were:  $6.93 \times 10^{-9} \text{M}$  (95%CI:  $6.37 \times 10^{-9} \text{M}$  to  $7.49 \times 10^{-9} \text{M}$ ) for the R population and  $8.33 \times 10^{-10} \text{M}$  (95%CI:  $7.86 \times 10^{-10} \text{M}$  to  $8.8 \times 10^{-10} \text{M}$ ) for the S one, with correlation coefficients ( $R^2$ ) of 0.92 y 0.93, respectively; the resistance factor (RF) was 8.31. For the LMIT, ensheathed L3 were exposed to eight concentrations, from  $10^{-5} \text{M}$  a  $5 \times 10^{-9} \text{M}$ . The  $\text{EC}_{50}$  values were  $6.33 \times 10^{-8} \text{M}$  (95%CI:  $5.30 \times 10^{-8} \text{M}$  to  $7.49 \times 10^{-8} \text{M}$ ) for the R population, and  $8.03 \times 10^{-8} \text{M}$  (95%CI:  $5.49 \times 10^{-8} \text{M}$  –  $1.19 \times 10^{-7} \text{M}$ ) for the S population, with  $R^2$  of 0.87 y 0.52, respectively; and a RF of 0.79. Based on these preliminary results, the MALDT would be a useful *in vitro* technique to detect field populations of IVM-resistant *Cooperia* nematodes.