

## **Alleviate zoonotic and animal tick-borne diseases in Morocco**

Tick borne diseases (TBDs) abound in Morocco and have a substantial impact on animal health and production as well as on human health. In some regions, and especially in small scale farms, the current situation is alarming and problematic and it is expected to aggravate due to changing circumstances such as increased mobility and the occurrence of acaricide resistance.

Therefore new intervention tools need to be developed and put in place so that the incidence of both zoonotic and animal TBDs is reduced to an acceptable level, with TBD cases occurring only sporadically.

Many tick species have been identified in the Mediterranean Basin. In Morocco, 29 species have been identified, belonging predominantly to the genera *Ixodes*, *Hyalomma*, *Dermacentor*, and *Rhipicephalus* (Laamari et al., 2012).

We will focus on a small set of ticks and pathogen species selected for their importance for animal productions and/or public health. The main tick species would be *Hyalomma marginatum*, *H. detritum*, *Ixodes ricinus*, *Rhipicephalus annulatus*, *R. bursa* and *R. sanguineus*. The main diseases of interest transmitted by these ticks are tropical theileriosis (*T. annulata* infection), babesiosis and anaplasmosis with a special emphasis on *Anaplasma phagocytophilum*.

Although it is known to a large extent which ticks transmit which TBDs, their prevalence and distribution in the northwestern part of Morocco is largely unknown. It is essential to first map the presence of the different tick species to inform the vector control strategy. Another important unknown is the acaricide resistance status. Due to the long and unrestricted use of old acaricides, the presence of acaricide resistance is highly, but currently there is only anecdotal information on the most important aspect of the acaricide based tick control method.

Although the current acaricide based tick control tools might still be efficient in some locations, it is highly likely that particularly in small scale farms the tick population has acquired resistance against the commonly used acaricides. Therefore, new tick control methods need to be put in place. The most obvious choice is to introduce new generation acaricides. It is of ultimate importance that such new generation acaricides are deployed in a proper way, supported by a resistance management strategy, to avoid that resistance develops in a short time against these new generation acaricides.