PALESTRA

OUTSOURCING IN CATTLE ECTOPARASITE CONTROL – A PROMISING OPPORTUNITY

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The control of pests that reduce production and overall food quality is performed, in all parts of the world, based on production costs. However, the cost-benefit relationship rarely takes into account the actual measurement criteria, i.e., which is the selection of pesticide products and application processes considering only the lowest purchase price. Moreover, this economy may also include reductions in the number of applications, amount of product applied and/or applications targeting only specific animal groups or infested areas. Such behavior implies very efficient pest control and an increase in pressure for the selection of resistant populations. In Brazil, official programs are urgently needed for strategic and systematic control of some agricultural pests responsible for large annual losses. In livestock, although studies have resulted in recommendations for strategic control of some important pests, such as cattle ticks and horn flies, these recommendations have been little utilized and lack regulation by the relevant authorities. This scenario may change in the short term in function of the current restrictions on international trade in the form of sanitary barriers. Consumers are increasingly aware that food safety is more important to human health than purchasing the cheapest foods, because ultimately, the savings in the purchase of unhealthy foods may be insufficient to recover one's health if impaired by these foods. Food production can be maximized, in terms of food quantity and quality, by the use of inputs, sustainable techniques and processes, in which savings are considered which include the capital invested and the returns obtained in the short, medium and long terms. The return in question involves the entire production chain, market, environment and human health - both of the consumers and those which make up the production chain. Therefore, as part of developing sustainable processes for food production, in this work it is suggested that control of agricultural pests be handled professionally in the country, training outsourced personnel capable of being sustained by the cost/benefit return of the services that they provide.

Basis of the proposal

Records of the occurrence of resistant populations of cattle parasites are becoming increasingly frequent in different regions of the country. These reports refer in general to the horn fly, *Haematobia irritans* (Rodrigues et al., 2002; Barros et al., 2002; Barros et al., 2007), and the cattle tick, *Rhipicephalus* (*Boophilus*) *microplus* (Fernandes, 2001; Oliveira; Azevedo, 2002; Rocha et al., 2006; Furlong et al., 2007; Mendes et al., 2007; Farias et al., 2008; Koller et al., 2009b; Catto et al., 2010). However, with the increased cultivation of sugar cane to produce sugar and ethanol, the stable fly, *Stomoxys calcitrans*, is becoming a serious problem in livestock farms in the vicinity of sugarcane mills, especially because it has shown to be resistant to pesticides currently available (Koller et al., 2009a; Barros et al., 2010).

The damages caused annually to national livestock production by the above mentioned cattle ectoparasites were estimated by Grisi et al. (2002) as being on the order of 2 billion U.S. dollars by the tick, 150 million caused by the horn fly, and 100 million by stable flies. With respect to the horn fly, Bianchin et al. (2004) reported a ten percent loss in body weight of the Nelore animals evaluated. From this information, based on the projected number of animals to be slaughtered in the country two years later (Anualpec), the price of meat and the exchange rate to the dollar, these same authors estimated an annual loss of 865 million dollars (Bianchin et al., 2006). The estimate of damage caused in a given year depends, therefore, on the values assumed for these three variables in the current year, as well as the cost of the control practiced. Additionally, Zebu animals are known to be more resistant to ectoparasites than *Bos taurus* or their crossbreeds (Bianchin; Alves, 2002; Veríssimo et al., 2002), which implies an increasing trend in losses as the national herd, predominantly zebu, becomes increasingly influence by the participation of European breeds.

The misuse and indiscriminate use of pesticides can accelerate the process of resistance to different chemical bases and allow the occurrence of multiple or cross resistance. In Brazil, this has been happening not only with respect to tick control (Freitas et al., 2005; Rocha et al., 2006; Farias et al., 2008) but also the horn fly, *Haematobia irritans* (Barros et al., 2007), where, due to the lack of specificity in most of the products used, control of one species tends to affect the susceptibility of the other. Ultimately, in the case of ticks, the high frequency of treatments associated with inappropriate use of products has resulted in populations becoming resistant to the few acaricides

groups available on the domestic market (MARTINS, 1996; SILVA et al., 2000; FURLONG et al., 2007).

FURLONG et al. (2007) found that only two of the 24 acaricide products evaluated in Minas Gerais and neighboring states presented a satisfactory effect. These were composed of cypermethrin + chlorpyrifos + citronellal + piperonyl butoxide, showing a 99.8% efficiency, followed by cypermethrin + chlorpyrifos (98.9%). In the evaluations conducted by KOLLER et al. (2009b), the latter product exhibited efficacy between 16.71% and 100% (average of 82.68%), suggesting the occurrence of resistance not only to the pyrethroid but also to organophosphate in some of the farms sampled in Mato Grosso do Sul State, Brazil.

Generally, in rural areas there is an elevated deficiency in regards to access to technical information that could aid in the correct use of anti-parasite products. A clear resistance or negligence of the producers to adoption of recommended techniques has also been observed, such as, for example, the tick strategic management proposed by FURLONG et al. (2003). An aggravating factor with regards to the issue of tick resistance is represented by the frequent finding of poor management on most farms, including: the systematic use of a single product or chemical base, treatment used only after verify the presence of adults, excessive applications per year due to the decreased residual strength of the products (MARTINS, 2004; FURLONG et al., 2007; FARIAS et al., 2008) and inadequate control of the horn fly, with insufficient volume and by treating only the most infested animals (BARROS, 2005).

Conclusion

The current costs of the ectoparasites control system in the Brazilian cattle industry, and the negative economic and social impacts arising from the misuse of pesticides may be reduced. It is suggested that this control be performed by outsourced professionals trained for this purpose with the expectation of gains in productivity of the heard, savings in production costs and multiple benefits to food security and the environment.

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