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Insecticide resistance management: A long term strategy to ensure effective pest control in the future

Oscar Jaime Betancur Hurtado
Elanco Animal Health, Colombia

Arthropods are an important component within animal production systems, and they constantly interact with animals and their environment; some of the arthropods behave like pests generating economic, sanitary and even social problems. The control of these organisms is essential to maintain the profitability; however, the insecticide resistance is a growing problem for pest arthropod control. About a thousand species of pests have developed resistance to a pesticide. There are mechanisms of resistance, both physical and behavioral, being especially important those linked to genetic mutations in the sites of action of insecticides and those related to metabolic changes. In addition, a major problem arises from the possibility of cross-resistance between insecticides that share the same mechanism of action, and even cases have been reported between insecticides with different modes of action. This scenario is of concern to different organizations worldwide. Effective insecticide resistance management is essential if the efficacious of current and future insecticides is preserved. Biological, mechanical and chemical pest control methods are required and must act synergistically. Following the technical instructions of the product labels, accurate pest type identification, knowing deeply its biology, applying insecticides only when necessary, and establishing insecticide rotation plans are some of the most important actions to follow within an integrated pest management program.

betancur_oscar_jaime@elanco.com