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Identification and classification of the different types of agrochemicals used in the Sri Lankan livestock sector: A Review

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Abstract

The Sri Lankan livestock sector plays a vital role in sustainable food production, rural livelihood development, human health, and animal welfare. Based on this review, four major sub-sections were identified based on agrochemical usage, with the livestock veterinary section having the highest usage, followed by animal feed production, livestock food processing, and farm biosecurity management. Tetracycline, β -lactams, and Macrolides are the major classes of antibiotics used in the livestock veterinary sector. The most popular endoparasitic drug is Albendazole followed by Fenbendazole. The commonly used drugs for treating ectoparasites are typically classified into one of the following chemical categories: Pyrethroid, Organophosphate, Carbamate, or Organochlorine. Top examples for those classes are Permethrin, Malathion, Propoxur, and DDT. respectively. In poultry farming, Avilamycin, Flavophospholipol, Virginiamycin, and Bacitracin are commonly used as antimicrobial growth promoters. Under the sub-section of the livestock animal feed industry, many types of nutritive and non-nutritive feed additives could be identified such as vitamins, buffers, antioxidants, preservatives, acidifiers, amino acids, and minerals. Highly used chemicals under the above categories are vitamin E, Sodium Bicarbonate, Butylated Hydroxy Anisole, Calcium Sorbate, Fumaric acid, Methionine, and Calcium Carbonate, respectively. Different agrochemicals used in livestock food processing could be categorized as preservatives, stabilizers, water retention agents, flavoring substances, thickeners, antioxidants, and acidity regulators. Preservatives are the most frequently used chemical category. The top listed meat preservatives are Sodium Chloride, Citric acid, Sodium Dihydrogen Citrate, Potassium Dihydrogen Citrate, and Lactic acid. Sodium Benzoate, Potassium Sorbate, and Natamycin are the common preservatives in dairy food processing. For farm biosecurity management prominent use of Chlorine or Formaldehyde based disinfectants could be observed. Production of agrochemicals in the country is extremely low, only the importation and processing occur. Sri Lankan government-issued acts such as the Food Act (No. 26 of 1980) and Import-Export Control Act (No 1 of 1996) are currently in power for the control of agrochemical flow in the livestock sector. The major health hazard generated by the misuse of agrochemicals is antibiotic resistance. Workers engaged in livestock farming should be aware of agrochemical usage. Majorly usage of veterinary products by livestock farmers needs to be regulated to minimize health hazards.

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