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Assessment of knowledge, attitude, and practice of livestock farmers to parasitic diseases and resistance to antiparasitic drugs in Khuzestan province

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Abstract

Insufficient awareness among livestock farmers about the epidemiology of parasitic diseases is one of the main obstacles to their control and prevention. Therfore, the present stuy aimed to determine the level of knowledge, attitude and practice of livestock farmers in Khuzestan province regarding parasitic diseases and drug resistance. The results of the study is given as follows: the relative frequency of awareness of the livestock farmers about the resistance of parasites to drugs 78%, good knowledge 52%, positive attitude 58% and good practice 57.3%. Farming location, duration of farming and satisfaction level had a significant relationship with knowledge. In addition, the farmer's knowledge, farming location, age and satisfaction level had a significant effect on the attitude. Also, farmer's attitude, satisfaction level, farmer's occupation and gender had a significant effect on practice. The findings of the present study showed that the level of awareness of livestock farmers of Khuzestan province about the resistance of parasites to drugs is high, but they do not have an acceptable performance in the context of rotating use of anti-parasitic drugs, consultation with a veterinarian for treatment, suitable ways to store the drug, and not using livestock's product for a period after anthelmintic treatment. Also, this study showed that the level of knowledge, attitude and practice of livestock farmers of this province is acceptable, so that a significant percentage of livestock farmers are aware of the commonality of some parasitic diseases between humans and animals, the role of dogs in the occurrence of some of them, the quarantine of new animals entering herd, the ways of entry and the symptoms of parasitic diseases; however, a number of them are unaware of the possibility of some parasitic agents entering through mating and do not carry out spraying the place and anti-mite bath in preventing some parasitic diseases. Therefore, it is recommended that the interest of farmers to receive training through veterinarians, retraining classes on new findings of parasitic diseases and ways to prevention, control and treatment for the veterinarians of the province be taken into account.

Key words: Attitude, Epidemiology, Knowledge, Livestock farmers, Practice, Parasitic diseases

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Refrences

Afshan, K., Valero, M. A., Qayyum, M., Peixoto, R. V., Magraner, A., & Mas-Coma, S. (2014). Phenotypes of intermediate forms of *Fasciola hepatica* and *F. gigantica* in buffaloes from Central Punjab, Pakistan. *Journal of helminthology*, 88(4), 417–426.

Ahmed, M. J., Bhuiyan, M. I. H., Chalise, R., Mamun, M., Bhandari, P., Islam, K., Jami, S. S., Ali, M., & Sabrin, M. S. (2025). One health assessment of farmers' knowledge, attitudes, and practices (KAPs) on zoonoses in Bangladesh. *Scientific reports*, 15(1), 1258.

Borji, H., Azizzadeh, M., & Kamelli, M. (2012). A retrospective study of abattoir condemnation due to parasitic infections: economic importance in Ahwaz, southwestern Iran. *The Journal of parasitology*, 98(5), 954–957.

Çakmur, H., Akoğlu, L., Kahraman, E., Atasever, M. (2015). Evaluation of farmers' knowledge-attitude-practice about zoonotic diseases in Kars, Turkey. *Kafkas Journal of Medical Sciences*, 5(3), 87-93.

Coppieters, W., Mes, T. H., Druet, T., Farnir, F., Tamma, N., Schrooten, C., Cornelissen, A. W., Georges, M., & Ploeger, H. W. (2009). Mapping QTL influencing gastrointestinal nematode burden in Dutch Holstein-Friesian dairy cattle. *BMC genomics*, 10, 96.

Dakkak A. (2010). Echinococcosis/hydatidosis: a severe threat in Mediterranean countries. *Veterinary parasitology*, *174*(1-2), 2–11.

Falzon, L.C., O'neill, T., Menzies, P., Peregrine, A., Jones-Bitton, A., & Mederos, A. (2014). A systematic review and meta-analysis of factors associated with anthelmintic resistance in sheep. *Preventive Veterinary Medicine*, 117, 388–402.

Fleming, S. A., Craig, T., Kaplan, R. M., Miller, J. E., Navarre, C., & Rings, M. (2006). Anthelmintic resistance of gastrointestinal parasites in small ruminants. *Journal of Veterinary Internal Medicine*, *20*(2), 435–444.

Gholamian, A., Eslami, A., Nabavi, L., & Rasekh, A. (2006). A Field Survey on Resistance of Gasterointestinal Nematodes to Levamisole in Sheep in Khuzestan Province of Iran. *Journal of Veterinary Research*, *61*(1), 7-13.

Gholamian, A., Eslami, A., Nabavi, L., Rasekh, A. R., & Galedari, H. (2007). A field survey on resistance to albendazole in gasterointestinal nematodes of sheep in Khozestan province of Iran. *Journal of Veterinary Research*, *62*(1), 45-51.

Hammami, I., Farhat, N., & Gharbi, M. (2024). A Knowledge, attitude and practice (KAP) study on sheep owners regarding fasciolosis in northwest of Tunisia. *Veterinary parasitology, regional studies and reports*, 52, 101049.

Hosseini, S., Ahmadpour, M., Shirabadi, R., Arzamani, K., & Rajabzadeh, R. (2016). The knowledge, attitude and practice of "Health-Go betweenes" Esfarayen country about cutaneous leishmaniasis disease in 2013. *North Khorasan University of Medical Sciences*, 7(4), 735-743. (In Persian).

Hundal, J. S., Sodhi, S. S., Gupta, A., Singh, J., & Chahal, U. S. (2016). Awareness, knowledge, and risks of zoonotic diseases among livestock farmers in Punjab. *Veterinary world*, *9*(2), 186–191.

Jafari-Gh, A., Laven, R.A., Eila, N., Yadi, J., Hatami, Z., Soleimani, P., Jafari-Gh, S., Moazez Lesko, M., Sinafar, M., & Heidari, E. (2020). Transboundary and infectious diseases of small ruminants: Knowledge, attitude, and practice of nomadic and semi-nomadic pastoralists in northern Iran. *Small Ruminant Research*, 183.

Jamra, S., Shakya, M., Jayraw, A. K., Agrawal, V., Singh, M., Sharma, A. K., Bhangale, G. N., Jatav, G. P., & Jamra, N. (2024). Assessment of farmers' knowledge, attitudes and control practices (KAP) to mitigate acaricide resistance and tick-borne diseases. *Parasitology*, 151(9), 971–982.

Kaplan, RM. (2004). Drug resistance in nematodes of veterinary importance: a status report. *Trends in Parasitology*, 20(10), 477-481.

Kargbo, A., Jawo, E., Amoutchi, A. I., Koua, H., Kuye, R., Dabre, Z., Bojang, A., & Vieira, R. F. C. (2022). Knowledge, attitude, and practice of livestock owners and livestock assistants towards African Trypanosomiasis control in the Gambia. *Journal of Parasitology Research*, 2022, 3379804.

Khamassi Khbou, M., Rekik, S., Romdhane, R., Sassi, L., Bergmann, F., Groschup, M. H., Rekik, M., & Gharbi, M. (2025). Assessment of the Knowledge, Attitude, and Perception (KAP) of Sheep Farmers Regarding Ticks and Tick-Borne Pathogens in Tunisia, North Africa. *Veterinary Sciences*, *12*(1), 2.

Mahami-Oskouei, M., Dalimi, A., Forouzandeh-Moghadam, M., & Rokni, M.B. (2012). Prevalence and severity of animal Fasciolosis in six provinces of Iran. *Feyz*, 16(3), 254-260. (In Persian).

Mahmoodipour, M., Hamidinejat, H., & Tabandeh, M. (2024). Investigation of *Babesia microti* parasite by PCR method and determining the sequence of 18S rDNA gene in Ixodidae in Khuzestan province. *Iranian Veterinary Journal*, *19*(4), 144-154. (In Persian).

Morgan, E. R., Hosking, B. C., Burston, S., Carder, K. M., Hyslop, A. C., Pritchard, L. J., Whitmarsh, A. K., & Coles, G. C. (2012). A survey of helminth control practices on sheep farms in Great Britain and Ireland. *Veterinary Journal* (London, England : 1997), 192(3), 390–397.

Morgan, E. R., Aziz, N. A., Blanchard, A., Charlier, J., Charvet, C., Claerebout, E., et al. (2019). 100 Questions in Livestock Helminthology Research. *Trends in Parasitology*, *35*(1), 52–71.

Nabavi, R., Shayan, P., Shokrani, H., Eslami, A., & Bokaie, S. (2011). Evaluation of Benzimidazole resistance in *Haemonchus contortus* using comparative PCR-RFLP methods. *Iranian Journal of Parasitology*, *6*(2), 45–53.

Ndwandwe, K. C., Chimonyo, M., Tsotetsi-Khambule, A., & Marufu, M. C. (2025). Perceptions on anthelmintic use and resistance development in goats under communal production systems. *BMC veterinary research*, 21(1), 453.

Nemati, R., Bahari, A., Mahmoodi, P., & Sazmand, A. (2019). Molecular study of Benzimidazole Resistance in *Teladorsagia circumcincta* isolated from sheep in north of Iran. *Iranian Journal of Parasitology*, *14*(4), 646–651.

Ola-Fadunsin, S.D., Abdullateef, M.A. & Ola-Fadunsin, O.J. (2025). Assessment of the knowledge, attitudes, and practices relating to helminth infections among poultry farmers in Kwara State, Nigeria. *BMC Agriculture*, 1, 7.

Özlü, H., Atasever, M., & Atasever, M. A. (2020). Knowledge, attitude, and practices of cattle farmers regarding zoonotic diseases in Erzurum, Turkey. *Austral Journal of Veterinary Sciences*, 52(3), 79-85.

Qucuo, N., Wu, G., He, R., Quzhen, D., Zhuoga, C., Deji, S., Zhang, L., Zhao, Z., & Du, Z. (2020). Knowledge, attitudes and practices regarding echinococcosis in Xizang Autonomous Region, China. *BMC Public Health*, *20*(1), 483.

Rasouli, S., & Khoram, H.. (2009). The survey of cestoda infection in digestive system of slaughtered sheep and goat in baneh slaughter house. *Journal of Large Animal Clinical Science Research (Journal of Veterinary Medicine)*, 3(6), 19-22. (In Persian) .

Rose, H., Rinaldi, L., Bosco, A., Mavrot, F., de Waal, T., Skuce, P., Charlier, J., Torgerson, P. R., Hertzberg, H., Hendrickx, G., Vercruysse, J., & Morgan, E. R. (2015). Widespread anthelmintic resistance in European farmed ruminants: a systematic review. *The Veterinary Record*, *176*(21), 546.

Saberinejad, A. R., Pourmahdi Borujeni, M., Jamshidian, J., & Haji Hajikolaei, M. R. (2025). Knowledge, attitude, and practice of livestock farmers in Ilam province towards parasitic diseases and their drug control strategies. *Iranian Veterinary Journal*, 20(4), 74-102. (In Persian).

Sadeghi dehkordi, Z., Haseli, R., Moeini, B., & Sazmand, A. (2023). Assessment of knowledge, attitudes, and practices relating to parasitic diseases among pet owners in Hamadan and Kermanshah, Iran, from 2018 to 2020. *Journal of Ilam University of Medical Sciences*, 31 (2), 55-64. (In Persian).

Samkange, A., Chitanga, S., Neves, L., & Matjila, T. (2022). Evaluation of knowledge, attitudes and practices regarding neosporosis and toxoplasmosis among farmers and animal health practitioners in Namibia. *Tropical animal health and production*, 55(1), 28.

Sazmand, A., Alipoor, G., Zafari, S., Zolhavarieh, S.M., Alanazi, A.D., & Sargison, N.D. (2020). Assessment of knowledge, attitudes and practices relating to parasitic diseases and anthelmintic resistance among livestock farmers in Hamedan, Iran. *Frontiers in Veterinary Science*,7, 584323.

Shalaby, H.A. (2013). Anthelmintics resistance; how to overcome it?. *Iranian Journal of Parasitology*, *8*(1), 18–32.

Singh, B. B., Kaur, R., Gill, G. S., Gill, J. P. S., Soni, R. K., & Aulakh, R. S. (2019). Knowledge, attitude and practices relating to zoonotic diseases among livestock farmers in Punjab, India. *Acta tropica*, 189, 15–21.

Soltan-Alinejad, P., Rezaei, F., Babazadeh, S., Akhtari, A., Fakour, S., Kamrani, S., Abbasi-Ghahramanloo, A., Adham, D., & Moradi-Asl, E. (2025). Assessment of knowledge, attitude, and practice of livestock farmers in northwest Iran regarding myiasis. *BMC veterinary research*, 21(1), 436.

Suolaniemi, J., Autio, T., Heikkinen, J., & Räsänen, K. (2023). Knowledge, attitudes, and practices of Finnish dairy farmers on cryptosporidiosis. *Journal of Agromedicine*, *28*(2), 288–299.

Sutherland, I. A., & Leathwick, D. M. (2011). Anthelmintic resistance in nematode parasites of cattle: a global issue?. *Trends in Parasitology*, *27*(4), 176–181.

Thrusfield, M., Christley, R., Brown, H., Diggle, P.J., French, N., Howe, K., Kelly, L., O,Connor, A., Sargeant, J., & Wood, H. (2018). Veterinary Epidemiology. 4th ed. John Wiley & Sons Ltd, pp, 276-284.

Vadlejch, J., Kyriánová, I. A., Várady, M., & Charlier, J. (2021). Resistance of strongylid nematodes to anthelmintic drugs and driving factors at Czech goat farms. *BMC Veterinary Research*, *17*(1), 106.

Vande Velde, F., Charlier, J., & Claerebout, E. (2018). Farmer behavior and gastrointestinal nematodes in ruminant livestock-uptake of sustainable control approaches. *Frontiers in Veterinary Science*, *5*, 255.

Vercruysse, J., Charlier, J., Van Dijk, J., Morgan, E. R., Geary, T., von Samson-Himmelstjerna, G., & Claerebout, E. (2018). Control of helminth ruminant infections by 2030. *Parasitology*, *145*(13), 1655–1664.

Woods, D. J., & Knauer, C. S. (2010). Discovery of veterinary antiparasitic agents in the 21st century: a view from industry. *International Journal for Parasitology*, *40*(10), 1177–1181.

Zanzani, S. A., Gazzonis, A. L., Di Cerbo, A., Varady, M., & Manfredi, M. T. (2014). Gastrointestinal nematodes of dairy goats, anthelmintic resistance and practices of parasite control in Northern Italy. *BMC Veterinary Rresearch*, *10*, 114.