**National Prevalence and species diversity of bovine tick and associated risk factors: Systematic review and meta-analysis**
Gedam, Tola1\*., Abaineh, Munshea1,2., Sissay, Menkir.1

1. Department of Biology, Science college, Bahir Dar University, P.O.Box 79, Bahir Dar, Ethiopia
2. Institute of Biotechnology, Bahir Dar University, P.O.Box 79, Bahir Dar, Ethiopia

\*Corresponding author email: gedamtdbu12@gmail.com, Bahirdar

**Abstract**

**Background:** Ticks are ecto-parasites/ important vectors that significantly impact animal health and productivity, leading to substantial economic losses particularly in tropical and subtropical countries, including Ethiopia. This systematic review and meta-analysis aimed at assessing the prevalence and associated risk factors of bovine ixodid tick infestation in Ethiopia between 2009 and 2024.

**Methods:** This systematic review and meta-analysis was conducted using the PRISMA guideline, utilizing published scientific articles from 2009 to 2024 based on the most recommended scientific databases, viz., search terms ‘’ ((((tick[MeSH Terms]) AND (tick borne disease, risk factors[MeSH Terms])) AND (ethiopia[MeSH Terms])) AND (tick infestations[MeSH Terms])) AND (tick and associated risk factors[MeSH Terms])’’. Articles that met the inclusion criteria were retrieved from eligible articles and recorded in a preformed data record sheet. Pooled prevalence, odds ratio and proportion of tick were used to analyse the prevalence of bovine ixodid tick in Ethiopia using STATA v.17.

**Result:** In this study, 41 studies were included. The pooled prevalence of ixodid Tick in Ethiopia was 61.65 % (95% CI 53.98-69.04). Accordingly, *Amblyoma* (40%) had the highest prevalence at genus level, followed by *Rhipicepalus* (27%), *Bophilus* (18%), and *Hayoloma* (6%). The Oromia region had a higher tick prevalence of 85% (95% CI, 84-85) compared to the other regions of the country. The study found that female cattle were more infested than male cattle, with a pooled prevalence of 55 (95% CI, 45-64). The study further highlighted those cattle with poor body conditions were highly infested by tick 67 % (95% CI 56-78). Exotic cattle were found to be significantly more infested than local and cross breeds by 61% (95% CI 27-92).

**Conclusions:** In conclusion, we found that high pooled prevalence of ixodid tick with poor body conditions, female, exotic cattle, and young cattle. This meta-analysis could serves as baseline data for assessing the disease's distribution in Ethiopia, identifying knowledge gaps, and fostering further research interest in the area. ixodid ticks infestation is high in oromia regional state however it circulate over a wide geographical area of ​​Ethiopia., there is limited reporting at other regional level which requires further investigation.

**Keywords:** Ixodid ticks, risk factors, Tickborn disease, Ethiopia