Temporal dynamics of tick abundance in Denmark, 2017-2024

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Background

 Increased focus on tick-borne diseases, i.e., TBE and Lyme borreliosis
(LB), with neuroborreliosis (NB) being the most severe form of LB.
Growing abundance of ticks and prevalence of their pathogens in Europe poses a significant health challenge.
Effective prevention of tick bites and related infections requires a deeper understanding of the factors influencing tick abundance and activity patterns.









Interaction between soil temperature and humidity:





Conclusion

- > Tick nymph activity patterns are highly seasonal, April-November
 - > Negative effect of sunshine, precipitation and relative humidity
 - > The effect of humidity depends on soil temperature
- Tick nymph activity patterns align with temporal patterns of human NB in Denmark, with a 1-month lag

>Usage:

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- Identification of temporal risk periods
- Interpretation of human- and animal disease incidence data
- Input to epidemiological models

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*Humidity: average humidity during preceding hour, Precipitation: number of minutes with precipitation during preceding hour, Sunshine: number of minutes with sunshine during preceding 10 min, Temperature: minimum soil temperature (depth 10 cm) during preceding hour.



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