

## LIGHT TRAP COLLECTION COMPARISONS

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Awareness of all potential vectors of the viruses of bluetongue and African horse sickness is crucial for the implementation of integrated control measures, risk analysis and disease management. The primary monitoring tools used for the collection of *Culicoides* midges are various models of suction light traps. In order to facilitate comparison of data between laboratories, the efficiency of the Onderstepoort, Rieb, mini-CDC, Pirbright and BG-sentinel, used at present and during the past in Europe, was compared in the field in South Africa. In a separate series of comparisons, the influence of trap height, the presence of hosts and the addition of octenol to the trap on species composition and number of *Culicoides* midges collected were determined. Comparisons were done in an appropriate number of replicates of a randomized Latin square design. The Onderstepoort trap collected significantly more *Culicoides* midges in summer and in winter than the other traps. It was found that relatively small variations in the height at which the trap is deployed can have a significant influence on the number of midges collected. Although these results seem to indicate a height preference for *C. imicola* it needs to be determined to what extent environmental factors, the presence of nearby structures, other light sources and hosts near the trap might have on the height at which *Culicoides*

midges will fly. Significant differences were found in the number of *Culicoides* and especially *C. imicola* numbers collected at various distances from host animals. Statistically significant higher numbers and proportions of *C. imicola* were collected immediately next to the animals compare to collections made 5 to 30 m away from animals. The addition of 1-octen-3-ol (9.1 mg/h) and 4-methylphenol (15.5 mg/h) did not have any significant influence on the number of *Culicoides* collected with the Onderstepoort trap. Relatively small but statistically significant differences were found in the species composition, parous rates, sex ratios as well as the ratio of *Culicoides* midges to other insects, as determined by the different collection regimes. Despite a great variety of factors that can influence light trap results, it remains the most reliable and practical way to determine species richness and abundance in an area. The results of this study highlighted a few factors that may influence the numbers of *Culicoides* midges collected and the problems involved in the reliable comparison of light trap data between different collection sites. It emphasized the need for the standardization of techniques for measuring the variables of vectorial capacity.

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