Behaviour of organic lactating sows given access to poplar trees

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Every third piglet born in Danish outdoor pig production dies before weaning. This fact is in conflict with both the idea of increased animal welfare in the organic production and the organic principles. A there is a need for studies identifying management procedures, which may be used to lower piglet mortality. Heat stress in the sows is one factor known to increase piglet mortality. And so the aim of the current study was to investigate how access to poplar trees (an alternative shaded area) affects signs of heat stress and paddock use in lactating sows. Seventy-two lactating sows (median parity 4; range 1-8) and their litters were included in the study. Fifty-eight test sows were housed in paddocks (490 m^2) with access to poplar trees and 14 control sows were housed in standard paddocks (278 m^2) without shade. Piglets were kept inside the huts for the first ten days pp (post partum). Sows were monitored using focal scan sampling on a daily basis from three days before until eight days after expected farrowing and at approximate day 14 and 28 after expected farrowing. The average total litter size was 17 piglets and approximately 31% of these died before weaning (day 49). The average ambient temperature was 16.5 °C. Data were analysed using the proc mixed procedure in SAS. The results showed that sows with access to poplar were more often outside the hut before farrowing and on d 0 and 1 pp (59.3% and 19%) compared to controls (42% and 6.4% respectively) ($P<0.05$). Sows with poplar also increased the use of the paddock at high compared to low temperature (at 25 vs 18 °C: 45 vs 30% of time) compared to controls (at 25 vs 18 °C: 30 vs 30% of time) ($P<0.05$). When in the paddock, sows with access to poplar were observed lying more (29%) compared to controls (18%) ($P<0.0005$). There was an interaction between temperature and observation day ($P<0.05$). All sows spent more time lying at high vs low temperature particularly before farrowing, on day 0 and 1 pp and again after d 11 pp. Sows with access to poplar, spent more time in the poplar during days before farrowing and after d 11 pp, than on other days ($P<0.0005$), and at high compared to low temperature ($P<0.05$). In conclusion access to poplar increased sows use of the paddock, particular at high temperatures. The use of the poplar trees was higher before farrowing and after d 11 pp; likely because the piglets then were able to leave the hut. In general there was a trend for all sows to lie down more when outside the hut at high temperature.