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Effect of orientation, ventilation, floor space allowance and cooling arrangement of cattle shed on the microclimate of shed and milk yield of dairy cattle in Goa

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Ten farmers consisting of large, medium, small and marginal from each of six taluka i.e. Pernem, Bicholim and Ponda taluka of North Goa district; Salcete, Canacona and Sanguem talukas of South Goa district in total sixty farmers from six talukas were considered based on cattle population for this study. Farmers were interviewed for collecting information on housing and production aspect of dairy cattle. Subsequently farmers were grouped according to type of dairy house. Data on microenvironment of cattle shed and daily milk yield of cows were recorded besides feeding and disease occurrence. Data analysis revealed that orientation of cattle shed had significant ($P < 0.05$) effect on av. daily milk yield, av. daily air temperature, av. daily relative humidity, while highly significant effect ($P < 0.01$) on av. daily temperature humidity index. Lesser heat stress and more milk yield were observed in cattle house having east – west orientation. Ventilation of cattle shed had highly significant ($P < 0.01$) effect on av. daily milk yield, while significant effect ($P < 0.05$) on av. daily air temperature, av. daily relative humidity and av. daily temperature humidity index. Significantly higher milk yield (9.896 ± 0.090 kg), significantly lower air temperature (27.62 ± 0.13^{0}C), significantly lower relative humidity (79.43 ± 0.35 %) were observed in cattle shed with good ventilation. Floor space provision inside cattle shed had highly significant ($P < 0.01$) effect on av. daily milk yield and all the microenvironments. Average daily milk yield (9.736 ± 0.085 kg) was significantly higher while av. daily relative humidity (79.88 ± 0.37 %) was significantly lower in cattle shed where standard floor space of minimum 5m2 per cattle was maintained. Cooling arrangement in cattle house had highly significant ($P < 0.01$) effect on av. daily milk yield and all the microenvironmental parameters. It was inferred that besides manual and mechanical cooling if false ceiling is made inside cattle house cow would feel more comfort with higher milk yield.

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