Determination of gestational age during pregnancy diagnosis is an essential part of assessing reproductive efficiency. In cattle, fetal measurements are commonly used for this purpose. However, obtaining these measurements can be time consuming and visualisation of the fetus difficult to achieve, particularly later in gestation. Measurement of placentome size could be an alternative, as from 60 days of gestation onwards placentomes are easy to visualise and simple to measure using ultrasound and they grow in size during gestation. However, although there is significant anecdotal evidence of their use there have been no published studies evaluating their use in predicting gestational age. 58 dairy cattle from two farms were examined using transrectal ultrasound every 10 days from day 60 until drying off (approximately 180 days). Scanning sites were determined by first locating the cervix of the animal followed by locating the placentomes that were approximately one probe length (6 cm) distal from the cervix. Three to four placentomes were measured in each horn at each timepoint, images of each placentome were captured for subsequent measurement using Image J software. Two measures were recorded per placentome - longest length and width perpendicular to that measurement. A repeated measures mixed model was used to analyse the data, with placentome measurement (either length or perpendicular length) as the dependent variable and farm, breed, age (first lactation or older), horn (pregnant or non-pregnant) and the number of days pregnant as independent variables. The analysis showed that there was no significant effect of horn, age or breed on placentome size ($P>0.05$) but there was a significant association between gestational age over the period of the study ($P<0.001$) and a significant farm effect ($P<0.001$). A regression equation was thus calculated for each farm. For each farm this showed that placentome size tended to overestimate gestation length below 130 days, and underestimate it after that. Again for both farms, the 95% and 75% prediction intervals were ± 31 and 20 days respectively. These high prediction intervals combined with the presence of a farm effect suggest that placentome size is not a useful measure of gestation age. Further research is required to establish the factors which influence placentome development in normal cows, particularly those responsible for the farm effect seen in this study.