

A simple, practical method for measurement of fat in milk, applied to samples from mid- to late-lactating working elephants in a maternity camp in Myanmar

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Summary

Although elephants have been trained for manual milk collection, potential challenges to standardized laboratory analysis for milk in Myanmar include sample size, transportation, limitations of reagents, equipment, and electricity, as well as applicability of methodologies developed for dairy livestock species to wildlife. A modification of a rapid, economic method that has previously been used for estimating fat and energy content in livestock and human milks, tested on elephant milk samples, for ultimate field application, was described here. Milk samples (5 to 20 ml) from 6 Asian elephant (*Elephas maximus*) cows were obtained on 6 separate dates between the wet season (Jul through Sep 2016; n=3) and dry season (Oct 2016 through Mar 2017; n=3) from mature cows in mid- (16 mo) to late lactation (38 mo). Aliquots were blended by inversion, and were drawn by capillary action into standard glass capillary tubes that were sealed by clay. Tubes were centrifuged at 12,000 rpm (approximately 14,500 g) for 15 min using a hematocrit centrifuge, then immediately the fat layer(s) at the top were measured to the nearest 0.01 mm using digital calipers, and expressed as a percentage of the total milk column.