

Cooking bananas are the most important food crop in Uganda and considerable research attention is now focused on yield declines experienced in long-term banana production areas. Measurement of banana bunch weight using field scales is rapid and reliable, but not always possible during field monitoring because it requires that either farmers, possess and, reliably use scales or that researchers are present during the short interval between bunch harvest and marketing or consumption of bananas. Furthermore, occasional theft of banana bunches from field experiments pose serious sources of experimental error owing to the large mass of individual bunches and relatively few banana plants per experimental plot. The phenology of 317 banana bunches of *Musa* cv. Mbwaziirume obtained from a 3-year-old field experiment was used to construct two estimates of individual bunch volume. Crude cylindrical volume (CCV) is based on the distance between the upper and lower most hands (length) and the maximum bunch girth (circumference). Aggregate finger volume (AFV) is based on the mean length and maximum circumference of three banana fingers  $\times$  mean number of fingers per hand  $\times$  number of hands per bunch. Both volume estimates were expressed as litre bunch<sup>-1</sup> and compared to individual banana bunch mass (kg bunch<sup>-1</sup>) using linear regression procedures. Banana bunch mass varied from 0.9 to 15.9 kg and bunch volumes between 0.5 to 45.9 l. Both volume estimates yielded significant relationships with mass as a dependant variable where bunch (kg)=0.56+0.33 CCV ( $r=0.85$ ) and bunch (kg)=0.66+0.49 AFV ( $r=0.94$ ). These relationships were established across a range of management practices including  $\pm$  retention of crop residues and  $\pm$  addition of 10 t ha<sup>-1</sup> yr<sup>-1</sup> napier grass (*Pennisetum atropurpureum*) or cattle manure. Bunch mass varied from 4.11 to 8.28 kg in relation to management and these changes were reflected in the slope values of CCV but not AFV, suggesting that AFV provides a more robust estimate, however, CCV is more easily obtained from non-destructive field measurements..