Absolute palaeointensity records from volcanic rocks are one of the few sources of geophysical information available for investigating changes of the Earth’s magnetic field throughout geological time. Changes in palaeointensity may be linked to critical periods in Earth’s history and help us to constrain a number of Earth processes, from the behaviour of core to the magnetic field’s modulation of cosmogenic nuclide production. A major ongoing challenge is the development of reliable palaeointensity methods. In the last fifteen years a number of methods have been proposed and our understanding of existing methods has advanced greatly. However, palaeointensity results obtained from historical lavas produce significant variations about the expected result regardless of methodology. We report a comprehensive study linking the success of multiple palaeointensity techniques to the magnetic properties of basaltic lavas erupted in 1951 and 1995 on Fogo, Cape Verde. The composition and grain size of the magnetic minerals varies between flows and within individual sites, and captures the full range of magnetic characteristics commonly exhibited by lavas erupted elsewhere in the world. Variations on Thellier, Shaw, Wilson, microwave and multi-specimen parallel differential pTRM methods were investigated. We draw from the results of over two hundred palaeointensity experiments and discuss the relative success of different methods, their possible dependence on rock magnetic properties and other laboratory controls, as well as reliability tests for detecting alteration during laboratory heating. Based upon these results we consider strategies for maximising the success of future palaeointensity studies.