Knowledge translation and transfer (KTT) aims to ensure that the best available research knowledge is used to inform policy and practice decision-making. Many frameworks, methods and terms have been used to describe KTT, primarily in the health sector, and there is a need to summarize these principles and how they could be applied on agri-food public health issues. A mixed-method review was conducted to identify and synthesize comprehensive reviews, reports and commentaries describing KTT in various sectors. A pre-tested search strategy was implemented in five online databases (Medline, Scopus, CAB Direct, Current Contents Connect and CINAHL) on July 25, 2011. Two independent reviewers screened the identified abstracts for relevance, characterized the relevant articles, and conducted a qualitative thematic analysis on a prioritized selection of these articles. A total of 160 relevant articles were characterized and 33 were prioritized for thematic analysis. Most articles were narrative reviews (81.9%) and were published in the health sector (80.0%). Twenty-two KTT methods were identified, including five synthesis (e.g. systematic review), nine dissemination (e.g. policy briefs) and eight exchange (e.g. knowledge brokering) methods. Five thematic areas were identified as key characteristics for successful KTT: relevant and credible research knowledge; ongoing communication and collaboration between researchers and end-users; organizational support and culture; monitoring and evaluation; and understanding the policy-making process and context. This review has identified key methods and principles for successful KTT that should be used by researchers and end-users to help bridge the gap between science and policy in the agri-food public health sector.