The use of recommender systems has become the de-facto standard in e-commerce systems. The most popular recommendation techniques are the collaborative filtering techniques. Their open nature of collaborative recommender systems however allows attackers who inject biased profile data to have an impact on the recommendations produced. The standard memory-based collaborative filtering algorithms, such as k-nearest neighbour, have been shown to be quite vulnerable to such attacks. In this paper, we examine the robustness of model-based recommendation algorithms in the face of profile injection attacks. Specifically, two recommendation algorithms under the Slope One class of algorithms, namely, Weighted Slope One and Improved Slope One, are considered. Additionally, we propose a modified Slope One based algorithm which we call the Robust Weighted Slope One (RWSO) algorithm. Empirically, we show that the Robust Weighted Slope One performs better under profile injection attacks. We also show that the Improved Slope One performs poorly under pre-attack conditions contrary to expectations.