We give a generalization of the averaging argument for Maschke's theorem in the setting of table algebras (aka. fusion rings). Table algebras are algebras with involution over $\mathbb{C}$ with finite basis $B$ that contains 1, is $\ast$-closed, has non-negative real structure constants $\{\lambda_{bcd} : b, c, d \in B\}$ given by $bc = \sum_d \lambda_{bcd}d$, and satisfies the pseudo-inverse condition: $\lambda_{b1} > 0 \iff c = b^\ast$, and $\lambda_{b^\ast b} = \lambda_{bb^\ast}$. When $F$ is a field with (possibly trivial) involution containing the structure constants $\{\lambda_{bcd} : b, c, d \in B\}$, then $FB$ becomes an $F$-algebra with involution defined by

$$\left(\sum_{b \in B} \alpha_b b\right)^\ast = \sum_{b \in B} \bar{\alpha}_b b^\ast.$$ 

This version of Maschke's theorem gives sufficient conditions on the characteristic of the field $F$ for $FB$ to be a semisimple algebra, in terms of arithmetic properties of the table algebra basis $B$. 
