Prevalence of respiratory illnesses has increased with urbanization, but growing up on traditional farms offers protection even today. Protective effects of farming environment appears to be associated with richer house dust microbiota, which have been proposed to be used as a health-promoting indoor microbiome.

Here, we show by training machine learning that model the differences in house dust microbiota composition between traditionally agrarian, farm and non-farm homes of a Wisconsin birth cohort that children who grow up in non-farm homes are more likely to be protected against wheezing and eczema as their bacterial microbiota composition is more similar to that of farm and traditionally agrarian homes.