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Pesticide Contamination in Land Reform Settlements in Brazil: The Case of ‘Cachoeira Bonita’ in Caiaponia, Goiás State

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Abstract

Brazil is the largest consumer of pesticides in the world, especially products that are no longer used in developed countries. Public health studies in Brazil show that inadequate use of pesticides increases the incidence of accidents and contamination of poor rural communities in Brazil. The objective of this study was to identify factors that determine the occurrence of problems with pesticides in a typical Brazilian land reform settlement. The study was carried out in the land reform settlement of ‘Cachoeira Bonita’ in Caiaponia, Goiás state, Brazil. In the empirical analysis the econometric model probit was used. The dependent dichotomous variable was the existence of health problems in the family setting that are caused by the use of pesticides. The independent variables were the family size (p value = 0.0098); the attendance to any church, whether Catholic or Protestant (p value = 0.4828); if farmers received any technical assistance (p value = 0.8251); the current health condition of the family (p value = 0.0223), and if there are exacerbated erosion problems on the farm (p value = 0.0298). Data from 28 farmers were collected through a structured questionnaire. The probit model showed good fit of 0.5694 by the McFadden R-squared statistic and of 20.02 by LR statistic. Among the main findings, larger families have a higher probability of accidents involving pesticides. The current health conditions of family and the problems of soil degradation in the farm imply a reduction in the likelihood of contamination with pesticides. These two results indicate that rural households that have good health condition and have experienced environmental degradation on their farm have higher environmental awareness. The variable technical assistance also reduces the likelihood of accidents with pesticides, but was not statistically significant. Finally, the church attendance variable was statistically non-significant and had an opposite sign to what we expected. Therefore, the study shows that decision makers must plan and programme policies (technical assistance, adequate handling of pesticide packing, waste control and management and environmental education) with focus on sustainable development, especially in these poor rural communities that are marginalised in the process of economic development.

Keywords: Environmental awareness, pesticide use