

# EXPOSURE TO PHENOXYACETIC ACID HERBICIDES AND ITS' PREDICTORS OF EXPOSURE AMONG SPOUSES OF FARMERS

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**Background:** The application of pesticides often takes place close to private dwellings and may contribute to environmental exposure to pesticides of their inhabitants. The purpose of the study was to measure the environmental exposure to two commonly used pesticides 2-methyl-4-chlorophenoxyacetic acid (MCPA) and 2,4-dichlorophenoxyacetic acid (2,4-D) among spouses of farmers, not directly involved in the process of spraying.

**Methods:** During the spring, exposure to 63 sprayings in the household of 24 women were assessed. Women were asked to collect three urine samples: in the morning before spraying (sample A), in the evening after spraying (sample B) and on the next day (sample C).

**Results:** The number of samples where the level of pesticides were above limit of detection increase from samples taken before spraying to samples taken after spraying in case of the level of both active ingredients: MCPA and 2,4-D. In the A samples the level of pesticides > LOD was found in about 30% of samples whereas in B and C samples in about 45% of samples. The average levels of herbicides in examined urine samples increased from sample A collected in the morning before spraying (2.8 ng/g creatinine) to sample B collected after spraying (6.0 ng/g creatinine). Mean value from the sample C (4.0 ng/g creatinine) taken on the next day after spraying were lower than B and higher than A. In similar direction were results when the average was calculated for all measurements' (including those below LOD). Only women's outdoor activity during spraying was statistically significant ( $p=0,023$ ) predict the level of exposure.

**Conclusions:** The presented study have confirmed that farmers' spouses are exposed to pesticides after spraying which indicates that there is transfer of pesticides from the field to the home environment. But further research is required to be able to predict those individuals who are exposed.