

## **Effects of pesticide use on semen quality among farmers in rural areas of Sabah, Malaysia**

### **Abstract**

Objectives: To determine the relationship between semen quality and exposure to pesticide residues. Methods: A cross-sectional study was conducted among male farmers from 3 different communities in Sabah, Malaysia. A total of 152 farmers participated in this study of whom 62 farmers had been exposed to either paraquat or malathion or both to varying extents. Questionnaires were designed to record a history of pesticides exposure and other potential risk factors among farmers. All semen samples were collected, processed and analyzed by qualified personnel based on WHO guidelines. Volume, pH, sperm concentration, motility, morphology and WBC count were examined and recorded. The association between pesticide exposure and semen parameters was highly significant. Results: The mean values of volume, pH, sperm concentration, motility, and WBC count were significantly less in the exposed group than in compared with the non-exposed group, with  $p < 0.005$ . Those who were exposed to pesticides had greater risk of having abnormal semen parameters than those in with the non exposed group, with p values of less than 0.05. The comparison between semen qualities such as lower sperm count, motility and higher percentage of sperm abnormality of those exposed to different types of pesticides (paraquat and malathion) showed no significant differences. Conclusion: The results showed a significant decline in semen quality with a decline in sperm count, motility and higher percent of teratospermia among subjects with pesticide exposure, and those who were exposed to pesticides had significantly 3 to 9 times greater risk of having abnormal semen parameters.