A 1999 epidemiologic study from Sweden asked people with non-Hodgkin’s lymphoma (NHL) (a cancer typically associated with the lymph nodes) – to recall what pesticides they had used in past years (Hardell and Eriksson 1999). The Swedish authors reported weak, non-statistically significant associations between NHL and several herbicides, including glyphosate. The Swedish authors did not conclude that the glyphosate associations were causal, but merely expressed the opinion that further epidemiologic research on glyphosate was warranted. Nonetheless, the New Scientist periodical (Pierce and Mackenzie 1999) cited the Swedish study to raise questions about the potential for glyphosate to cause cancer in people.

Leading international experts from Karolinska Institute, Harvard, Yale and the University of Birmingham, UK do not consider the results to be credible evidence of a glyphosate cancer link. A review by world renowned epidemiologists concluded that uncontrolled risk factors, errors in exposure assessment, or chance (as indicated by the lack of statistical significance in this study) are likely explanations for the weak glyphosate / NHL association (Adami and Trichopolous, 1999; Cullen 1999; Jackson et al., 1999). Dr. Cullen of Yale University’s School of Medicine indicated “the evidence regarding glyphosate in relation to NHL is meaningless, and it would be highly inappropriate to construe this as a positive study in that regard.” Similarly, a review by Dr. Hans-Olav Adami of Karolinska Institute in Sweden and Dr. Dimitrios Trichopolous of Harvard University concluded, “This is a study that has limited power, was inadequately designed, poorly analyzed and confusingly reported.”

In addition, the results of the study do not meet well-established criteria from the epidemiology literature for determining causal relationships. First, the association was deemed very weak. Secondly, there was no control for exposure to other pesticides. Thirdly, no dose response relationship was demonstrated. Lastly, there is no experimental evidence from several long-term studies with laboratory animals that glyphosate is mutagenic or carcinogenic, so the biological plausibility of the glyphosate / NHL finding is dubious.

Glyphosate is widely considered by regulatory authorities to have no evidence that it might cause cancer in people (U.S. Environmental Protection Agency 1993, World Health Organization 1994). These assessments were based on thorough reviews of numerous toxicology studies conducted according to internationally accepted guidelines.

The most recent review was conducted by the European Commission’s Health and Consumer Protection Directorate-General, after which glyphosate was re-registered for use in Europe (European Commission 2002). The EC review, like others around the world, concluded that glyphosate is not carcinogenic.
References


¹ Unpublished references can be requested from Monsanto’s Public Affairs Director for Agricultural Chemicals at 314-694-3546.