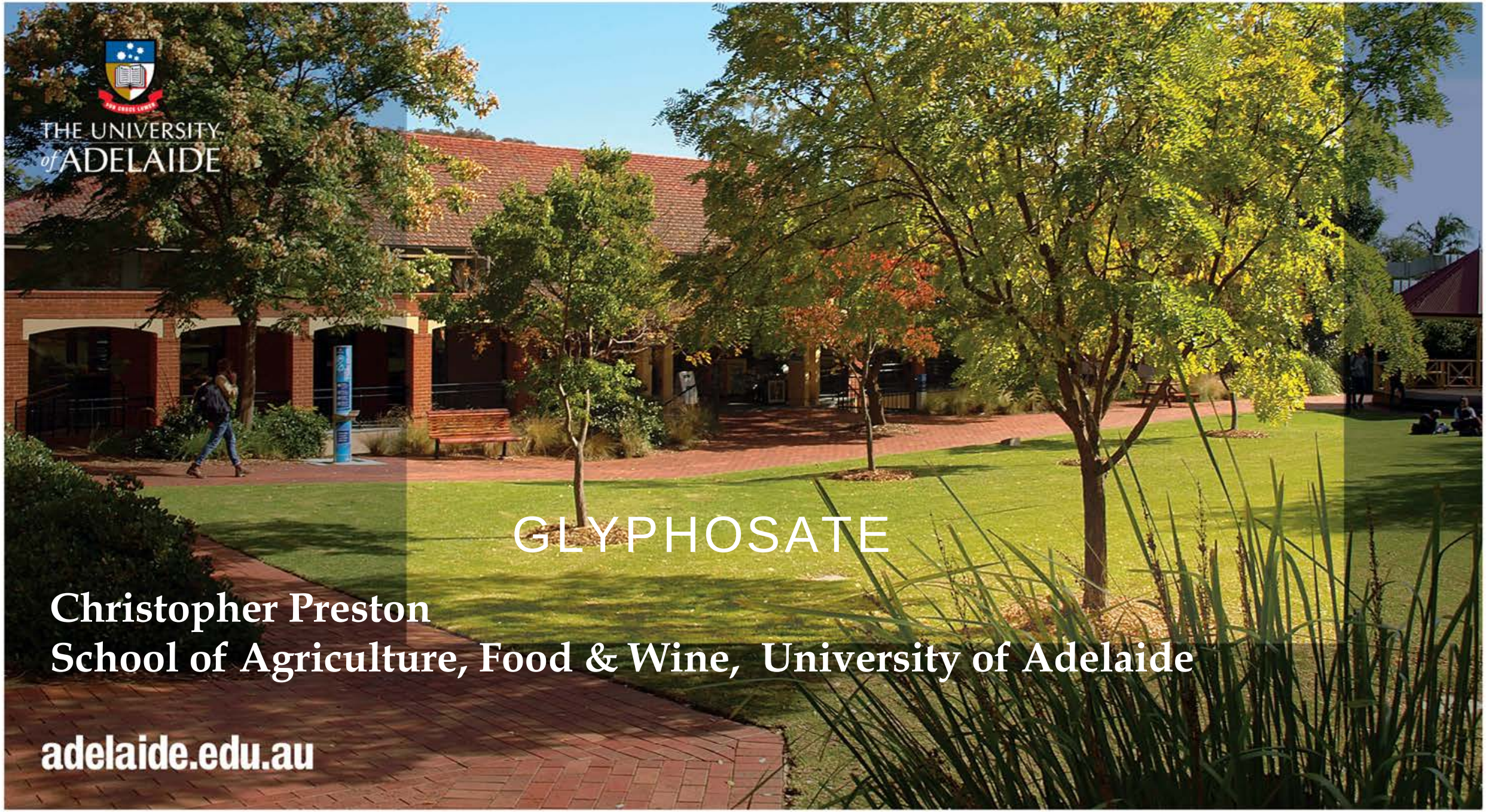

THE UNIVERSITY of ADELAIDE
GLYPHOSATE
Christopher Preston
School of Agriculture, Food & Wine, University of Adelaide
adelaide.edu.au

Glyphosate

- World's most widely used herbicide
- Commercialised in 1974
- Broad spectrum
- Systemic in plants
- Non-residual
- Benign environmental profile
- Low mammalian toxicity

- Prior to sowing – grain crops and pastures
- Stopping seed set of annual grasses
- Fallow weed management
- Glyphosate resistant cotton and canola
- Under trees and vines
- Woody weed control
- Fence lines
- Roadsides, rights-of-way
- Irrigation channels
- Around buildings, parks, home gardens

Monsanto ordered to pay $289 million in world's first Roundup cancer trial

Calls for inquiry after Four Corners report on Monsanto and glyphosate chemical, Roundup

Cancer Council calls for Australian review amid Roundup cancer concerns

Herbicide Resistant Wild Radish: Take Back Control

Herbicide resistance in wild radish is developing fast!

Effective management to control wild radish populations is imperative to protect your productivity; prevent herbicide resistance and avoid its spread.

Key Message

Maximise Clethodim Performance: Impact of Frost

Key Message

Frost events in the few days before or after Clethodim application can reduce activity of the herbicide on annual ryegrass. Clethodim efficacy tends to be reduced more substantially by frost where ryegrass populations have evolved resistance to this herbicide.

Disc Seeding Systems & Pre-emergent Herbicides

Disc seeding system design and settings influence pre-emergent herbicide behaviour and can play a critical role in minimising crop damage.

Ideal set-up of disc seeding systems, to maximise weed control with pre-e whilst minimising crop damage, requires an understanding of how the pr crop and the distribution of weed seeds in the seedbank, as well as knowl rainfall and surface residues. Using pre-emergent herbicides is not cut-ar

Key Messages

AUSTRALIAN Glyphosate Sustainability Working Group

Funding


GRDC
GRAINS RESEARCH
& DEVELOPMENT
CORPORATION


ADAMA


Nufarm

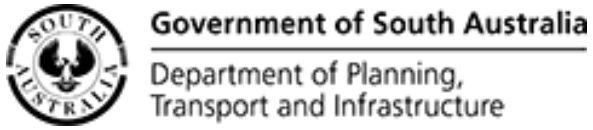

BAYER
Bayer CropScience


AgriFutures
Australia


PIONEER
BRAND · PRODUCTS


ISK BIOSCIENCES


SUMITOMO CHEMICAL


Government of South Australia
Department of Planning,
Transport and Infrastructure


PACIFIC SEEDS


SIPCAM
Innovation Not Imitation

Seralini Affair 2012

International Agency for Research on Cancer

World Health Organization

20 March 2015

IARC Monographs Volume 112: evaluation of five organophosphate insecticides and herbicides

What were the results of the IARC evaluations?

The herbicide **glyphosate** and the insecticides **malathion** and **diazinon** were classified as *probably carcinogenic to humans* (Group 2A).

International Agency for Research on Cancer classifications

Group 1: The agent is carcinogenic to humans – 120

Group 2A: The agent is probably carcinogenic to humans – 82

Group 2B: The agent is possibly carcinogenic to humans – 303

Group 3: The agent is not classifiable as to its carcinogenicity to humans – 494

Group 4: The agent is probably not carcinogenic to humans – 1

Also in Group 2A: Bitumen, very hot beverages, red meat, wood burning, hairdressing and shift work

Risk = Hazard x Exposure

IARC Conclusion

Humans: Limited evidence for carcinogenicity, positive association observed for non-Hodgkin lymphoma

Animal studies: There is sufficient evidence in experimental animals for the carcinogenicity of glyphosate

Mechanistic evidence: Genotoxicity and oxidative stress

US EPA Review of Glyphosate

- The available data at this time do no support a carcinogenic process for glyphosate.
- Overall, animal carcinogenicity and genotoxicity studies were remarkably consistent and did not demonstrate a clear association between glyphosate exposure and outcomes of interest related to carcinogenic potential.

US EPA Review of Glyphosate

- In epidemiological studies, there was no evidence of an association between glyphosate exposure and numerous cancer outcomes; however, due to conflicting results and various limitations identified in studies investigating NHL, a conclusion regarding the association between glyphosate exposure and risk of NHL cannot be determined based on the available data.

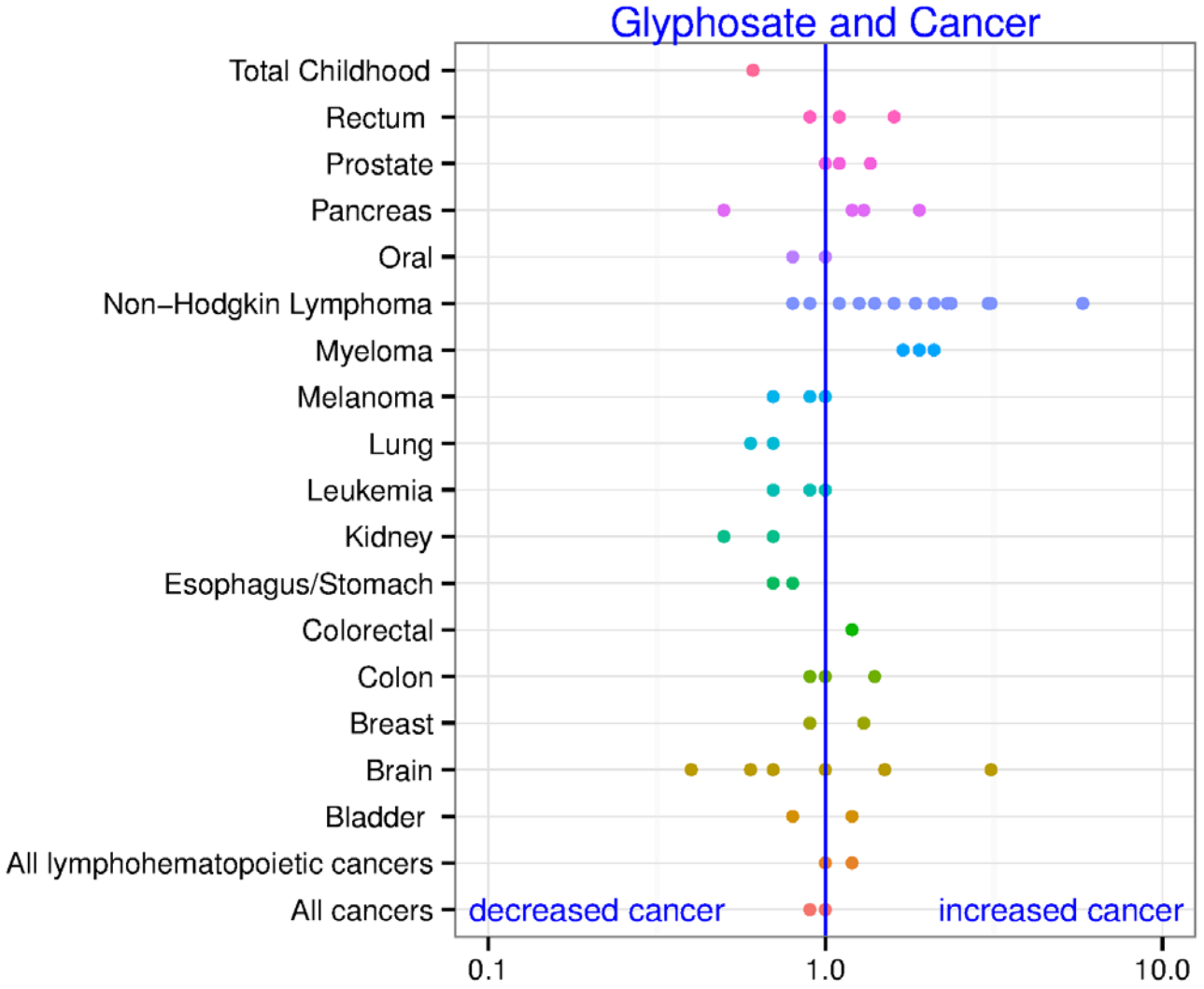
EPA Glyphosate Issue Paper:
Evaluation of Carcinogenic Potential 2016

APVMA review

On the basis of the evaluation of the scientific information and assessments, the APVMA concludes that the scientific weight-of-evidence indicates that:

- exposure to glyphosate does not pose a carcinogenic risk to humans

APVMA Final regulatory position: Consideration of the evidence for a formal reconsideration of glyphosate 2017



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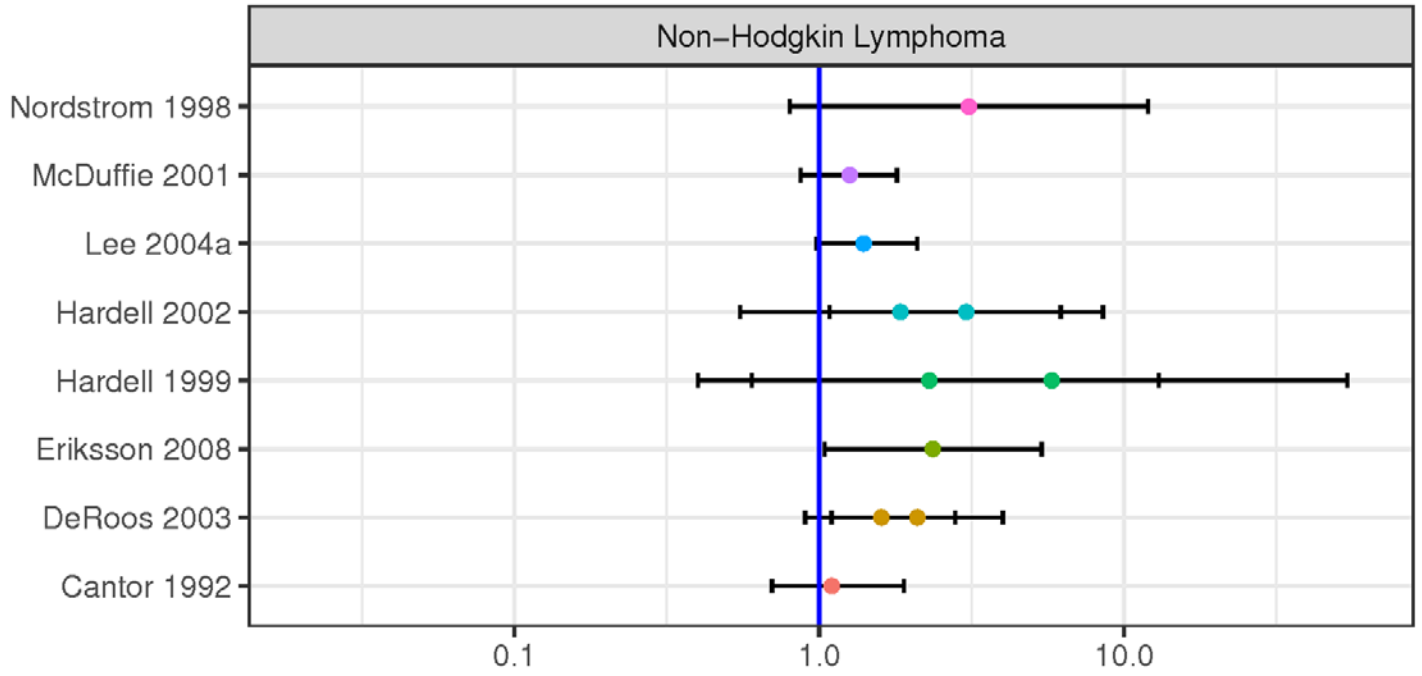
https://plantoutofplace.com/2015/03/glyphosate-and-cancer-what-does-the-data-say/

Non-Hodgkin Lymphoma



Note: most studies have very low proportions of cases that were exposed to glyphosate <4%

Andrew Kniss
https://plantoutofplace.com/2018/08/glyphosate-and-cancer-revisited/

Agricultural Health Study

54,251 herbicide applicators

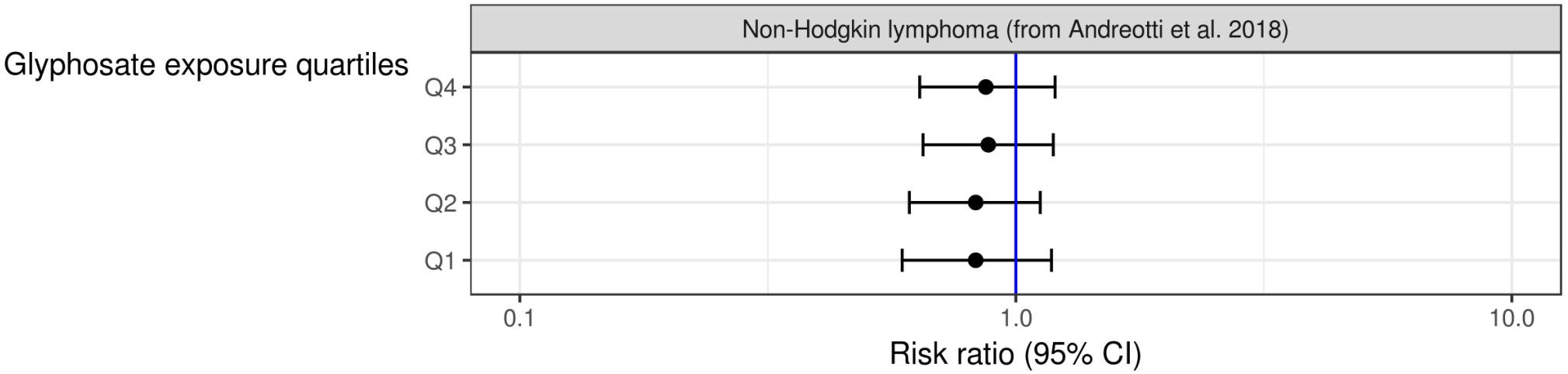
Cohort study over 20 years

22 cancers

Andreotti et al. Glyphosate use and cancer incidence in the Agricultural Health Study. *Journal of the National Cancer Institute*, *110*, pp.509-516. 2017

...glyphosate was not statistically significantly associated with cancer at any site. However, among applicators in the highest exposure quartile, there was an increased risk of acute myeloid leukemia (AML) compared with never users ..., though this association was not statistically significant.

So what about Non-Hodgkin lymphoma?



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