

Examination of Glyphosate Exposure among Latinx Farmworkers in Idaho

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Background - Farmworker Health

- Farmworkers face numerous chemical, physical, and biological threats from their occupation
- Unique threat is exposure to pesticides, which have been associated with adverse outcomes such as cancer, neurologic disorders, and respiratory diseases



Background - Glyphosate

- Farmworkers exposed to increasing levels of glyphosate (active ingredient in Roundup)
- Over 280 million pounds of glyphosate-based herbicides (GBHs) applied annually in U.S.
 - Use of GBHs increased 15-fold in past two decades
- Little information on levels of exposure in occupational populations
 - Data gaps in how protective behaviors, risk perceptions impact exposure



Women Farmworkers – Understudied & Higher Exposure?

- Latinx farmworkers > 80% of US workforce – most studies on men
- Women increasing proportion in agriculture & higher rates of Acute Pesticide Poisoning



Study Aims

Examine **urinary glyphosate concentrations** and **predictors of exposure** among Latino and Latina farmworkers in Idaho

Assess differences in **pesticide protective behaviors**, **perceived risk**, and **perceived control** by gender

. METHODS

Participant Recruitment

- Six months of study period engaging with community organizations
- Recruited participants from mobile health clinics, food distribution events, housing authorities, snowball sampling, farmworker events



Data Collection

- Urine samples collected from 62 Latinx farmworkers and analyzed for glyphosate
- Quantitative surveys ($n=62$) and qualitative interviews ($n=18$)
 - Occupational history, risk perception, perceived control, protective behaviors, pesticide exposure in last 3 days



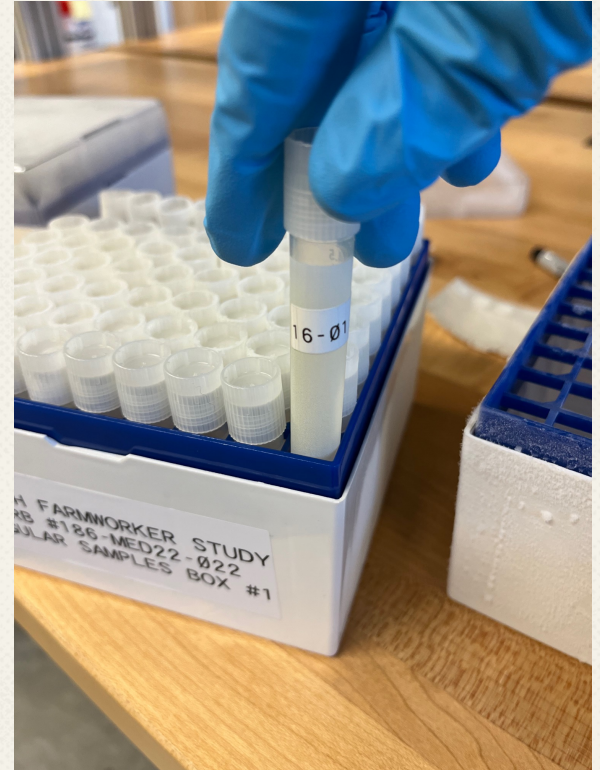
Data Collection – Urine Samples

- Data collection during pesticide spray season (April-June 2022)
- Two study visits within 7 days; urine sample collected at each visit
- Urine samples aliquoted and stored within 24 hrs of collection
- Composite sample stored at -80°C ; shipped on dry ice to National Institute of Public Health Quebec



Pesticide Analysis

- Originally analyzed for 5 organophosphate metabolites, 5 pyrethroid metabolites, and 3 herbicides
- PTOF funding to analyze Glyphosate and AMPA concentrations



. RESULTS

- **62 participants first visit**

30 men, 32 women (9 applied pesticides in last 3 days)

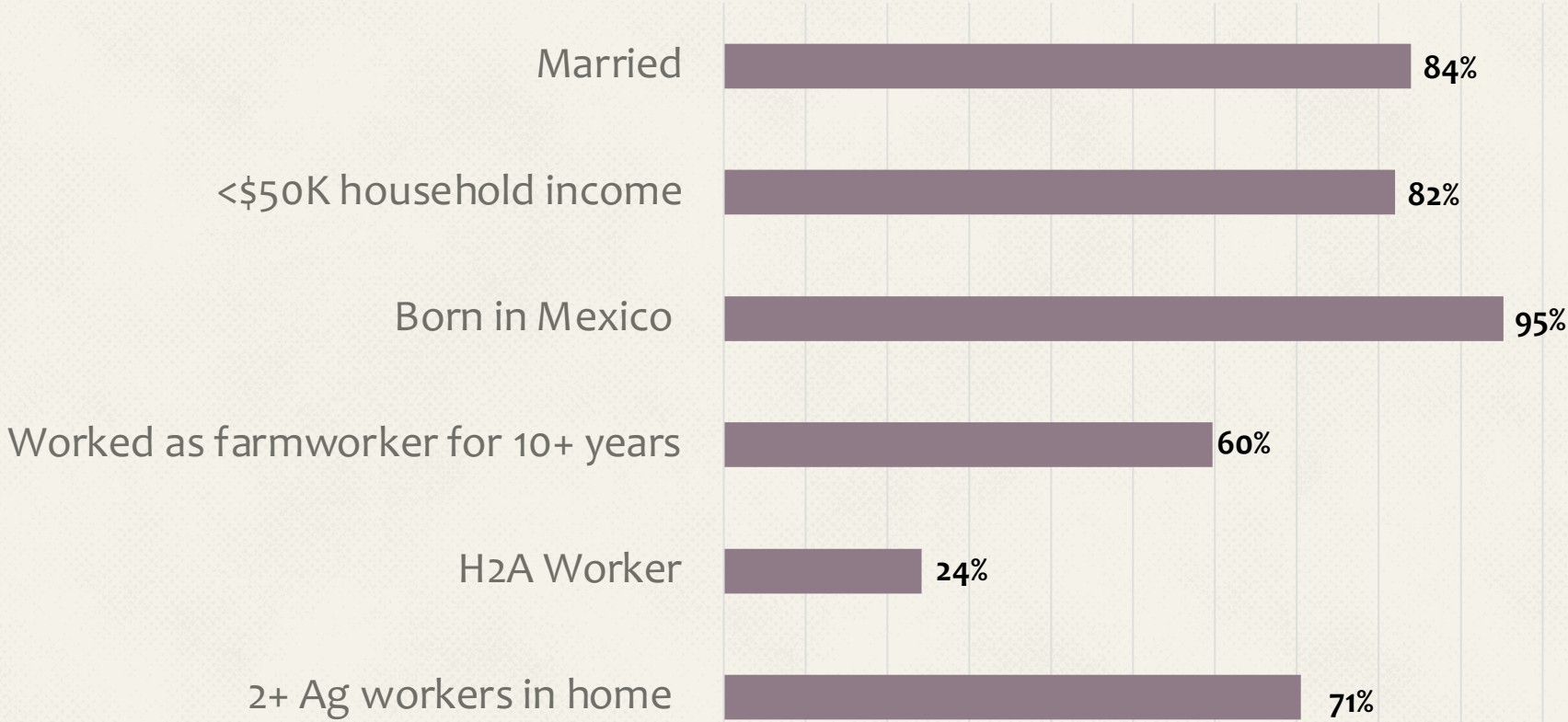
- **57 participants second visit**

92% of participants

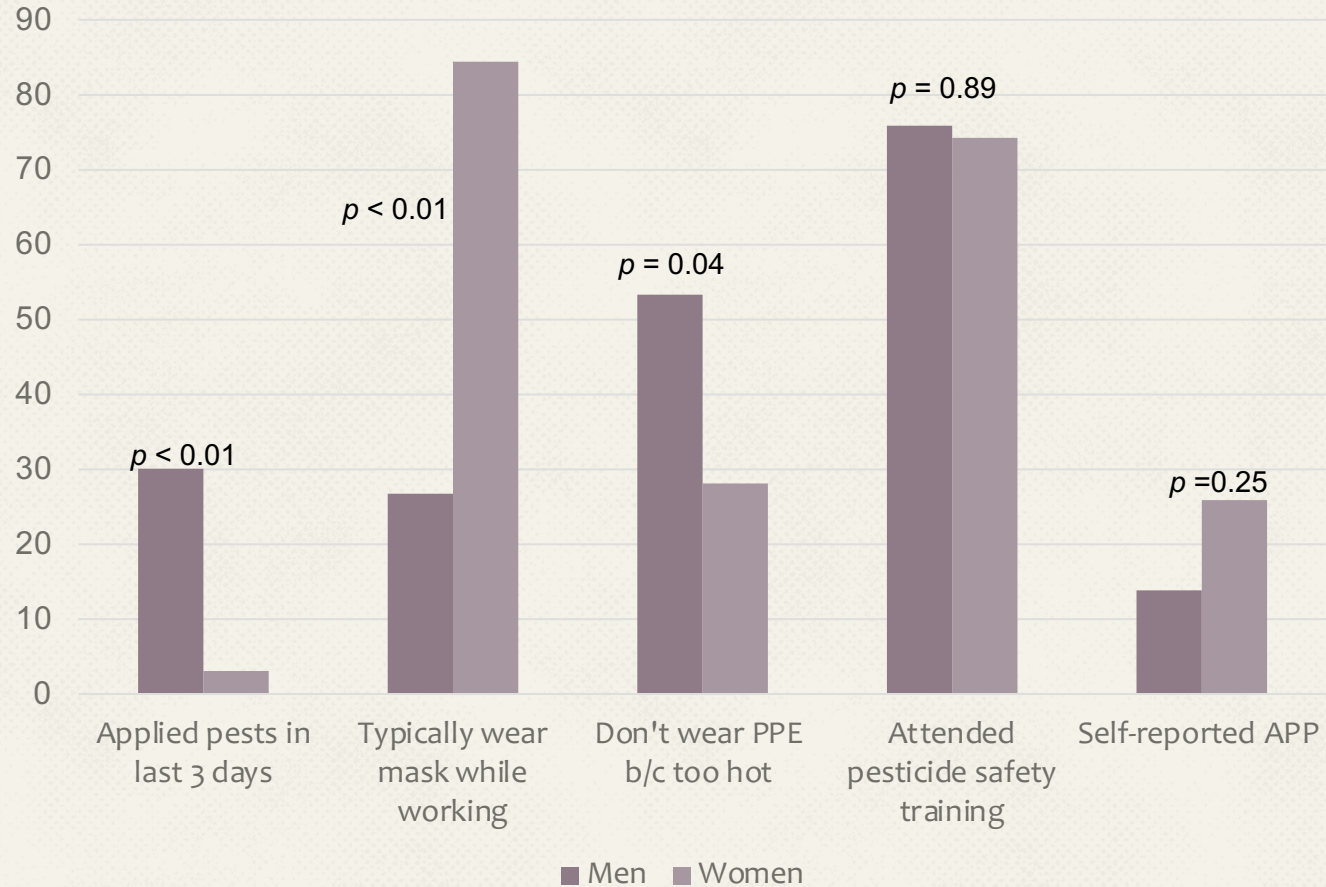
- **18 interviews**

7 men, 11 women

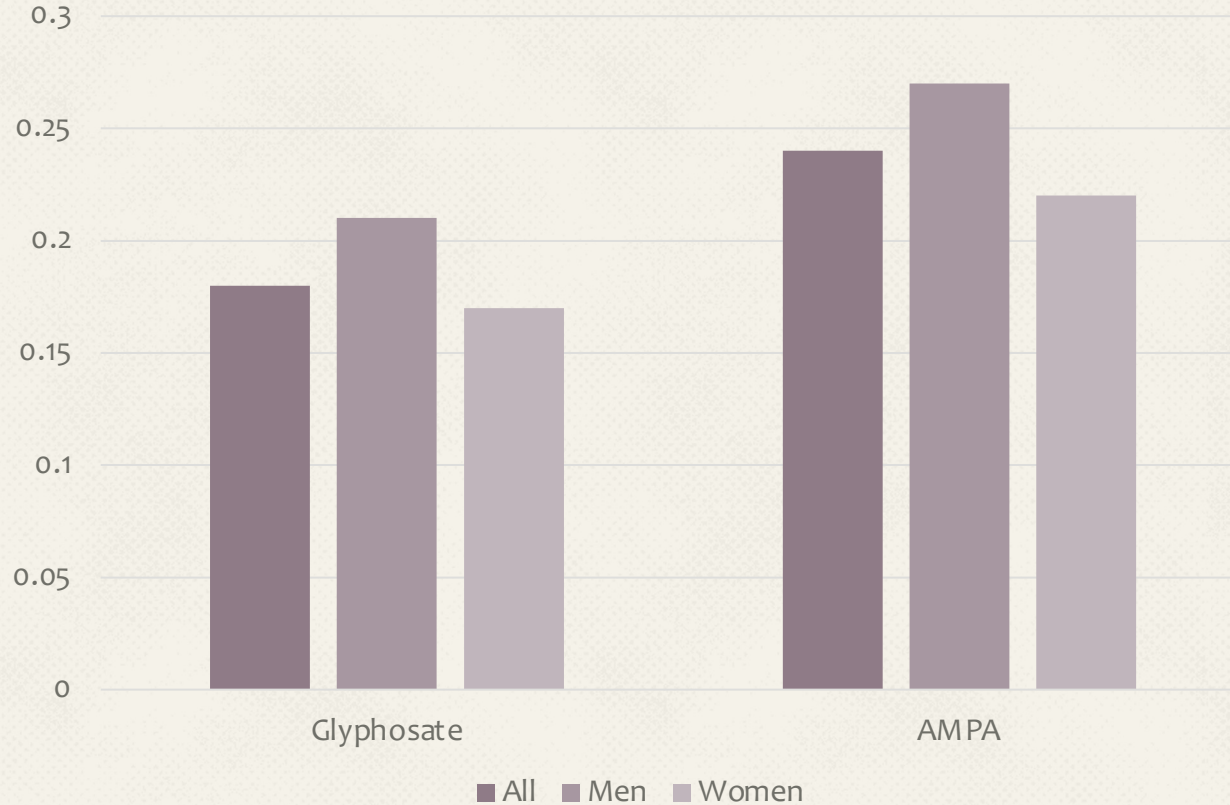
Demographic Characteristics



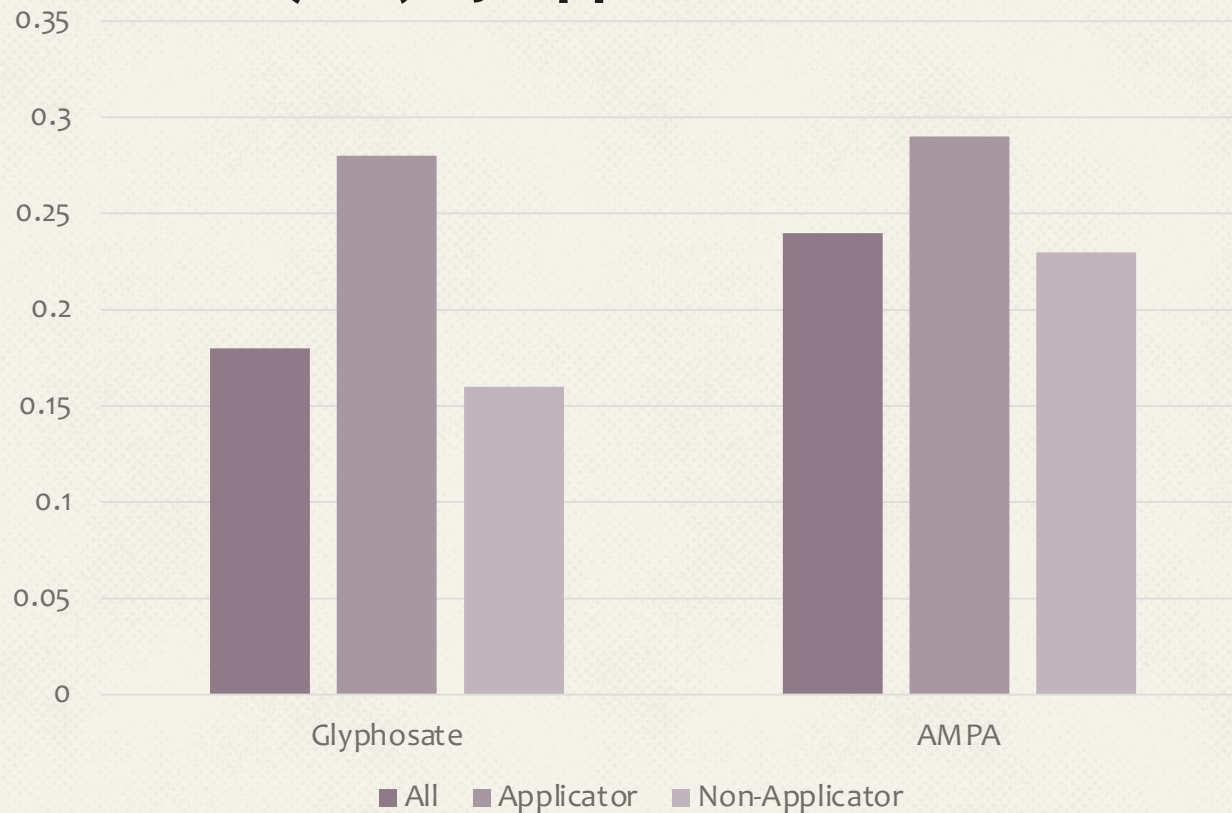
Occupational Characteristics



Urinary Pesticide Concentrations (GM) by Gender



Urinary Pesticide Concentrations (GM) by Applicator Status



• **Determinants of Exposure** •

- Women more likely to wear most types of PPE
- Did not identify consistent trends in predictors of exposure, including use of PPE, risk perceptions, perceived control
- Inferences could be limited due to small sample size

Perceived Risk of Herbicides

- Multiple participants shared perceptions during interviews and informal conversation's that “pesticides” are synonymous with “insecticides”
- Perceived that herbicides were categorically safer than insecticides
 - Particularly among pesticide applicators
 - Appeared to influence protective behaviors, such as lower use of PPE while applying herbicides
- Perceptions appeared to stem from training at work – disconnects with WPS training

Acknowledgements

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Study Team



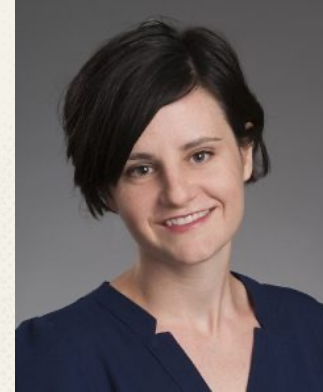
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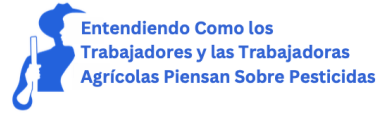
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Questions?

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• Research Communication •

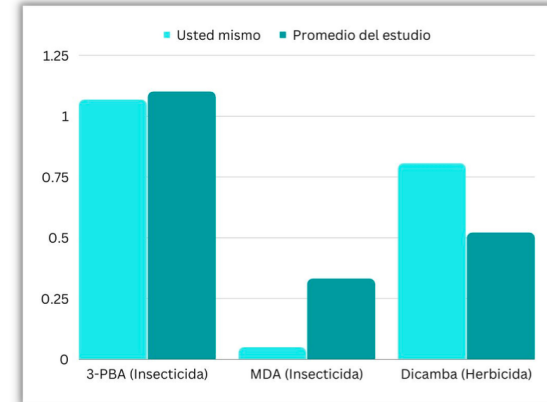
- Reported individual-level results to participants
- Met in person or mailed results, depending on preference of participant



¡Trabaje de manera segura para cuidar su salud!

- Use una mascarilla, guantes, pantalones largos y una camisa larga mientras trabaja en el campo aun si no está aplicando los pesticidas. Todavía podría estar expuesto a residuos de pesticidas.
- Recuerde beber mucha agua y tomar descansos cuando lo necesite, si es posible.
- ¡Mantenga los pesticidas fuera de su casa! Recuerde quitarse la ropa de trabajo y las botas antes de entrar en su casa, y ducharse inmediatamente después del trabajo si es posible.

Síguenos en instagram para obtener más información sobre cómo reducir su exposición a pesticidas:
[id_farmworker_study](https://www.instagram.com/id_farmworker_study)



- Este gráfico representa su exposición a dos insecticidas y una herbicida comprado con otros en el estudio
- **Es importante recordar que este representa su exposición cuando hicimos el estudio y no refleja su exposición a largo plazo. Independientemente de su nivel de exposición, es importante seguir los protocolos de seguridad**
- Contáctenos al 986-224-7120 si tiene alguna pregunta sobre sus exposiciones.