

# A community and industry engaged approach to studying work organization and the occupational health of Latino thoroughbred workers

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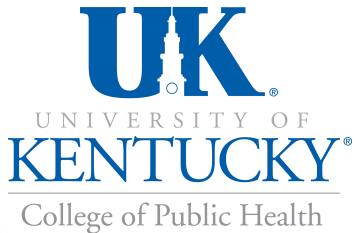
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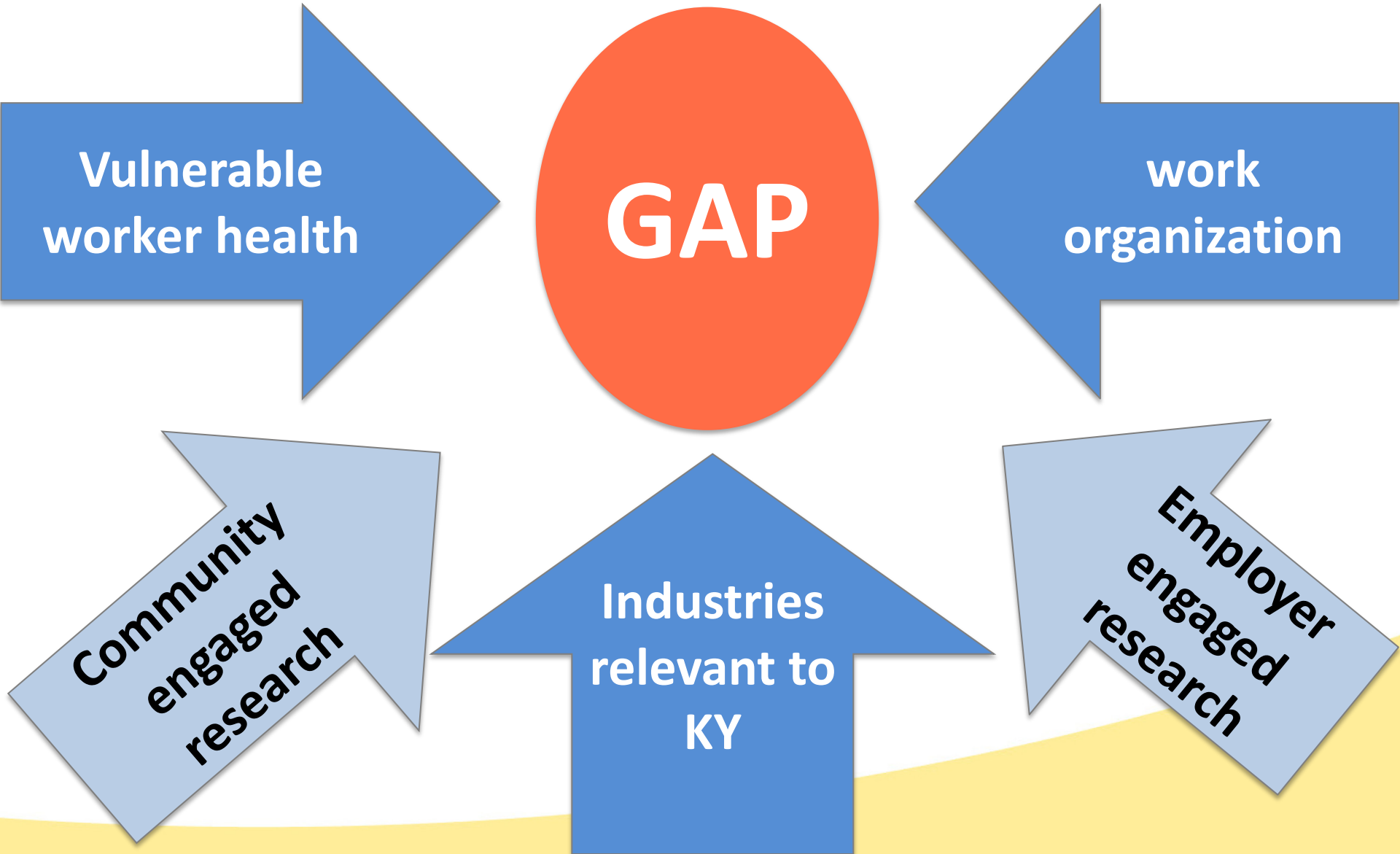
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UNIVERSITY of MARYLAND  
SCHOOL OF SOCIAL WORK

# How this work came about



# Agricultural workers, vulnerable workers

- Hazardous industry
  - Highest fatality rate across all industries (CFOI, 2014)
- Exempt from many labor protections
  - Fair Labor Standards Act
  - Workers' compensation
- Comprised mostly of Hispanic workers
  - Foreign-born comprise 16% of labor force, yet half of all ag workers (BLS, 2012)
  - Latinos comprise 83% of crop workers in US (NAWS, 2005)
- Hispanics are particularly vulnerable
  - 25% of Latino workers injured in past year (Swanberg et al., 2013)
  - Latino injury and fatality rates highest among all ethnic groups (CFOI, 2014) and is rising (BLS, 2014)

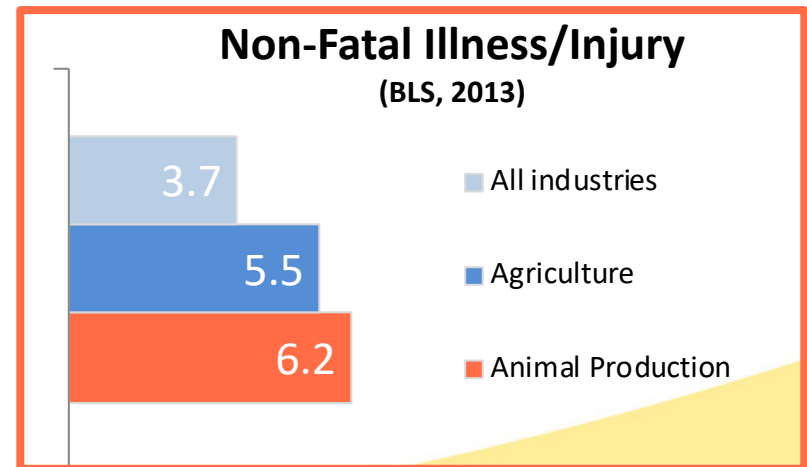


# Animal Production Workers

## Thoroughbred farmworkers



Animal production workers experience the **highest nonfatal injury rate** across all agricultural industries





# The Hazards of Horse Work

Research on horse breeding is scarce, but hazards associated with horses include:

## The Horse

- Bites, Kicks (Iba, et al., 2001)
- Falls (Iba, et al., 2001)
- Pulling on upper extremity joints (Lofquist, et al., 2009)



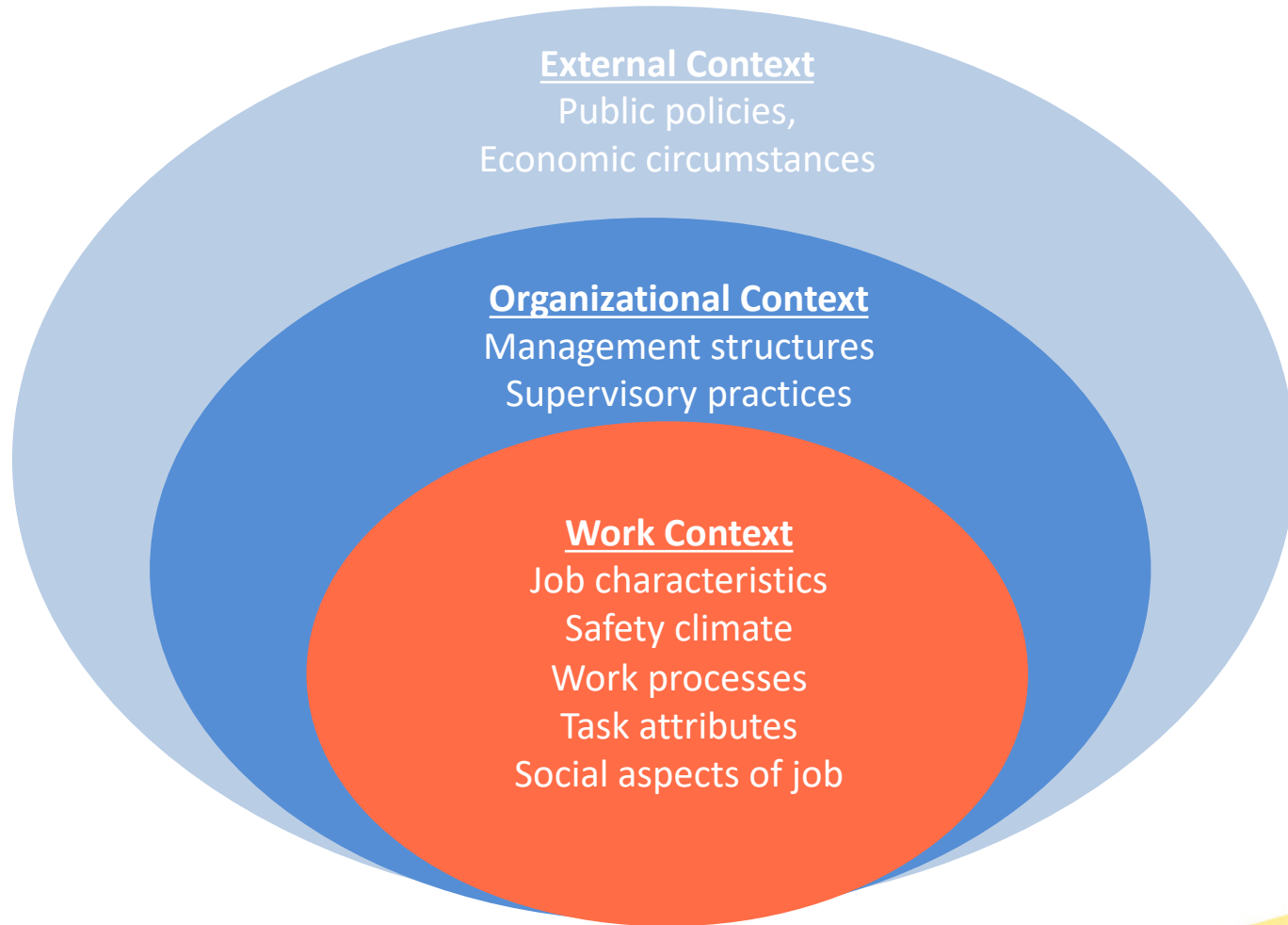
## Dusty Environment

- Respirable Dust (Elfman, et al., 2009)
- $\beta$  (1,3) Glucan (Elfman, et al., 2009)
- Endotoxins, mold (Mackiewicz, et al., 1996)



# Organization of Work Framework

(Sauter, et al., 2002)

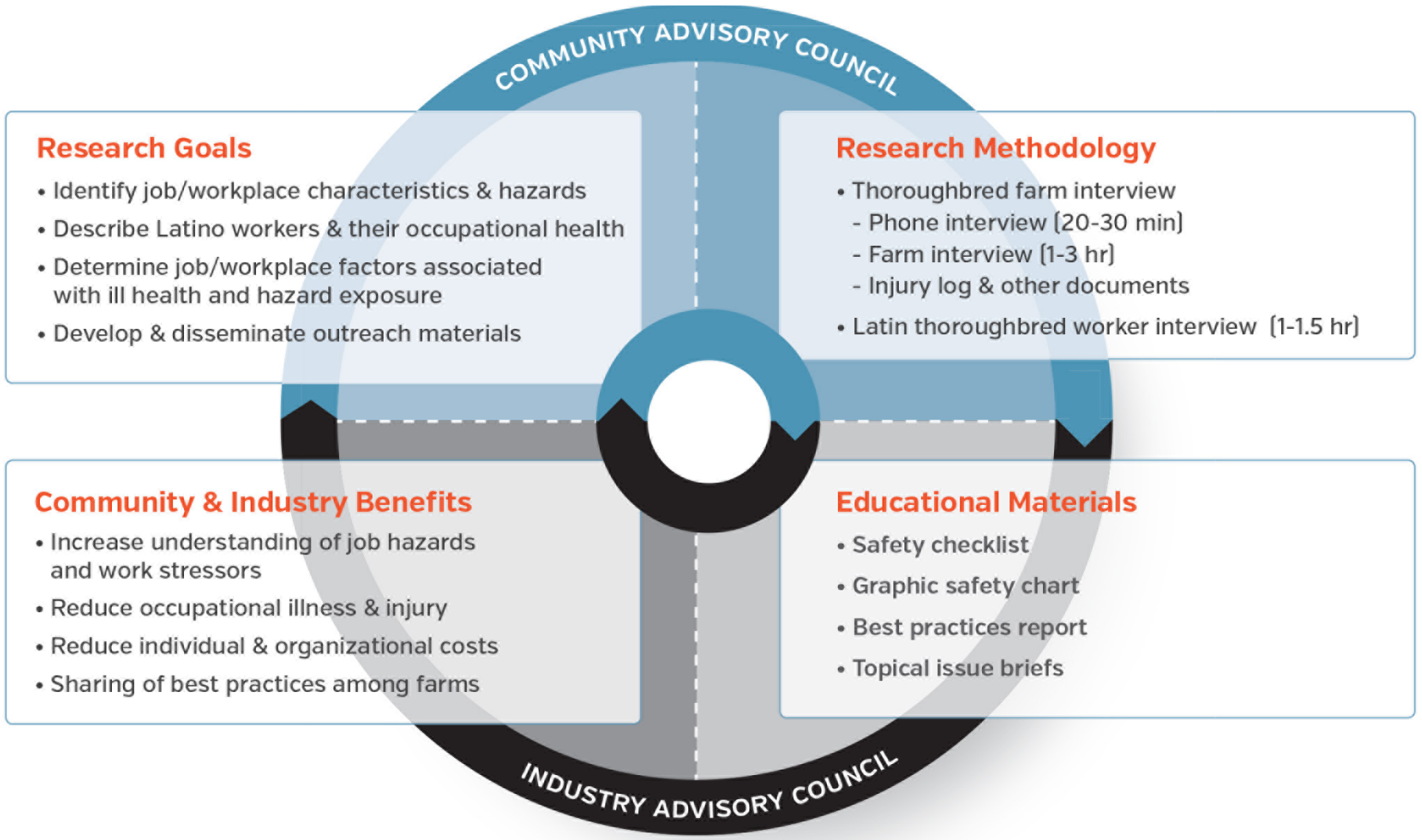


# Relationships between work organization and occupational health



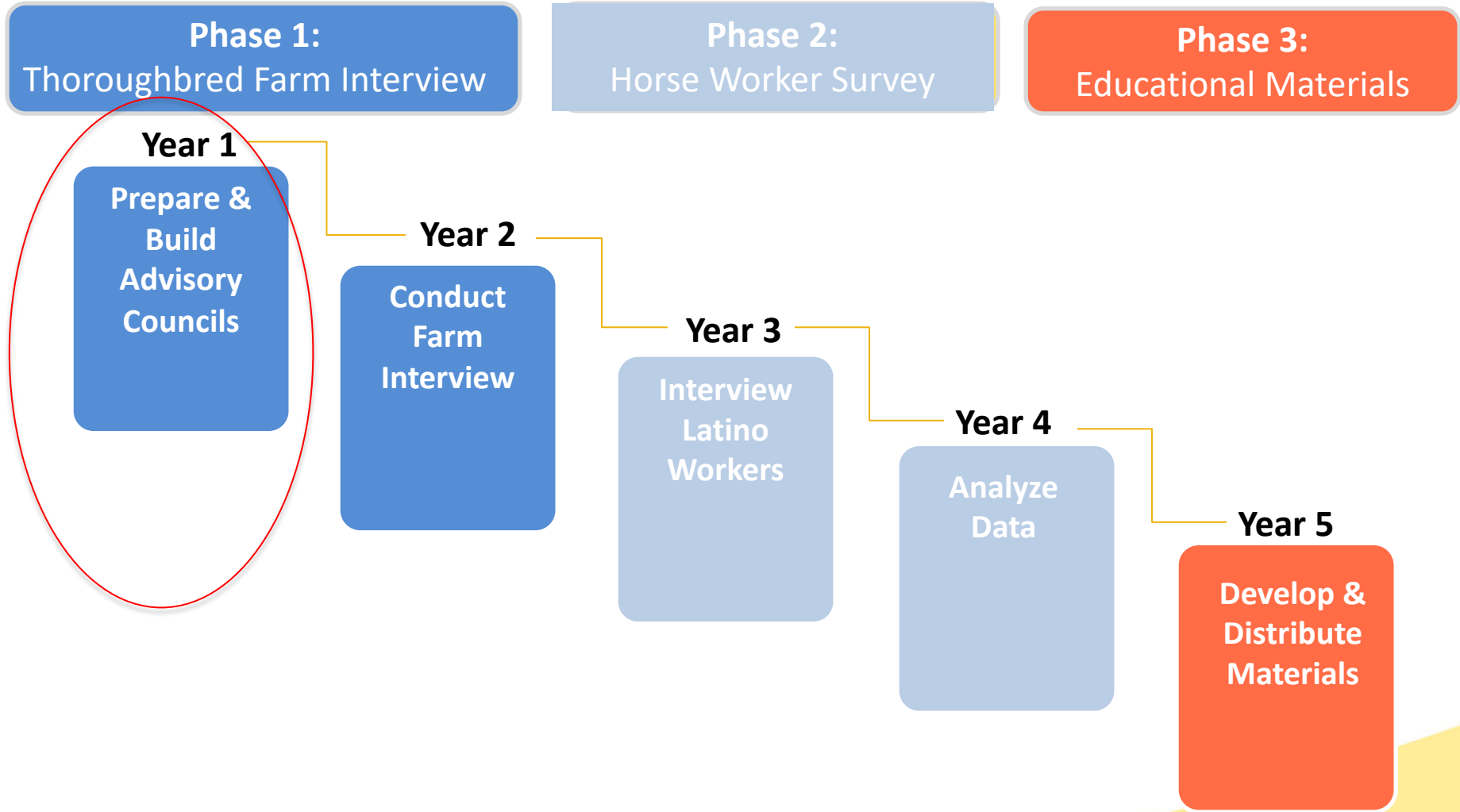
MacDonald et al., 2008

# Thoroughbred Worker & Health Safety Study



# Thoroughbred Worker Health & Safety Study

## Timeline



# Advisory Councils

**Project goals**

**Methodology**

**Recruitment**

**Instrument  
development**

**Data  
analysis/interpretation**

**Translation**



## Industry Advisory Council

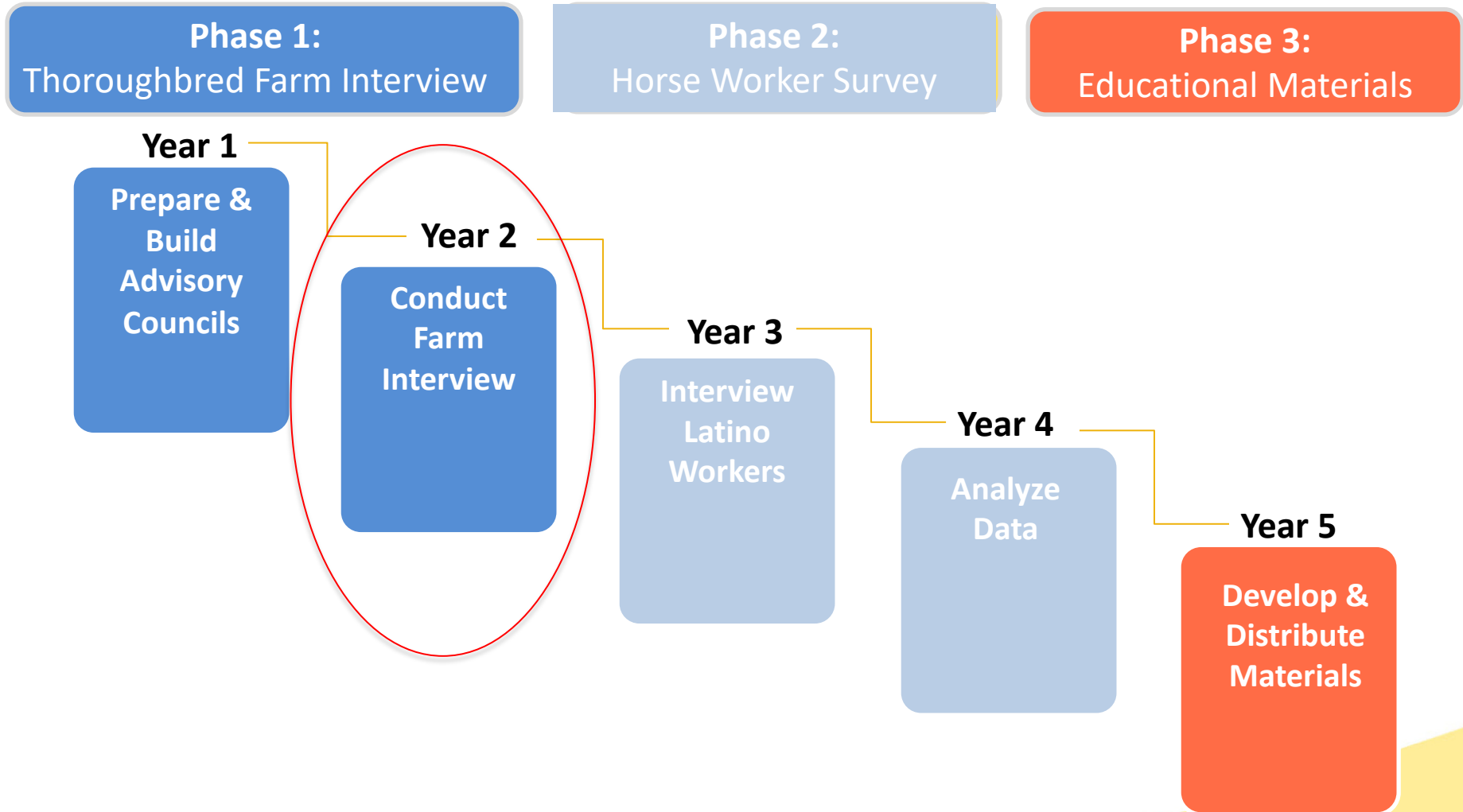
- Kentucky Thoroughbred Association
- Kentucky Thoroughbred Owners and Breeders
- Area Thoroughbred farms
- Bluegrass Community Health Center
- Kentucky Thoroughbred Farm Managers' Club
- Commerce Lexington, Inc.
- Lexington Fayette Urban County Government (Multicultural Affairs)
- Blue Grass Farms Charities
- Horse farm worker

## Community Advisory Council

- Lexington Fayette Urban County Government
- Kentucky Migrant Farmworkers with Disabilities Employment Partnership
- Area Health Education Center
- RadioVida
- Bluegrass Community Health Center
- Maxwell Legal Clinic
- Programa de Seguro Médico para los Niños de Kentucky (KCHIP)
- Southeast Center for Agricultural Health and Injury Prevention
- Goodwill Industries

# Thoroughbred Worker Health & Safety Study

## Timeline



# Thoroughbred Farm Interview

## Data Collection



### ■ Phone Interview

- 20-minute, telephone-administered survey
- Content: 73 questions
  - farm characteristics
  - workforce demographics
  - organizational policies and practices
  - occupational health and safety

### ■ Farm Interview

- 1-4 hour, face-to-face, in-depth interview & farm tour
- Content:
  - Further details and context on all above
  - Details around injuries/illness (injury logs if available)
  - Provision of PPE

# Recruiting & Data Collection

Advisory Board provides farm contact information



Team sends letter signed by advisory board members



Farms called within a week



Phone Interview Completed, Farm interview scheduled



Farm interview Completed, Materials collected



Thank you sent and any follow-up completed

# Thoroughbred Farm Interview

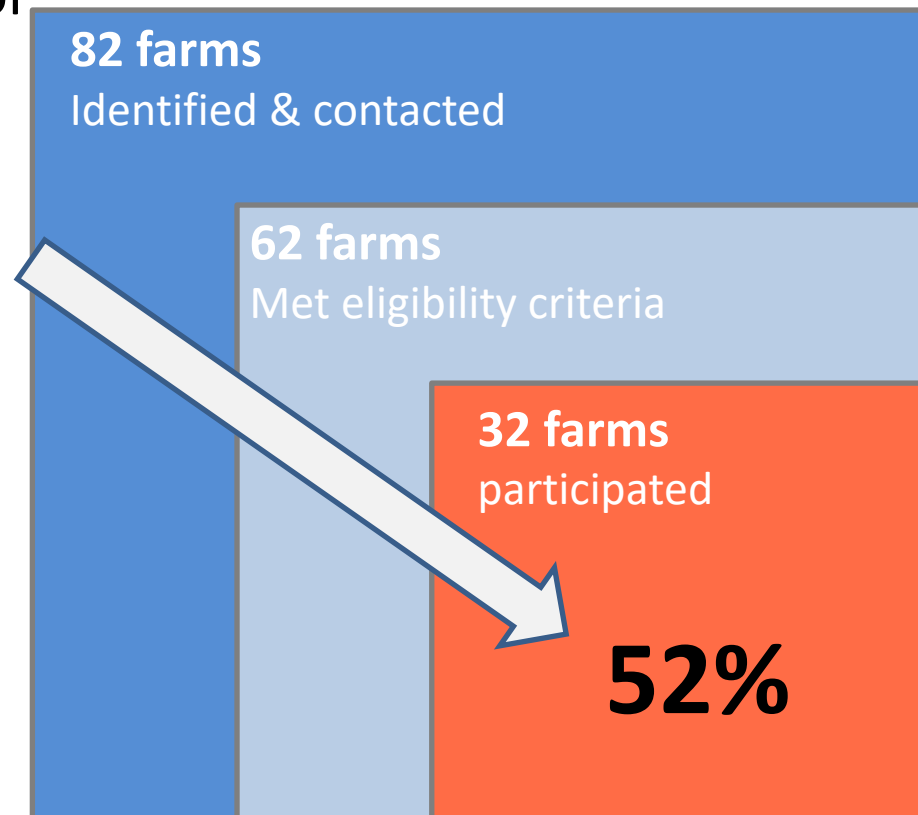
## Eligibility, Sampling, and Recruitment

- **Farm Eligibility**

- thoroughbred breeding and/or boarding
- employed  $\geq 1$  Latino worker
- located in the southeast U.S.

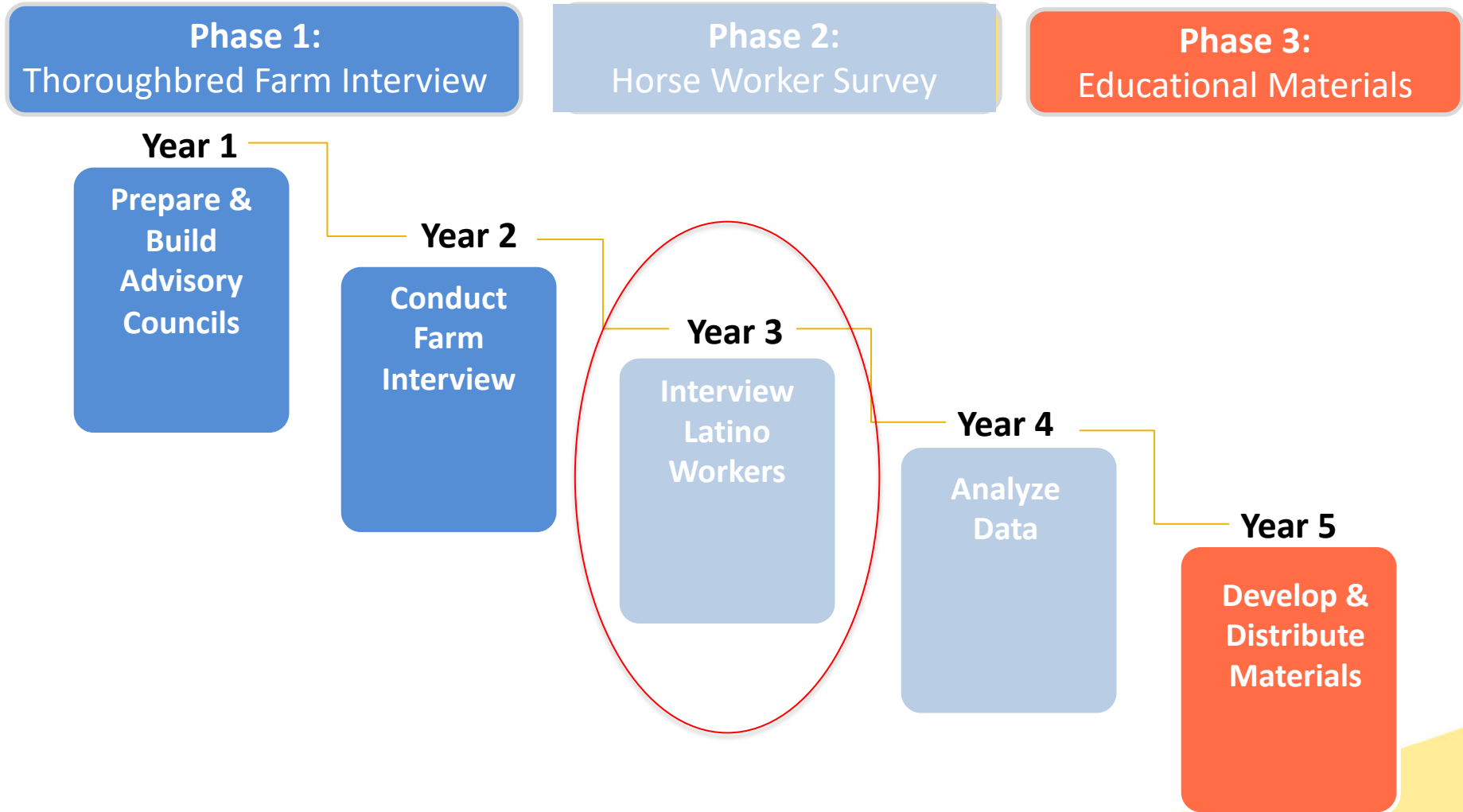
- **Representative Eligibility**

- $\geq 18$  years old
- farm owner, manager, or administrative personnel



# Thoroughbred Worker Health & Safety Study

## Timeline





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# Latino Worker Survey

## Training & Data Collection Process

### Training

Study purpose

Human subjects' protection

Research ethics

Survey administration

Intent behind individual questions  
(including feedback)

### Quality Control

5 pilot surveys (observed)

Weekly 1:1 meetings

Review of every survey by  
2 staff

Additional observed  
interview halfway through

# Latino Horse Worker Survey

## Eligibility and Recruitment

- **Worker Eligibility**

- Latino/Hispanic
- $\geq 18$  years old
- Currently employed at a thoroughbred horse farm for  $\geq 9$  months

- **Recruitment**

- Community-based, purposive sampling strategy, and snowballing
- Fliers, word-of-mouth, and local radio
- Gift cards for participation



# Latino Horse Worker Survey

## Data Collection



### ▪ Worker Interview (n=225)

- 1-1.5 hour, face-to-face, in-depth interview
- Conducted by four trained lay health promoters (*Promotoras*) in Spanish or English
- Content: 462 questions
  - job tasks
  - perceived hazards
  - injuries or near miss incidents
  - circumstances surrounding hazards and incidents
  - demographic and general health information

# Respiratory Supplement:

## Data collection (N=80)



### ■ Interview-administered Survey

- 30 min
- Conducted by 2 trained *Promotoras*
- Community-based sampling
- Content: 52 questions
  - Respiratory symptoms
  - Job title
  - Work-related exposures
  - Potential confounders (smoking history, allergies)

### ■ Spirometer test

# Findings Snapshot:

## Thoroughbred Farm Interview

- Analyses conducted to date
  - Description of work organization
  - Comparison of managers' perception of risk and provision of PPE
  - Description of injuries gleaned from injury logs



# Thoroughbred Farm Interview

## Findings:

### Work organization

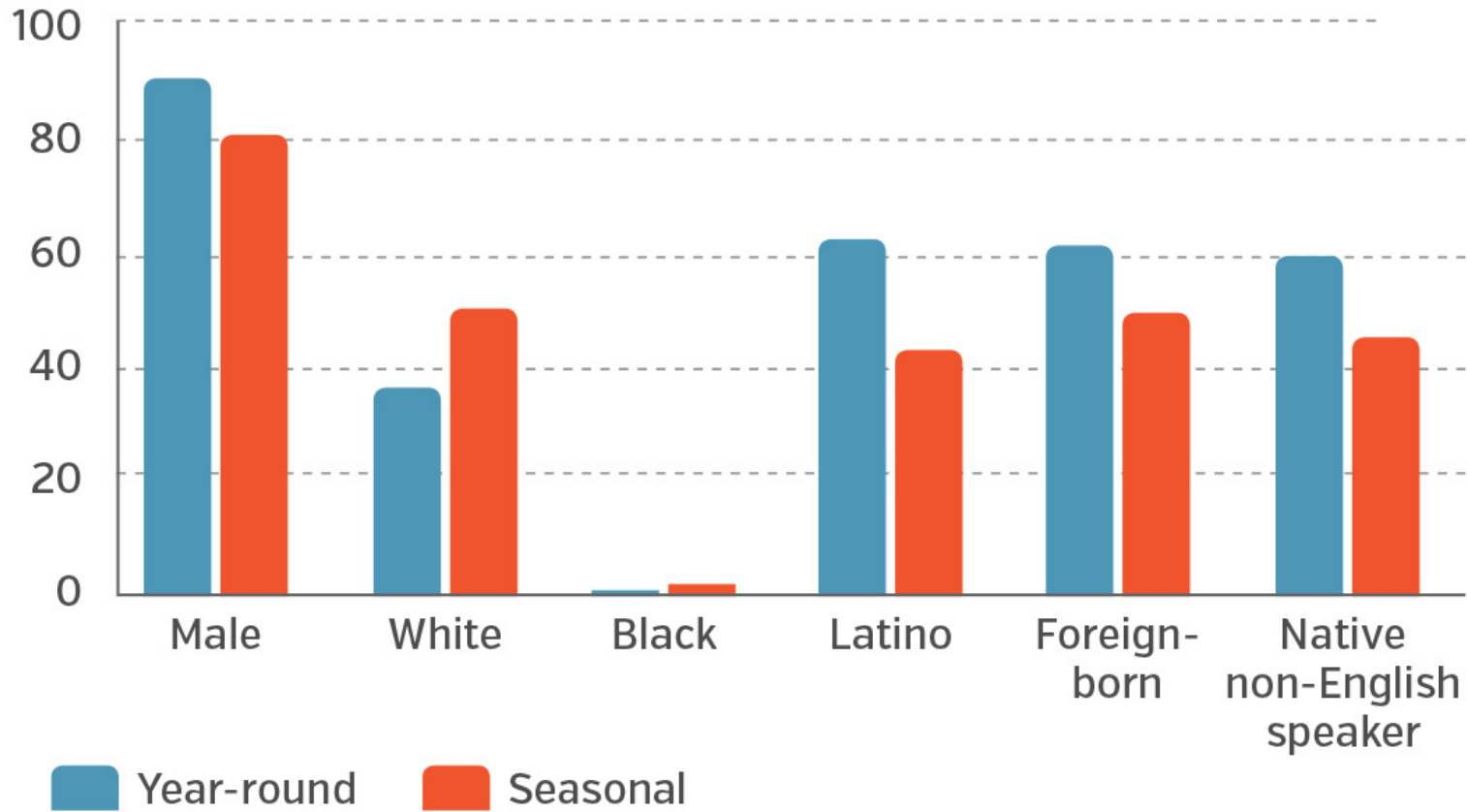
Farm Characteristics (N=32)			
Farm size	Median	IQR	Range
No. of <u>all</u> year round workers on farm <sup>1,2</sup>	12.0	23	1-230
<b>Farm size by number of year-round employees</b>			
	<b>N</b>	<b>%</b>	
Small (1-10 workers)	14	43.8	
Medium (11-25 workers)	9	28.1	
Large (>25 workers)	9	28.1	
<b>Thoroughbred operation includes</b>			
	<b>N</b>	<b>%</b>	
Sales	32	100	
Breeding	30	93.8	
Boarding	26	81.3	
Racing	26	81.3	
<b>Other farm operations</b>			
	<b>N</b>	<b>%</b>	
Additional commodities	12	37.5	

<sup>1</sup>These statistical differences were expected in these variables, as they are other measures of farm size

<sup>2</sup>Includes both office personnel and farmworkers employed in 2012

<sup>†</sup>p<.08, \*p<.05, \*\* p<.01, \*\*\*p<.001 indicate statistically significant differences based on farm size based on number of employees

# Thoroughbred Farm Interview: Demographic Traits of Farm Workers



# Thoroughbred Farm Interview: Employment Characteristics

Employment Characteristics <sup>1</sup> (N=32)			
	<b>Median</b>	<b>IQR</b>	<b>Range</b>
No. year-round farmworkers (N=32)	9.5	15	1-180
<b>Other workers</b>	<b>N</b>	<b>%</b>	
No. farms with part-time workers	11	34.4	
No. farms with seasonal workers	20	62.5	
No. farms with contract workers	24	75	
<b>Hours worked</b>	<b>Median</b>	<b>IQR</b>	<b>Range</b>
No. hours considered full-time (N=32)	48	0.5	22.5-54
No. hours considered part-time (N=10)	21.5	7.5	15.0-45
<b>Average hourly wage</b>	<b>Median</b>	<b>IQR</b>	<b>Range</b>
Full-time worker average wage/hr. (N=31)	\$9.50	1.9	7.10-13.5
Part-time worker average wage/hr. (N=11)	\$8.80	1.5	6.2-20
Seasonal worker average wage/hr. (N=18)	\$8.60	1	7.3-11.5

<sup>1</sup> All statistics refer to farmworkers, not workers in office or managerial positions

# Thoroughbred Farm Interview: Farmworker Benefits

Benefits for Farmworkers						
	Full-time (N=32)		Part-time (N=11)		Seasonal (N=20)	
Personal/individual coverage	N	%	N	%	N	%
Health insurance	17 <sup>^</sup>	53.1	0	0	1	5
Health insurance for family	15	46.9	0	0	1	5
Paid leave						
Paid Vacation Days	27	84.4	0	0	0	0
Paid Sick Days	26	81.3	1	9.1	2	10
General Paid Time Off	8*	25	0	0	1	5
<u>Any</u> paid leave <sup>1</sup>	31	96.9	1	9.1	2	10
Safety Policies/Practices						
	N	%				
Has Worker's Compensation Insurance	30	93.8				
Has employee <u>policy</u> manual	13	40.6				
In Spanish	9	28.1				
Has employee <u>safety</u> manual	3	9.4				
In Spanish	1	3.1				

<sup>1</sup>Includes access to at least one of paid vacation, formal/informal sick leave, or paid time off; <sup>2</sup>"Other" can include retirement, dental, life insurance; holiday/sales/seasonal bonuses, housing, food, money loans, contributions to 401k plan, retirement matching, onsite flu shots, flexible work time (for kids or doctor), savings, etc

# Thoroughbred Farm Interview: Findings

“Leading one in, picking feet,  
...the number one most  
dangerous job is working with  
the horses”

“Far and away the  
most injuries occur  
when somebody’s on  
the end of a shank  
leading a horse”

**Horse is the greatest threat on the farm**

“One of the more dangerous things we do is bringing horses in and out because, you know, four or five mares at the gate, two people bringing them in, one bully wants to wheel and kick the other ones when they’re all up there crowded at the gate and it’s a dangerous spot”

# PPE Provision and Policies

PPE Type	Farms Provide (%)	Farms Mandate (%)	Tasks mandated for
Horse-Related*			
Helmets	10(38.5)	7(26.9)	Riding , Breeding, Chainsaws
Padded vests	7(26.9)	6(23.1)	Riding, Breeding
Steel-toe boots	1(3.9)	1(3.9)	No tasks given
Non-Horse Related	#(%)	#(%)	
Latex gloves	26 (100)	11(42.3)	Medicines, Chemicals
Eye protection	24(92.3)	16(61.5)	Weedeating, Pressure Washing, Fence repair, Chemicals, Chainsaws, Equipment
Masks/ Respirators	15(57.7)	5(19.2)	Chemicals, Mowing
Hearing protection	13(50)	6(23.1)	Equipment
Cut-resistant gloves	8(30.8)	2(7.7)	Fence repair, Painting, Hay
Paper suit	2(7.7)	1(3.9)	Chemicals

\*Horse-Related refers to equipment that protects one against the horse. Non-horse related refers to equipment that protects from any other sort of mechanism of injury or illness on the farm.



# Factors influencing farms' provision of PPE

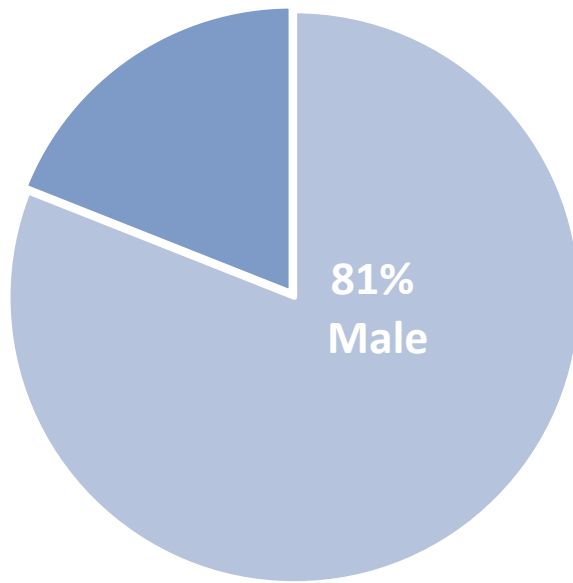
<b>Differences in farm context</b>	<p>“I see a lot of other farms that can afford a lot of practices that I’m just simply financially unable to. I just try, since I’m pretty much a hands-on owner/manager.”</p> <p>“We don’t have helmets because we don’t have stallions. We don’t have flak jackets because we don’t have stallions.”</p>
<b>Workers are most important agents in their safety</b>	<p>“If someone comes down to the complex and all of a sudden said ‘I want to start wearing a vest down there,’ we’d certainly get it for them.”</p> <p>“They could wear masks if they wanted to, we would supply it, but no one has ever asked for one.”</p>
<b>Lack of confidence in PPE’s effectiveness in averting horse-related injury</b>	<p>“You could probably arm yourself with a suit of armor but it’s impractical so you just have to be careful and calculating throughout your day.”</p> <p>“If farms thought helmets and vests were really needed or preventative, I think more farms would do it.”</p>
<b>Perception that risk could never be eliminated</b>	<p>“It’s not if you’re going to get hurt it’s when you’re going to get hurt.”</p> <p>“You could be the best horseman in the world and one could get on top of you.”</p>

# Thoroughbred Farm Interview

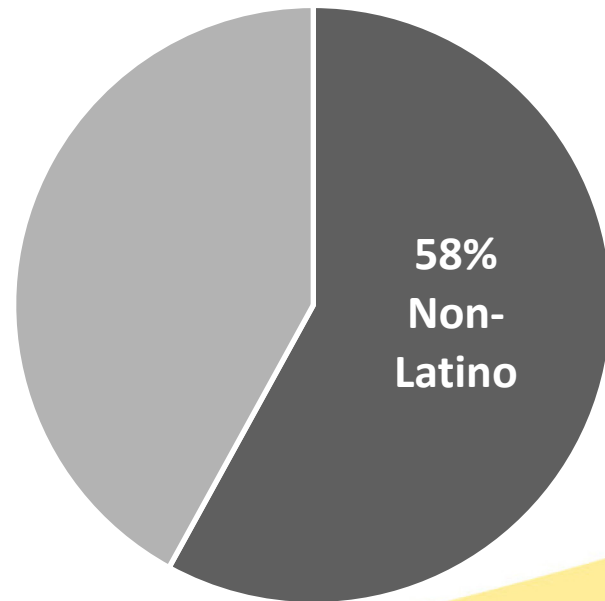
## Injury findings

284 injuries were documented

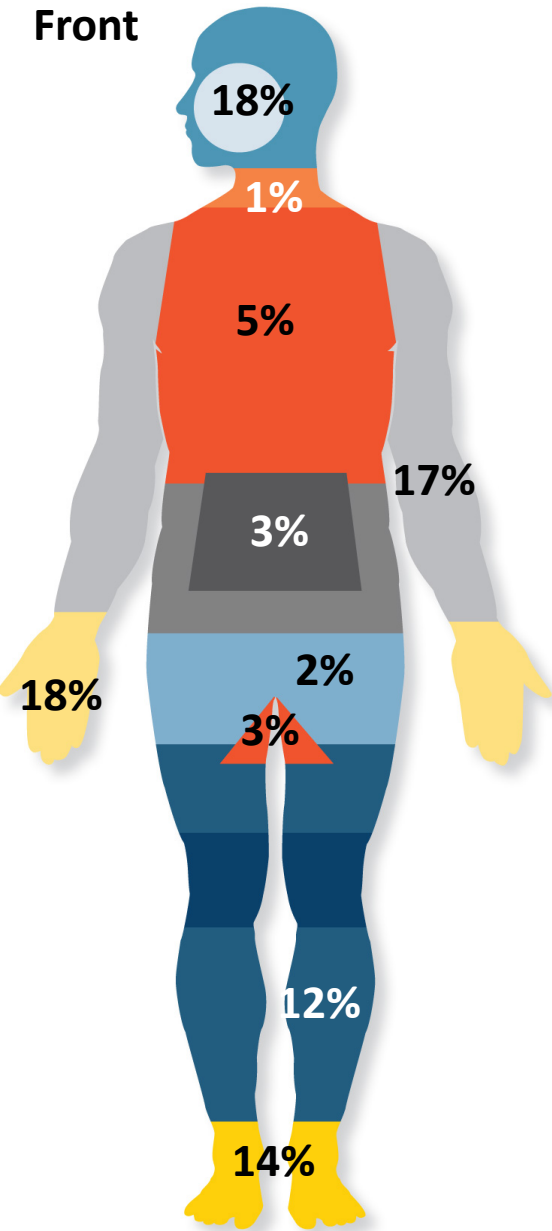
Gender



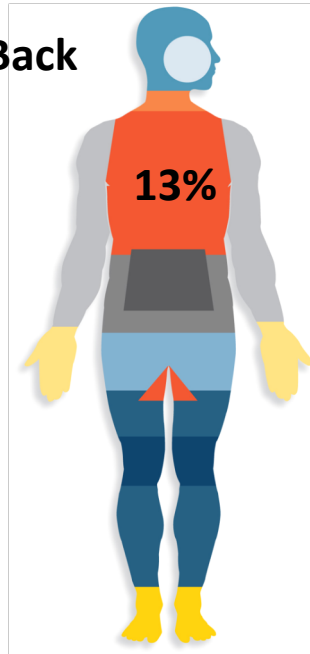
Ethnicity



Front



Back



### Top Sites

Upper/lower appendages (49%)

### Top Mechanisms

Kicks, struck-by, stepped on, jerks (47%)

### Top Diagnoses

General pain or sprains strains, tears (58%)

Horse greatest source of injury on farm

Non-Latinos more likely to report injuries

Latinos more likely to report horse-related injuries

Employer data

# Limitations of Employer-Reported Data

- Vulnerable workers may not report (Azaroff et al., 2002)
  - Immigration status
  - May fear job loss
  - May minimize injuries (Clouser, 2013)
- Lacking context surrounding injuries
  - Logs have limited data
  - Informal record keeping on small farms
  - Cannot connect with other worker/employment factors



# Findings Snapshot:

## Latino Horse Worker Survey

- Analyses conducted to date
  - Description of worker injuries
  - Detailed analysis of relationship between certain work org factors and respiratory health

# Latino Horse Worker Survey

## Farmworker Demographics (N=225)

Characteristic	% (n)
Male	86 (193)
Age (Mean, SD)	35.4 (9.6)
Married/Living as Married	67.5 (152)
Has Children	64 (144)
<b>Education</b>	
Middle School or Less (0-9)	73 (164)
Years in US* (Mean, SD)	14.5 (8)
<b>Country of Origin</b>	
Mexico	84(190)
<b>Dominant Language</b>	
Spanish	95(213)

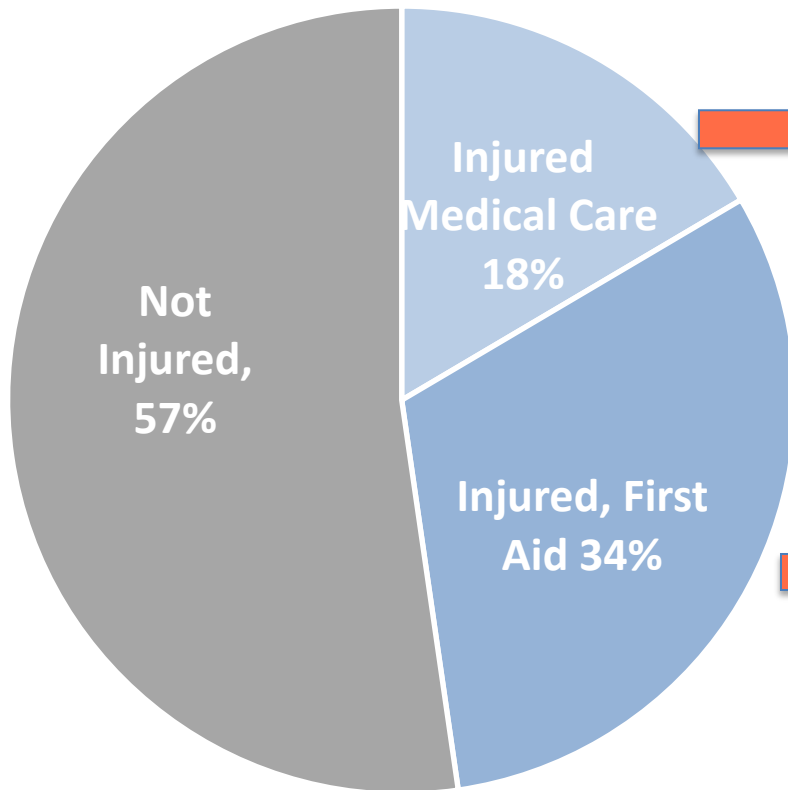
# Occupational Characteristics (n=225)

Characteristic	Mean (SD)
Years on Horse Farms	10.50 (7.31)
Years at Current Farm	5.40 (4.61)
Months Worked a Year	11.94 (0.44)
Days/Week Worked	5.92 (0.54)
Hours/Day Worked	8.16 (0.67)

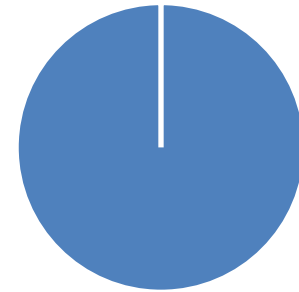
# Latino Worker Survey

## Injury findings

Injured in Past Year (43%)



Reported ALL Medical Care Injuries (92%)

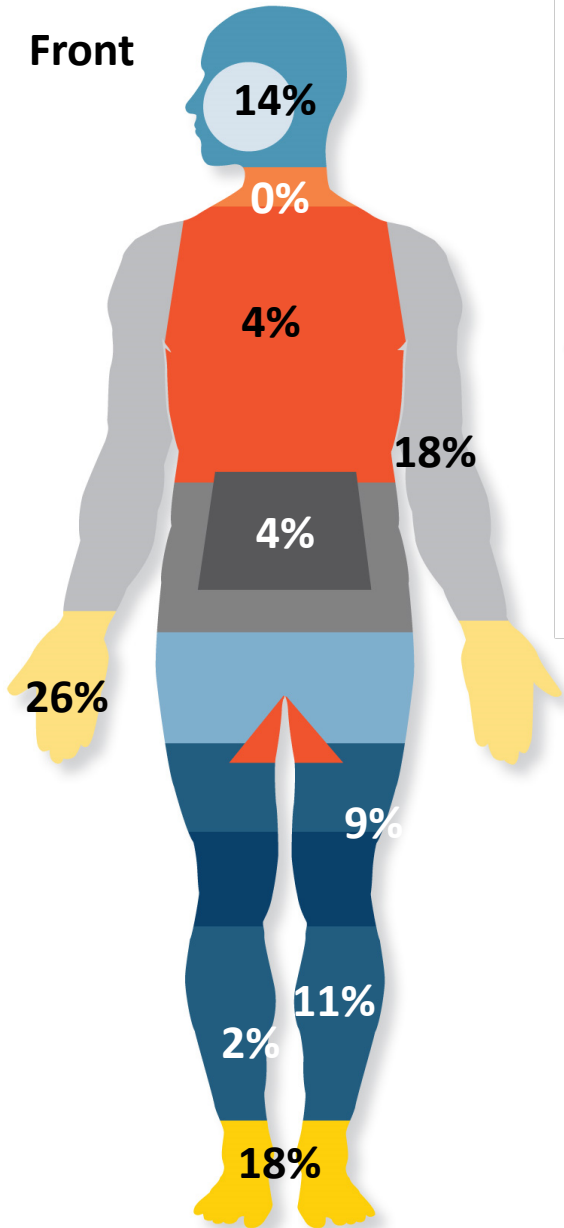


Reported ALL First Aid injuries (68%)

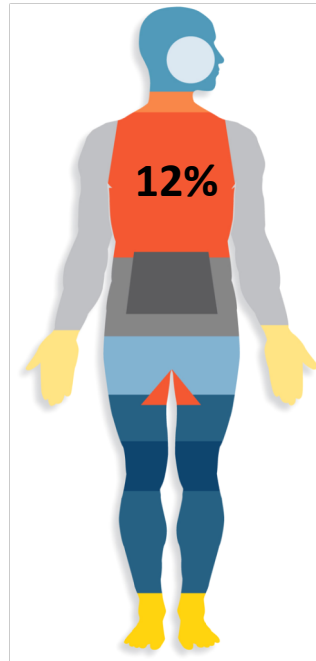




Front



Worker data



### Top Sites

62% upper/lower appendages

### Top Tasks

Taking out, leading, walking (46%)

### Top Mechanism

82% of injuries were caused by a horse

Total injuries reported to supervisor (76%)

## Injury summary

(N=137)

# Latino Horse Worker Survey:

## Worker Respiratory Health

- 62% reported respiratory symptoms in past year
  - 44% experienced cough, compared to 11% of general population (NHANES, 2012).
- 92% currently worked in barns
  - 38% had access to dust masks
  - 63% never, seldom, or sometimes used masks while in the barn

# Respiratory Outcomes (N=225)

	Any Upper Symptoms <sup>b</sup>	Any Lower Symptoms <sup>c</sup>	Any Symptoms <sup>d</sup>
Age (1 year increase)	1.00 (0.96-1.03)	1.00 (0.96-1.04)	1.00 (0.96-1.05)
<b>Sex</b> (female vs male)	2.13 (0.88-5.13)	4.33 (1.60-11.70)	4.28 (1.45-12.63)
Education (low vs high)	1.06 (0.51-2.23)	0.80 (0.38-1.70)	0.65 (0.29-1.46)
<b>Years in US</b> (1 yr increase)	0.96 (0.92-1.01)	0.96 (0.92-1.01)	0.95 (0.90-1.00)
English understanding (poor vs good)	1.41 (0.67-2.98)	1.93 (0.90-4.11)	1.43 (0.63-3.24)
Smoking status			
<b>Former vs never</b>	2.95 (1.36-6.43)	1.48 (0.71-3.08)	3.07 (1.30-7.26)
Current vs never	0.83 (0.36-1.92)	0.41 (0.17-1.01)	0.59 (0.25-1.39)
Time in barns/week (long vs short) <sup>e</sup>	0.93 (0.49-1.74)	1.09 (0.58-2.05)	0.99 (0.51-1.93)
<b>Dust mask utilization (less vs more)<sup>f</sup></b>	2.34 (1.21-4.53)	1.71 (0.87-3.36)	1.79 (0.89-3.62)
Years of work at the farm	1.02 (0.94-1.10)	0.97 (0.89-1.05)	1.01 (0.93-1.09)

# Challenges Ahead/Next Steps



## Work organization factors

- Scheduling practices
- Supervisor-subordinate relationships
- Physical workload
- Work exposures
- Psychological demands



## Worker health

- Respiratory symptoms
  - Lung function (spirometer)
  - Injury
  - Musculoskeletal disorders
- (Gryzywacz et al., 2007; Swaen et al., 2004)

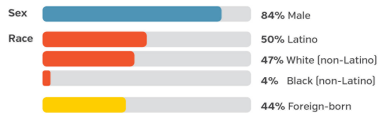
# Community/industry outputs

#1 Thoroughbred Worker Health and Safety Study

## Worker Injuries on Thoroughbred Farms: What are we learning?

The goal of this brief is to describe the nature of injuries reported on farms, who was injured, and how. Farms that kept injury documentation, either through OSHA logs, workers' compensation logs, or in-house tracking documents, voluntarily provided this data to researchers. Others provided narrative descriptions of recent injuries, which were then coded by the research team. In all, 22 farms provided information about 284 injuries. Injury information includes worker demographics, location of body injured, diagnosis of injury, and the cause of injury. Below are the estimated characteristics of farmworkers (N=568) aggregated across 22 farms.

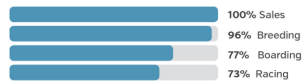
### Worker Characteristics Across All 22 Farms (n=568)



### Farm Characteristics (n=22)



### Thoroughbred operation includes:



### Also raise other crops/commodities:



### Situation

"A guy turned a yearling out, it was really windy and blowing and he got in a hurry and he didn't take his time and the horse kicked him. He had to get some sutures on the side of his eye."

-Small Farm Owner/Manager

### Suggested Solution

Continuously inform workers:

- You value patience over speed.
- Weather can make horses skittish and unpredictable.
- Turn the horse to face the gate and close it when entering pasture to give workers an exit and remain out of kicking range.

### Thoroughbred Worker Health & Safety Study

**WHO?** University of Kentucky & University of Maryland, guided by industry & community advisory councils. Funded by CDC

**WHAT?** Research study to identify farm safety & health challenges, work organization factors, & farms' best practices

**WHEN?** 2011-2016

**WHERE?** Thoroughbred Farms

**HOW?** Interviews with farm representatives & workers

**WHY?** To improve worker health & safety & reduce costs for farms

## Issue Brief Topics/Titles

- What is the Thoroughbred Worker Health and Safety Study?
- Worker Injuries on Thoroughbred Farms: What are we learning?
  - Thoroughbred Farmworker demographics and benefits
- Respiratory health of farmworkers



# www.workersafetyandhealth.com

## Thoroughbred Worker Health and Safety Study

[About the Project](#)

[About the Research](#)

[Resources for Managers](#)

[Information for Workers](#)

[Contact Us](#)

Welcome to the Thoroughbred Worker Health and Safety Study website. This effort is jointly sponsored by the University of Kentucky and the University of Maryland-Baltimore. Our site has comprehensive ...

[Continue Reading...](#)



### PROJECT OVERVIEW



The main goal of the Thoroughbred Worker Health and Safety Study, a five-year, CDC-funded research study, is to make work safe for workers ...

### ABOUT THE RESEARCH



The Thoroughbred Worker Health & Safety Study strives to improve the health of workers on Thoroughbred farms. Led by researchers at the ...

### MEET THE TEAM



Core Team Jennifer Swanberg, PhD  
Principal Investigator Professor,  
University of Maryland, ...

[Read More...](#)

# Acknowledgments

This work is supported by the Southeast Center for Agricultural Health and Injury Prevention through CDC/NIOSH Cooperative Agreement 5U54OH007547-14.

## We would like to thank



- Participating thoroughbred farms
- Worker Participants
- Promotoras
- Community & Industry Advisory Councils
- Research Team



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# Questions?

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# Presentations

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