



How Agricultural Safety and Health content is being taught and assessed in middle and high school agricultural classrooms

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Presentation Outline:

- ❖ **Background/Rationale**
- ❖ **Larger Body of Work (Dissertation)**
 - **Hazardous agricultural tasks completed by youth**
- ❖ **Incorporation of Ag Safety content into middle/high school Ag classrooms**
- ❖ **Assessment of Ag Safety concepts**
- ❖ **Recommendations**



Graduate Committee

- ❖ **Dr. Dee Jepsen, Advisor**
- ❖ **Dr. Ann Christy**
- ❖ **Dr. John Fulton**
- ❖ **Dr. Susie Whittington**
- ❖ **Dr. Kiran D'Souza, Grad Faculty Rep**
- ❖ **Dr. Kirby Barrick, AdHoc**



- ❖ In many U.S. high schools and some middle schools, students have the opportunity to take classes in agriculture (SBAE)
- ❖ High school agricultural students are required to completed a Supervised Agricultural Experience (SAE) as part of their education

AGRICULTURAL
EDUCATION



Three circle model of agricultural education.

- ❖ Based on FFA membership, there are 629,327 student members in grades 7-12 across the U.S.

*73% live in rural and farm communities

*27% live in urban and suburban areas



- ❖ The Agricultural Hazardous Occupations Orders (AgHOs) identify eleven tasks that are deemed ‘too hazardous’ for youth (<16years) to complete for hire
 - ❖ Minimal changes to the AgHOs since 1970
 - ❖ Unsuccessful attempt to update AgHOs in 2011
 - ❖ Currently unknown what ag ‘tasks’ youth are completing
- ❖ Safety in Agriculture for Youth (SAY) project funded by USDA-NIFA starting in 2013
 - ❖ (Grant) Objective 2.5 Create an online test-item bank development cycle to assess student’s cognitive knowledge of agricultural safety and health content.



1. TRACTOR - Operating a tractor of over 20 PTO horsepower, or connecting an implement or any of its parts to or disconnecting it from such a tractor.

2. GENERAL MACHINERY - Operating or assisting to operate (including starting, stopping, adjusting, feeding, or any other activity involving physical contact associated with the operation) any of the following machines: corn picker, cotton picker, grain combine, hay mower, forage harvester, hay baler, potato digger, mobile pea viner, feed grinder, crop dryer, forage blower, auger conveyor, the unloading mechanism of a nongravity-type self-unloading wagon or trailer, power post-hole digger, power post driver, or nonwalking rotary tiller.

3. SPECIALIZED MACHINERY - Operating or assisting to operate (including starting, stopping, adjusting, feeding, or any other activity involving physical contact associated with the operation) any of the following machines: trencher or earthmoving equipment; fork lift; potato combine; or power-driven circular, band, or chain saw.

4. LIVESTOCK - Working on a farm in a yard, pen, or stall occupied by a bull, boar, or stud horse maintained for breeding purposes; a sow with suckling pigs; or cow with newborn calf (with umbilical cord present).

5. WOODLOT - Felling, bucking, skidding, loading, or unloading timber with a butt diameter of more than 6 inches.

6. LADDER and SCAFFOLD - Working from a ladder or scaffold (painting, repairing, or building structures, pruning trees, picking fruit, etc.) at a height of over 20 feet.

7. TRANSPORT - Driving a bus, truck, or automobile when transporting passengers, or riding on a tractor as a passenger or helper.

8. TOXIC ATMOSPHERE - Working inside fruit, forage, or grain storage designed to retain an oxygen deficient or toxic atmosphere; an upright silo within two weeks after silage has been added or when a top unloading device is in operating position; a manure pit; or a horizontal silo while operating a tractor for packing purposes.

9. CHEMICALS - Handling or applying (including cleaning or decontaminating equipment, disposal or return of empty containers, or serving as a flagman for aircraft applying) agricultural chemicals classified under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135 et seq.) as Category I of toxicity identified by the word "poison" and the "skull and crossbones" on the label or as Category II of toxicity, identified by the word "warning" on the label.

10. BLASTING - Handling or using a blasting agent, including but not limited to, dynamite, black powder, sensitized ammonium nitrate, blasting caps, and primer cord.

11. FERTILIZERS - Transporting, transferring, or applying anhydrous ammonia.



**AGRICULTURAL WORK CLASSIFIED AS
HAZARDOUS**

LEARN MORE AT:
www.agsafety4youth.info



- ❖ Previously unknown what tasks youth are completing as part of their Supervised Agricultural Experience (SAE), which is a requirement for high school agricultural education students
- ❖ National survey of agricultural teachers, divided into four geographic regions; Central, Eastern, Southern, and Western U.S.
- ❖ Sampling frame from National FFA; 1361 active teachers, 320 usable responses (23.5%)



THE OHIO STATE
UNIVERSITY

Quick Questions

This preliminary section of the survey will focus on basic demographic information of you, and your current school.

In which state do you currently teach?

Which of the following best describes the location of the school where you teach?



THE OHIO STATE
UNIVERSITY

Quick Questions

This preliminary section of the survey will focus on basic demographic information of you, and your current school.

In which state do you currently teach?



During the 2015-2016 academic year (unless you are a first year teacher), how many of your students completed the following SAEs?

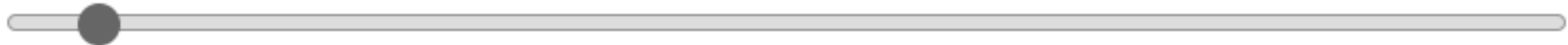
Note: This list is based on a condensed version of the National FFA Proficiency Award areas.

0 10 20 30 40 50 60 70 80 90 100

Agricultural Communications, or Agricultural Education



Agricultural Mechanics (Design and Fabrication, Emerging Technology, Energy Systems, Repair and Maintenance)





For your students completing Agricultural Communications, or Agricultural Education related SAEs, please indicate the NUMBER completing each of the following tasks as part of their SAE.

0 10 20 30 40 50 60 70 80 90 100

Communicate safety procedures to co-workers (risk communication)



Operate a tractor of over 20 PTO horsepower





❖ Which SAEs are your students completing?

SAE Category	Freq. (%)
Livestock	6746 (26.6)
Ag Mechanics	2695 (10.6)
Home and/or Community Development	2296 (9.0)
Crop Production	2250 (8.9)
Ag Processing/Sales	2163 (8.5)
Other	2078 (8.2)
Environment and Natural Resources	1989 (7.8)
Landscape/Nursery	1911 (7.5)
Floriculture/Horticulture	1057 (4.2)
Ag Communication/Ag Education	992 (3.9)
Food Science	961 (3.8)
Aquaculture	242 (1.0)



❖ What **TASKS** are your students completing as part of their SAEs (**across ALL SAEs**)?

Tasks	Freq. (%)	Rank (1=most freq.)
Operate or ride on an ATV or UTV	7,618 (10.3)	1
Operate a tractor of over 20 PTO horsepower	5,554 (7.5)	2
Assist to operate a tractor (i.e. hitching)	5,081 (6.8)	3
Working with livestock	4,952 (6.7)	4
Operate an implement with a PTO	4,913 (6.6)	5
<i>...[23 other tasks; combined]</i>	<i>46,065 (62.1)</i>	-
Grand Total	74,183 (100)	-



SECTION TWO OF THREE

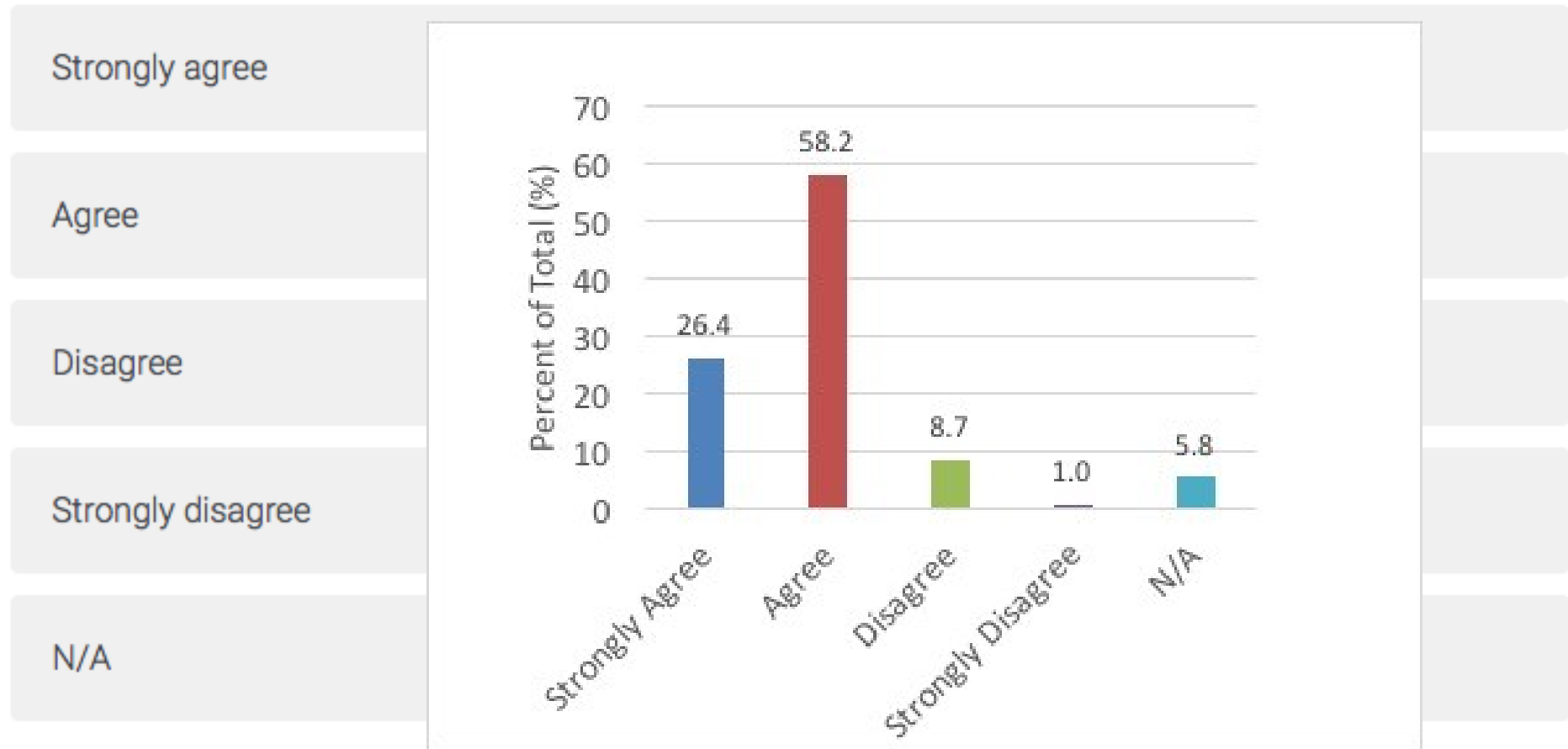
This section of the survey will focus on your instruction and assessment of student comprehension in the classroom and laboratory settings.

Subsection: Teacher Demographics and Instruction

This section will focus on your instructional team and the Agricultural Safety and Health (ASH) educational content (curricula and resources) used in your classroom.



I connect or relate safety instruction in the classroom to SAEs.





Qualtrics Coding

How do you currently teach Agricultural Safety and Health (ASH) content in your classroom?

1

I teach stand alone units on Agricultural Safety and Health (ASH) topics

2

I incorporate Agricultural Safety and Health (ASH) content into other units, such as welding and livestock handling

3

I teach Agricultural Safety and Health (ASH) in other ways

4

I do not currently teach Agricultural Safety and Health (ASH)



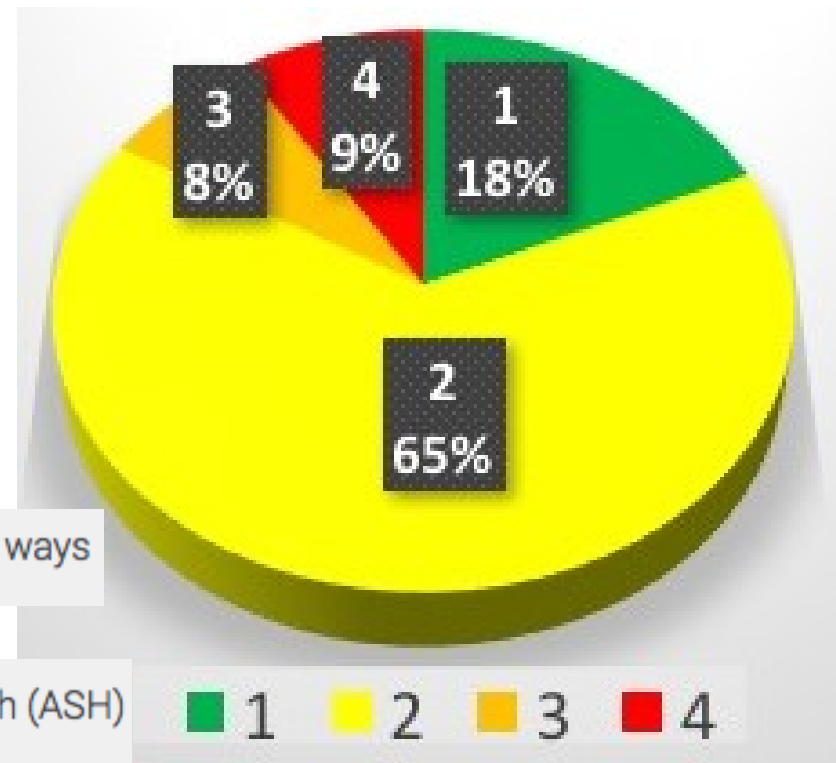
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2 I incorporate Agricultural Safety and Health (ASH) content into other units, such as welding

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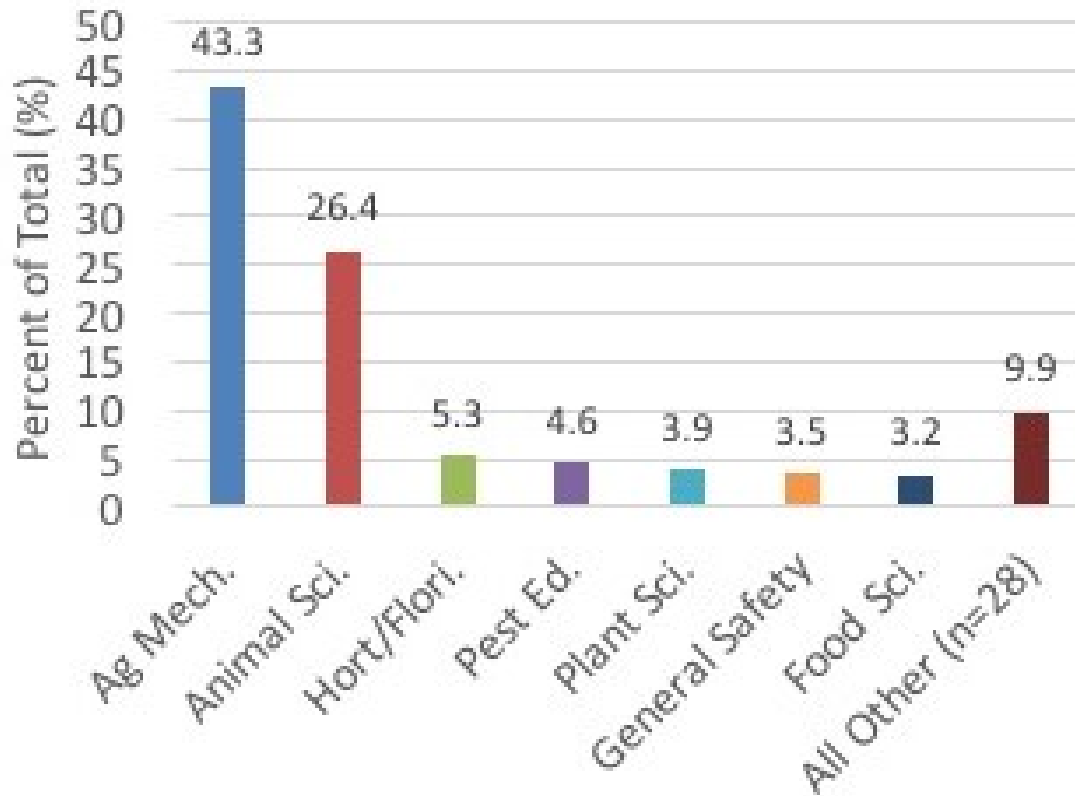
4 I do not currently teach Agricultural Safety and Health (ASH)





Please provide specific examples of units that you incorporate Agricultural Safety and Health (ASH) content in.

**"Ag Mech" includes: Ag mech (14.8%), Welding (13%), Tractor (4.2%), Small engines (2.5%), Electricity (2.1%), and Farm safety (1.1%)

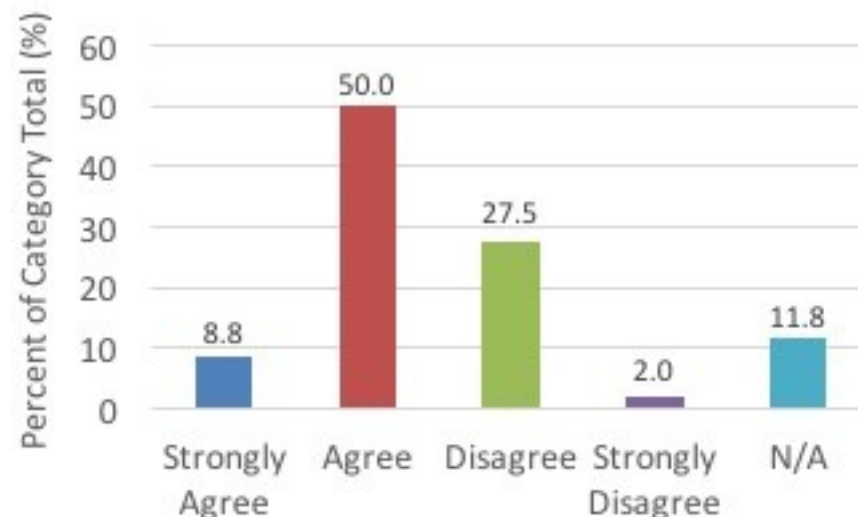
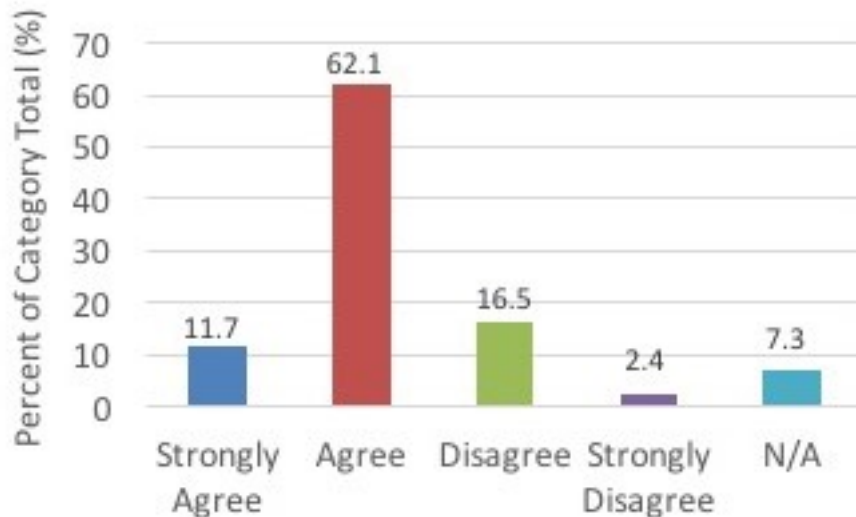




Subsection: Educational Standards and Assessment of Student Knowledge

FORMATIVE assessment (quiz or worksheet after a topic) is the primary method I use to evaluate student comprehension of Agricultural Safety and Health (ASH) content.

SUMMATIVE assessment (end of unit exam) is the primary method I use to evaluate student comprehension of Agricultural Safety and Health (ASH) content.





- ❖ Teach SAFETY (create a “culture of safety”)
- ❖ Longitudinal study to track trends/changes in tasks completed by youth
- ❖ Alignment (crosslinking) of tasks to national educational standards
- ❖ Accessible ASH resources ([SAY Clearinghouse](#))
- ❖ Develop ASH assessment tools

Thank you for your attention!

97	ALL REGIONS (for all 12 SAEs)										
98		Tractor	Assist Tracto	Front loader	No ROPS	PTO Implem	Machinery	Assist Mach	Earth Moving	Assist Earth I	Construction B
99	Total SUM	5554	5081	4388	2054	4913	3531	3680	2721	3171	1881
100	Category % c	6.77581495	6.19876049	5.35330861	2.50585594	5.99380246	4.30777865	4.4895569	3.31958813	3.86858286	2.29479797
101					36.9823551						
102					% of student's operating tractors, who have operated a tractor w/o ROPS						
103											
104											
105											

6-ALL Regions-Tasks 7-ALL Regions-End of Survey 8-Years Exp 9-Curric 10-Cert Calc % by Region

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