HICAHS is preparing to submit new projects to the National Institute for Occupational Safety and Health (NIOSH). If funded, these projects will be enacted from September 2016 to September 2021; some projects have shorter durations than the entire five-year period. The HICAHS Advisory Board was asked to review the pre-proposals under consideration for submission to NIOSH. Discussion regarding these proposals can be found on page 11.

Advisory Board members shared many useful resources for health and safety during the “Board Member Updates” (page 5) portion of the meeting. Mike Taylor’s organization has created a new program, titled “Safety, Health and Environmental Program Evaluation (SHEPE).” Dan Hair is actively involved in NORA, ASSE, and ASHCA and described their resources. Current trends, statistics on agricultural and forestry injuries, and book recommendations were shared by the board members. Additionally, there was much discussion regarding antibiotic resistance and the role of agriculture. Steve Reynolds hopes to study antibiotic resistance in farms in the next HICAHS funding cycle.

Director Stephen Reynolds will be using the feedback from the board to select which projects will be submitted to the NIOSH for funding consideration. The pre-proposals that were provided to the board have not been fully developed yet. HICAHS researchers will not be able to fully develop their proposal ideas until the “Program Announcement Request” is released by NIOSH.
Attendance

Advisory Board Members

1. Shawn Archibeque (Colorado State University, Department of Animal Sciences)
2. Keith Belk (Colorado State University, Department of Animal Sciences)
3. Robert Ellis (Biosafety Officer, Colorado State University)
4. Herb Gibson (U.S. Dept. of Labor – OSHA)
5. Dan Hair (Workers Compensation Fund)
6. Peter Kolb (University of Montana)
7. Jessica Hawthorne Lemmel (Colorado Livestock Association)
8. Clyde Serna (Pinnacol Assurance)
9. Mike Taylor (Risk Management Division, Church of Jesus Christ of Latter Day Saints)
10. Juan Velez (Aurora Dairy)
11. Bill Wailes (Colorado State University)

Regrets/No RSVP: Mitch Anderson (Agfinity), Paige Backlund (Partnership of Academicians and Communities for Translation), Greg Baxter (US Dept of Labor – OSHA), Richard Connell (Colorado Farm Bureau), Dan Fahrenholtz (North Colorado Family Medicine), Bill Hammerich (Colorado Livestock Association), John Hansen (Montana Logging Association), Julie Hulstein (Community Health Association Mountain/Plains States), Danell Kalcevic (Colorado Agri-Women), Jeffrey Levin (Southwest Center for Ag Health, Injury Prevention, and Education), Mary Lynn (US Dept. of Labor – OSHA), Sherrie Nestor (Cargill, Inc.), Brian Schiller (Flood and Peterson Insurance), Glen Whipple (University of Wyoming Extension).

Resigned from the board: Debbie Barba (Colorado Corn), Del Chase (Lamar Community College), Ronald Cunningham (University of Wyoming), Kevin Dalsted (South Dakota State University Extension), and Randy Weigel (University of Wyoming Extension).

Guests

12. Bob McKnight (HICAHS Consultant)
13. Tom Levy (Pinnacol Assurance)
14. Tim Rennau (Flood and Peterson Insurance)

HICAHS Staff

15. Reuben Addo (Graduate Research Assistant to Vicky Buchan)
16. Paul Ayers
17. Bledar Bisha
18. Vicky Buchan
19. Allison DeVries Cassidy
20. Maggie Davidson
21. David Douphrate
22. Julie Gibbs
23. David Gilkey
24. Paul Gunderson
25. Elise Lagerstrom (HICAHS Student Researcher)
26. Sheryl Magzamen
27. Louise Quijano
28. Steve Reynolds
29. Noa Roman-Muniz
30. John Rosecrance
31. Josh Schaeffer
32. Lorann Stallones
33. Cortney Worrell (Graduate Research Assistant to Vicky Buchan)

**Regrets:** Bill Brazile, Maggie Clark, Craig McConnel
## AGENDA

### HICAHS Advisory Board Meeting

**February 27, 2015**  
9 AM – 3 PM  
Colorado State University  
Lory Student Center, Grey Rock Room

<table>
<thead>
<tr>
<th>Time</th>
<th>Item</th>
<th>Discussion Leader</th>
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<tbody>
<tr>
<td>9:00-9:30</td>
<td>Welcome and Introductions</td>
<td>Steve Reynolds</td>
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<tr>
<td>9:15-9:45</td>
<td>Board Member Updates</td>
<td>All</td>
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<tr>
<td>9:45 – 12:00</td>
<td>HICAHS Grant Renewal for 2016-2021</td>
<td>Steve Reynolds</td>
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<tr>
<td>12:00 – 1:00</td>
<td><strong>Lunch</strong></td>
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<td>1:00-1:45</td>
<td>Advisory Board Discussion of Responsibilities</td>
<td>Steve Reynolds</td>
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<tr>
<td>1:45-2:00</td>
<td><strong>Coffee Break</strong></td>
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<td>2:00 - 2:15</td>
<td>International Dairy Research Consortium</td>
<td>John Rosecrance</td>
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| 2:15-2:30    | HICAHS Project Update  
              | “Computer-based ROPS Design Program and  
              | The National Tractor Safety Partnership”                             | Paul Ayers          |
| 3:00         | Closing                                                              | Steve Reynolds      |
Board Member Updates
Each board member was invited to share with the group any emerging agricultural health and safety issues that he/she has observed.

Mike Taylor, Church of Jesus Christ of Latter Day Saints
Their safety program is shifting its evaluation from lagging to leading indicators. The new program, titled “Safety, Health and Environmental Program Evaluation (SHEPE)” evaluates leading indicators of safety in 11 different areas: 1) Management Leadership, 2) Employee Participation, 3) Contractor Safety, 4) Hazard Analysis & Controls, 5) Hazard Reporting, 6) Safety Inspections, 7) Incident Investigations, 8) Data Analysis, 9) Emergency Action Plan, 10) Fire Systems Safety, and 11) Safety & Health Training. Contact him if you would like to learn more about this program.

Throughout the agriculture industry there is concern over a shortage of farm workers due to immigration changes. Also concerned over lack of water, especially in central valley of California.

The Risk Management Division is looking at biodust hazards, including an assessment of their turkey confinement operations. There is a lot of dust in turkey farming. Also looking at dust exposure in grain bins. They have invested $300K on explosion suppression in each grain bin. FM Global (insurance) and other consultants are partnering in this effort.

Lock out/tag out is a major emphasis of their safety program. [The church’s agricultural operations had four amputations between 2013- 2014. They have now reviewed each piece of hazardous equipment and made an SOP for each.

Dan Hair, Worker’s Compensation Fund
Mr. Hair is also a member of the NORA Agriculture, Forestry and Fishing (AFF) Sector Council. The National Occupational Research Agenda (NORA) is a partnership program developed by the National Institute for Occupational Safety and Health to stimulate innovative research and improved workplace practices.

The NORA AFF Agenda has been a roadmap for structuring the HICAHS Center and setting research priorities. Every decade NORA re-evaluates its priorities. Since the second decade of NORA is ending soon, the research priorities in agriculture, forestry, and fishing will need to be re-evaluated.

Mr. Hair is involved with the Agricultural Safety and Health Council of America (ASHCA). Each year ASHCA awards small grants up to $10K to agricultural producers and community organizations.

Mr. Hair attended the American Society of Safety Engineers (ASSE) Fatality and Severe Loss Prevention Symposium in Nov 2013. The symposium was a culmination of research on preventing injuries. He appreciates what HICAHS Researcher Dr. Douthrater is doing to reduce injuries in the dairy industry.

Learn@ASSE is an excellent program to learn about applying safety in the workplace. The online training program that includes webcasts and safety content on the topics of: safety core concepts, collecting OSH information, assessing OSH, and managing OSH. A $75 training membership to ASSE provides you unlimited access to the program. https://learn.asse.org/

ASSE Videos. The ASSE Risk Assessment Institute developed to help occupational safety and health (OSH) practitioners develop competencies in the area of OSH risk assessment and management for immediate practical use in the workplace.
The ASSE Risk Assessment Institute developed this series of videos to help OSH practitioners develop competencies in the area of OSH risk assessment and management for immediate practical use in the workplace. The videos are provided at no cost. [http://www.oshrisk.org/videos/](http://www.oshrisk.org/videos/)

**Find a local ASSE chapter.** [http://www.asse.org/membership/findachapterusa](http://www.asse.org/membership/findachapterusa)

**Bill Wailes, CSU Dept. of Animal Sciences**

About a year ago dairies in Colorado began experiencing a labor crisis because the oil and gas boom attracted its workers with higher wages. Weld is 11th largest dairy county in U.S.

**Shawn Archibeque, CSU Dept. of Animal Sciences**

Dr. Archibeque is interested in the regional health impacts of ammonia emissions (PM 2.5 formation) and how the emissions can affect the ecosystem and health. He is researching how management practices that can improve emissions. The names of his two projects are “Emissions and Transport of Reactive Nitrogen from Cattle Feedlots Along Colorado's Front Range” and “Robotics for Managing Air Emissions of Ammonia at Livestock Operations.”

The National Air Quality Site Assessment Tool is designed to provide assistance to livestock and poultry producers and their advisors in assessing a producer’s performance in minimizing air emissions and in determining where there are opportunities to reduce air emissions. [naqsat.tamu.edu](http://naqsat.tamu.edu)

**Juan Velez, Aurora Dairy**

Aurora dairy is focusing its safety efforts at the management level. With the help of consultants, they are training parlor leaders to improve performance, engagement, safety and reduce accidents. Training has traditionally focused on technical skills, but not leadership skills. They want leaders to know it is acceptable to expose workplace problems so that management can be proactive, not reactive to problems.

**Keith Belk, CSU Dept. Animal Sciences**

As seem in the media, President Obama and the World Health Organization (WHO) are addressing antimicrobial resistance (AMR). The most recent focus has been on the role of agriculture with antimicrobial resistance. Dr. Belk formed a team with Steve Reynolds, Josh Schaeffer, Sheryl Magzamen, and others at CSU to address AMR from the ag perspective. They are not focused on the medical implications of AMR, but on the ecological perspective and how society as a whole perceives the causes of AMR. Through metagenomic analysis they are quantifying and evaluating the transmission of AMR genes in agriculture. The first studies were among beef cattle where they conducted a longitudinal study from feeding all the way to packaging to evaluate the distribution of these genes. One of the big issues is that the intervention systems that address food safety are so good that they cannot find AMR resistant genes. They will try a more stringent analysis NextGen sequencing techniques to see if the results are the same.

Another big issue is that the media has simplified the mechanism by which AMR bacteria are spread from farm to table, such as in the CDC Infographic: Antibiotic Resistance from the Farm to the Table. Does anyone really know the distribution system? We need to do more research to understand this because it is more complex than what is being portrayed in media.

**Steve Reynolds:** We are trying to utilize an inter-disciplinary approach to studying antimicrobial resistance by involving veterinary medicine, microbiologists, and other academic expertise. We have been happy with the partnerships that we have been able to develop. One of the most important gaps in the literature is the potential impact and role that workers have with AMR transmission and infection.
Bob Ellis, Biosafety Officer at Colorado State University

Dr. Ellis recommends a book by Baxter Black called, “Lessons from a Desperado Poet: How To Find Your Way When You Don’t Have A Map, How To Win The Game When You Don’t Know The Rules, And When Someone Says It Can’t Be Done, What They Really Mean Is They Can’t Do It.”

What stuck with him from this book is that we are in a blizzard of information nowadays. Our job is to sort the snowflakes from the blizzard.

Another book he recommends is the “Hank the Cowdog” series by John R. Erickson. The books are written at an 8-9 year old reading level but loved by adults. Western horsemen quote, “It’s not what we don’t know; it is what we don’t do about what we do know.”

There are many occupational health problems in agriculture: electrocutions, tractor rollovers, people who retrofit older tractor and then remove the ROPS. Getting people to follow what they know they should be doing is a problem. I do not know how to do convince people to do this, but getting these safety messages to people in a way they can use in their life is needed.

Jessica Lemmel, Colorado Livestock Association

The Colorado Livestock Association represents the majority of feedlot, swine, and dairy operations in Colorado. In her observation, agricultural producers are very concerned with labor. Training new hires is a problem, with some employees not attending their first safety meeting until two months into the job. Clyde Serna can tell you all the statistics for injuries for new hires.
Clyde Serna, Pinnacol Assurance

Pinnacol Assurance provides workers compensation services to over 70% of agricultural businesses in the state of Colorado. Among agricultural businesses, injuries and illnesses among new hires are a consistent problem. It is a struggle to find training resources specific to the tasks that these new workers are doing but Pinnacol is sharing and receiving information through livestock associations, such as CLA, and other agricultural agencies.

Physical injuries are much more common than illnesses. Pinnacol does see some injuries related to cattle handling techniques, milking parlors, fall protection, confined spaces, but accidents are more common. An issue is complacency with administering safety programs and lack of resources for safety programs.

Tim Rennau, Flood and Peterson Insurance

There are several regulatory issues that have affected workers compensation in Colorado.

*Colorado House Bill 14-1383* was passed in spring 2014, which increased the required number of designated healthcare providers for workers’ compensation treatment from two to four. There is an exemption for rural areas.

Beginning in 2015, OSHA has changed their reporting requirements for work-related injuries and fatalities. The requirements are more stringent, requiring employers to report any inpatient hospitalization, amputation, or eye loss within 24 hours. View the Flood and Petersen Presentation and Handout, “*OSHA Recordkeeping – New Requirements presented by George B. Flynn, MS, CIH.*”

Peter Kolb, Montana State University Extension Forestry Specialist, College of Forestry & Conservation, University of Montana

Dr. Kolb works with the Montana logging Association. Forestry and logging remain an extremely hazardous business and safety messages do not reach many chainsaw users in Montana because they are private forestry landowners (28K in Montana alone). Thirty years ago there were training programs but now training is a liability for chainsaw companies. There is a huge vacuum in safety training. These foresters do not have workers compensation, and they do lose out on work when injured. We do not know a lot about this issue, but would like to survey emergency responders to see how many chainsaw injuries they see.

Other issues in forestry/logging are the use of old farm tractors for their work that do not have ROPS. Using four-wheelers is also common, so Dave Gilkey’s ATV training program is very popular in Montana. Dr. Kolb’s 15 and 12 year daughters will take the training.

A potential emerging market is the biomass industry. Forest residual materials can be turned into liquid fuel. If this industry develops, people will be picking up discarded wood for processing and a new workforce will be built. What will the safety protocols be?

Herb Gibson, OSHA

Mr. Gibson appreciates HICAHS’ work for the dairy industry and the ATV safety materials from Dave Gilkey. He provided the materials to an employer; a young girl was killed [on the job], and it changed how the employer was using the ATV.

Michael Pate spoke at last year’s advisory board meeting about combustible grain dust and fitting operators with respiratory masks. The swine and poultry industries in Colorado [also have respiratory hazards]...more resources for training are needed because there are no federal laws for ag employers. The oil and gas industry has problems with injuries among untrained workers. There is a 30-hour OSHA
training class for O&G, and if there was an OSHA 10-hour training for agricultural workers is would be very valuable. [Editor’s note: HICAHS Researcher Dr. David Douphrate has created a customized OSHA 10-hour class for dairy workers]. A growing industry in Colorado is marijuana, and with it has come a host of occupational safety issues. Pesticides and herbicides are being used in enclosed warehouses converted to greenhouses that are intentionally pumped with CO2 to change the atmosphere. The air movement is not the same as a typical agricultural environment where pesticides are being used. Plus, now people are smoking and eating marijuana, but the Food and Drug Administration (FDA) is not overseeing its safety because marijuana is not legal federally. There are lots of gaps in oversight. By the way, the marijuana industry would love to work with CSU plant geneticists to improve their products.

Steve Reynolds commented that university professionals cannot bring marijuana on campus because of the federal dollars the university receives. However, students have been doing projects off-site to assist the marijuana industry with assessing occupational safety and health risks. There are certain varieties of marijuana that are extremely irritating to the skin and lung of workers.

Josh Schaeffer said he realizes that he is allergic to pot after visiting the grow houses for occupational safety and health consultation.

Juan Velez: Anyone know if accidents have increased or decreased because of marijuana use? Is there a threshold level to determine impairment on the job?

Clyde Serna: Employers can do drug testing and a doctor will have to determine if marijuana use contributed to the injury. If this is the case, it is likely the employee will challenge it because workers’ compensation benefits will be reduced. Marijuana use will only show up in the records if the employer created safety rule that was violated, otherwise it is not part of the record.

David Gilkey: A drug policy helps the safety culture because people on the work crew can trust that their co-workers are not high and will not put them in danger.

Discussion of HICAHS Structure for 2016-2021

See page 17 to review the board responsibilities under discussion. These responsibilities were streamlined from last year’s version, which can be found in the 2014 notes. The key differences include:

- Added information on board composition and nominations
- Added information on communication methods with the board.
- Added the option for a board member to add an “alternate delegate” to the advisory board.
- Remove mention of web conferencing as a way of communication. Although this is an option that HICAHS may utilize in the future, HICAHS primarily communicates with the board through the annual in-person meeting, email communications, and one-on-one phone calls.
- Remove requirement to “Monitor progress on annual program goals and research objectives as identified by HICAHS staff and collaborators.”
- Remove requirement to “Review annual budget and provide feedback to HICAHS staff and collaborators.”
- Remove requirement to “Use your influence and provide assistance in identifying opportunities for partnerships and serving as advocates for continued federal funding.”
• Remove selection criteria that board members should be able to “expand influence and research in agricultural health and safety.”

**Peter Kolb:** It is important to be part of the research project from the start. He has worked with projects and been given a final research project that is not disseminable.

**Paul Ayers:** Extension specialists share their findings annually.

**Lorann Stallones:** Since Dennis Lamm (CSU Extension agent) retired there is not a good connection with HICAHS and Extension on campus. HICAHS can sit down and talk with Nancy Irlbeck, Associate Dean for Academic Affairs at CSU, about getting connected to Extension.

**Paul Gunderson:** HICAHS could hire someone with a background in educational psychology to help with training. Ideally it would be someone trained in ag education, assessing performance, and cognitive/skill levels.

**Vicky Buchan:** In the HICAHS needs assessment, training and education came out on top as issues important to HICAHS stakeholders. NIOSH funding may not be the most viable mechanism because of its mission as a research institution. It is important that HICAHS look for other sources of support.

**Peter Kolb:** At the National Institute of Food and Agriculture (NIFA), most grants have a 30% outreach requirement. Agricultural security falls under NIFA and this is a potential funding source for HICAHS.

**Keith Belk:** Training grants from the National Institutes of Health (NIH) and the National Science Foundation (NFS) include both education and outreach. Proposals are due in just a few weeks.

**Steve Reynolds:** Please let us know if there are additional funding opportunities for HICAHS or ways for us to partner with you, our board members.

**Juan Velez:** The old-fashioned training was to go out to field, the new way is to get IT people to develop applications so that is easy to access and implement. We have employees from Guatemala that cannot speak Spanish or English but they know how to use smart phones very, very well! Even mom-and-pop operations are using computers. We need to do more online training.

See the HICAHS Advisory Board webpage for the latest version of HICAHS Board Responsibilities: [www.hicahs.colostate.edu/boards.html](http://www.hicahs.colostate.edu/boards.html)

**NIOSH Defunding Surveillance**

There is very limited data on the nature and extent of injuries among those working in agriculture, forestry, and fishing. Since the late 1990s NIOSH has partnered with the U.S. Department of Labor (DOL) and U.S. Department of Agriculture (USDA) to collect surveillance data. However, NIOSH has decided to stop funding these surveillance activities and will be exploring other surveillance options. This change will defund the Childhood Agricultural Injury Survey [CAIS], Occupational Injury Surveillance of Production Agriculture [OISPA], and the National Agricultural Workers Survey [NAWS]. There is speculation that the Ag Centers (including HICAHS) may be required to develop surveillance projects to fill this need. See page 19 for frequently asked questions regarding NIOSH’s decision to defund surveillance.
HICAHS Pre-Proposals

HICAHS will be applying for another five years of funding for 2016-2021. Every five years, this presents an opportunity for HICAHS to change directions on its occupational health and safety research, and it presents an opportunity for new researchers to join the team. Ten pre-proposals are under consideration for the HICAHS Center Application. A 50-page document was shared with the board members before the meeting that described these proposals in greater detail. From these ten proposals a few will be selected to be more fully developed and submitted as part of the HICAHS grant application for funding from the National Institute for Occupational Safety and Health (2016-2021).

<table>
<thead>
<tr>
<th>Investigators</th>
<th>Pre-Proposal Title</th>
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<tbody>
<tr>
<td>1. Paul Ayers</td>
<td>Development of Engineering Controls to Reduce Foldable ROPS Overturn Fatalities</td>
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<tr>
<td>2. Bledar Bisha</td>
<td>Assessing the Role of Antimicrobials and Sanitizers in the Physiology and Evolution of Antimicrobial Resistant <em>Escherichia coli</em> and <em>Enterococcus</em> sp. in Simulated Beef Production Environments</td>
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<tr>
<td>Co-Investigators: Sebabrata Mahapatra, Alan Franklin</td>
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<tr>
<td>3. Dave Doupbrate</td>
<td>Occupational Safety Management and Leadership on Large-Herd Dairy Farms</td>
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<tr>
<td>4. David Gilkey</td>
<td>Training Evaluation for ATV Safety Institute’s Hands-On RiderCourse</td>
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<tr>
<td>Co-Investigators: John Rosecrance, Sheryl Magzamen, Gwen Fisher</td>
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<tr>
<td>5. Angelo Izzo, Karen Dobos, Richard Bowen</td>
<td>Incidence of exposure to <em>Coxiella burnetii</em> in at risk populations and development of a new vaccine</td>
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<tr>
<td>Co-Investigators: Noa Ramon-Muniz, Stephen Reynolds, Phil Turk</td>
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<tr>
<td>Co-Investigators: Lili Tenney, Carol Brown, Lorann Stallones</td>
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</tr>
<tr>
<td>Investigators</td>
<td>Pre-Proposal Title</td>
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<tr>
<td>7. Michael Pate</td>
<td>High Plains and Intermountain Agricultural Safety Education Initiative (HIASE) “Investing in the Future of Agriculture: Outreach with a lasting impact on rural and agricultural communities”</td>
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<tr>
<td>Co-Investigators: Rebecca G. Lawver, Scott Smalley, Jeremy Faulk, Dustin Perry</td>
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<tr>
<td>8. Stephen Reynolds, Sheryl Magzamen, Joshua Schaeffer</td>
<td>Antimicrobial Resistant Bacteria in Dairy and Beef Production – Risks and Role of Workers in Emergence and Transmission</td>
</tr>
<tr>
<td>Co-Investigators: Craig McConnel, DVM, Bledar Bisha, Keith Belk, Paul Morley, Angelo Izzo, Karen Dobos, Jill Poole, Noa Roman-Muniz, David Douphrate, Robert Hagevoort, Thomas Keefe</td>
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<tr>
<td>Co-Investigators: MD Salman, Lyndsey Linke, Jason Ahola, Stephen Reynolds</td>
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<tr>
<td>10. John Rosecrance</td>
<td>Translation and Dissemination through Agricultural Partnership and Community-Based Participatory Research</td>
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<tr>
<td>Co-Investigators: Lorann Stallones, Dave Gilkey</td>
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Comments from the board

The specific aims of each project were briefly reviewed by each proposed Principal Investigator (if present) and the board was given the opportunity to ask questions about the project. Paul Ayers was asked if the foldable ROPS that he proposes to design would be automatically foldable, or would require manual folding. Peter Kolb added that automatic folding is preferable since otherwise it would require the driver to get off the tractor and make adjustments, disrupting the work flow. David Gilkey was asked how he would assess whether ATV training was effective. Lee Newman’s project corresponds to healthcare provider outreach being provided at the University of Iowa.

Additionally, a survey was administered asking the board members to rank each project on a three-point scale (“very well,” “neutral,” and “not at all”) in response to the question, “How well do the specific aims of these proposals align with your perceived occupational health and safety needs for agriculture?” Results are found on the following page. Nine advisory board members participated in this survey.

Overall, the advisory board finds value in networking and learning about our projects. HICAHS could use videoconferencing to connect with the board members throughout the year. Has HICAHS thought about becoming involved in agriculture outreach programs, such as FFA? These provide an opportunity to deliver more safety education. FFA has week-long workshops for high school juniors and seniors to learn about ag safety and health issues.
**Advisory Board Pre-Proposal Evaluation Results**

Advisory Board Members (n=9) answered the question, “How well do the specific aims of these proposals align with your perceived occupational health and safety needs for agriculture?”

Analysis and graph by Allison De Vries Cassidy
Appendices

1. Email (2/24/15): HICAHS Advisory Board Meeting this Friday ........................................................... 15
2. HICAHS Board Member Responsibilities ............................................................................................. 17
3. Future of Agricultural Injury Surveillance at NIOSH ............................................................................ 19
4. Presentation: International Dairy Research Consortium ........................................................................ 23
5. Presentation: Computer‐based ROPS Design Program and The National Tractor Safety Partnership ........................................................................................................ 27
Dear HICAHS Board Members,

We are looking forward to seeing many of you at the HICAHS External Advisory Board Meeting, to be held from 9 am – 3 pm this Friday at the Lory Student Center at Colorado State University. Signs will be posted within the Lory Student Center directing you to the Grey Rock Room.

Attached is the agenda, a proposed revision of board responsibilities, and the proposals that we are considering for the 2016-2021 HICAHS grant application. All of these documents will be discussed at the board meeting and we would like you to read them in advance. The pre-proposal document is especially long at 50 pages with information on the specific aims, background, and research methods so we do not expect you to read the whole file. Steve Reynolds will be asking for your thoughts on how well the specific aims of these proposals align with your perceived occupational health and safety needs for agriculture; you do not need to review the rest of the document if you do not wish to do so.

As for the revised board responsibilities, the most notable modification is the expectation that board members will attend three out of five annual board meetings during HICAHS’ 5-year cycle. This change and the other changes will be discussed at the board meeting. Please see last year’s board meeting notes to see the last version: http://csu-cvmbs.colostate.edu/Documents/hicahs-eaboard-2014-meeting-summary.pdf

Please note that there is time in the agenda for “board member updates.” Each board member is invited to share with the group any emerging agricultural health and safety issues that he/she has observed. You participation in this session is welcome!

Until Friday,

Allison, on behalf of Director Stephen Reynolds & HICAHS Staff

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YouTube: www.youtube.com/usagecenters
Give to HICAHS: https://advancing.colostate.edu/CVMBS/HICAHS

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External Advisory Board Member Responsibilities and Terms

Core Function of the Board
The core function of the HICAHS External Advisory Board is to advance the HICAHS mission to “lead and coordinate regional and national efforts to improve the well-being and productivity of U.S. agriculture and forestry workers through increased health and safety awareness and evidence-based practices.”

External Advisory Board members may be asked to do the following to advance the HICAHS mission:

1. Planning and Evaluation
   a. Advise on priorities and goals for HICAHS.
   b. Evaluate HICAHS programs and projects by completing evaluation forms and in other capacities as the board deems necessary.

2. Resource Development
   a. Identify partnerships for HICAHS and facilitate introductions for those partnerships.
   b. Advocate for HICAHS sponsorship.

3. Advocacy and Outreach
   a. Promote safe and healthy work practices to those within your sphere of influence.
   b. Promote positive relationships between HICAHS and agricultural stakeholders.
   c. Assist in HICAHS outreach including dissemination of research findings.

Terms and Expectations
The board term lasts for the duration of the funding cycle set by HICAHS’ federal grant sponsor, the National Institute for Occupational Safety and Health. The current grant cycle runs from September 2011 until September 2016. Board terms are renewable for the next grant cycle with no term limits. If a board member should choose to resign mid-term, he or she is encouraged to nominate another representative from his or her organization. Board members are expected to attend at least half of the external advisory board meetings during the 5-year cycle, which are held annually every winter. Travel costs to board meetings are typically compensated 100%.

Board Composition and Nominations
Board members are selected by HICAHS Director Stephen Reynolds in consultation with the HICAHS leadership team and Advisory Board Members. All board members and staff are empowered to recommend potential board members to the director. New board members may be added at any time.
during the HICAHS 5-year cycle. There is no limit on the number of people who can be on the HICAHS External Advisory Board.

**Selection Criteria**
Advisory members will be selected based on:

1. Ability to represent agriculture, forestry, and fishing stakeholders in the HICAHS region, which includes Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.
2. Willingness to be actively engaged with HICAHS activities in agricultural health and safety.

**Alternate Board Members**
Board members may request that an alternate person from their organization be kept in communication through the email listserv. If a board member cannot attend a meeting, the alternate representative may be sent in his/her place.

**Communication**
Board members are encouraged to communicate with the group through the email listserv, hicahsadvisoryboard@colostate.edu. Advance permission is not needed to email the listserv as long as the email topics relate to the HICAHS vision and mission. Additional information about the HICAHS External Advisory Board may be found at [www.hicahs.colostate.edu/advisory-boards.html](http://www.hicahs.colostate.edu/advisory-boards.html).

This draft to be reviewed at the 2015 HICAHS External Advisory Board Meeting.

Drafted by Allison Cassidy.
Future of Agriculture Injury Surveillance at NIOSH

NIOSH began its coordinated program in agriculture in 1990 and made youth agriculture injury prevention a particular focus in 1996. Ongoing injury surveillance activities have supported this extensive program, including targeted surveys conducted in partnership with the U.S. Department of Labor (DOL) and U.S. Department of Agriculture (USDA) since the late 1990s. Over time, both the size of the U.S. agriculture workforce and the number of injuries on farms has declined each year, making this surveillance approach more resource-intensive. Additionally, there have been advances in information technology and surveillance methodologies since these surveys were initiated. As a result, NIOSH is exploring ways to improve NIOSH-supported agriculture injury surveillance for the future.

Beginning in FY 2015, NIOSH will not re-establish interagency agreements with DOL and USDA to collect certain agricultural injury data. NIOSH will initiate a rigorous examination of future options for agricultural injury surveillance that consider resource limitations, and will seek stakeholder input.

**NIOSH remains committed to the prevention of injuries, illnesses, and deaths in the agriculture sector.** NIOSH and NIOSH-funded research and prevention activities will not be affected directly by this change in injury surveillance approach. Injury data related to youth, adults, and crop workers will be available for 2014 and 2015. These data will be analyzed and reported as they have been in the past.

There will be multiple opportunities for stakeholders to provide input into the future direction of NIOSH’s agricultural injury surveillance, including a virtual public meeting and a docket in the Federal Register that will be announced in early 2015. Check back regularly with this page to find out more about this important change and about opportunities to provide related input to NIOSH. Additional questions may be directed to John Myers at JRMyers@cdc.gov (mailto:jmyers@cdc.gov).
Questions and Answers about changes to NIOSH’s agriculture injury surveillance approach

Why is NIOSH discontinuing certain agricultural injury studies?

The changes to how NIOSH will conduct agricultural injury surveillance in the future are the result of several challenges including increased costs and an uncertain funding landscape. Due to the diligent work of NIOSH and its partners, the number of injuries occurring on farms has decreased significantly, especially to youth on farms but also to hired crop workers. With fewer injuries to identify, the existing surveys require larger sample sizes to provide NIOSH with stable injury estimates, significantly increasing survey costs. NIOSH does not have the resources to support the cost of the increased sample size.

When will NIOSH stop collecting agricultural injury data through agreements with other federal agencies?

Beginning in FY 2015, NIOSH will not provide additional funding and will not re-establish interagency agreements with the U.S. Department of Agriculture (USDA) and the U.S. Department of Labor (DOL) to collect agricultural injury data.

NIOSH will stop conducting surveys of farm operators (for example, the Childhood Agricultural Injury Survey [CAIS] and Occupational Injury Surveillance of Production Agriculture [OISPA]) and will no longer fund injury modules for the National Agricultural Workers Survey, known as NAWS, through interagency agreements. The Institute will fulfill existing agreements and continues to explore alternative options for future agricultural injury, illness, and hazard surveillance. NIOSH remains committed to the prevention of injuries, illnesses, and deaths in the agriculture sector despite this change in surveillance methods.

What data will NIOSH continue to collect?

Only certain surveillance tools will be discontinued and agricultural injury prevention will remain a priority at NIOSH. To support prevention work, NIOSH will continue to use U.S. Bureau of Labor Statistics (BLS) data to track deaths and nonfatal injuries among working adults and children and will continue to support the Sentinel Event Notification System for Occupational Risk (SENSOR) Pesticides Program to collect data on pesticide exposures and illnesses in multiple work settings, including agriculture. Additionally, current NIOSH commercial fishing surveillance activities will not be impacted. NIOSH, with stakeholder input, is exploring various options for filling the gap left by the cessation of the surveys conducted through interagency agreements.
What is the most recent data that will be available from the discontinued surveys?

NIOSH and USDA have committed to conduct CAIS and OISPA during calendar year 2014. NIOSH has also supported DOL in administering the NAWS injury module for calendar years 2014 and 2015.

Data from the USDA and DOL interagency agreements will therefore be available as follows:

- Calendar year 2014 data on
  - the numbers of children living on, visiting, and working on farms,
  - numbers and rates of injury for children who live and work on farms,
  - the numbers and rates of injuries to adults who work on farms,
  - tractors without rollover protective structures.
- Calendar years 2014 and 2015 data on injuries to crop workers.
- Calendar year 2011 data on farm hazards such as pesticide use, manure storage, and silos.

How will this change in surveillance activities impact other agricultural programs funded by NIOSH?

This change in NIOSH’s relatively small internal surveillance activity does not impact NIOSH’s intent to continue funding other agricultural programs within or outside the Institute. As stated above, other current NIOSH agricultural surveillance activities will continue. In addition, NIOSH will continue to fund extramural programs such as the National Children’s Center for Rural and Agricultural Health and Safety and the nine regional Centers for Agricultural Disease and Injury Research, Education and Prevention. NIOSH will also continue to support extramural grant proposals as resources permit.

How does NIOSH plan to move forward?

NIOSH is rigorously exploring different intramural and extramural surveillance options. Stakeholder input will be an essential part of the process to examine new strategies to collect data important for NIOSH’s mission as well as for the work of its stakeholders. Information gathered from stakeholders and peers in the upcoming year will be used to propose future directions for NIOSH-supported agricultural surveillance.

NIOSH welcomes stakeholder input on surveillance priorities including different agricultural populations and geographic coverage (e.g. national, regional, state and/or community), as well as the strengths, limitations and costs for different surveillance methodologies and approaches, and ways to take advantage of advancements in information technology and surveillance methods.
Can extramural programs fill the gap created by the discontinuation of these data collection efforts?

NIOSH will be exploring the potential role for extramural programs and will seek input on innovative methods and strategies for future agricultural injury, illness, and hazard surveillance.

Relevant Links

Agricultural Safety Topic Page

Childhood Agricultural Injury Prevention Initiative

The National Agricultural Workers Survey (NAWS) from U.S. Dept. of Labor (http://www.doleta.gov/agworker/naws.cfm)

NAWS Data Tables (https://naws.jbsinternational.com/)

Page last reviewed: December 11, 2014

Content source: National Institute for Occupational Safety and Health (http://www.cdc.gov/NIOSH/) Western States Office
HICAHS International Dairy Research Consortium (IDRC)

Recent Progress – Spring 2015

IDRC Formally Proposed in 2011 Proposal – Base funding (travel, meetings)
Reynolds, Douphrate, Rosecrance

Goals: Collaborate on research and outreach projects that ultimately result in the reduction of deaths, injuries and illnesses among dairy workers internationally.
Objectives: Increase research capacity through partnerships, share best practices, and optimize resources.

IDRC Membership

Australia: National Centre for Farmer Health, University of Western Sydney
Brazil: FundaCentro
Canada: Canadian Centre for Health and Safety in Agriculture; University of Saskatchewan
Denmark: Aarhus University
Finland: TTS; MTT Agrifood Research Finland
Germany: Leibniz Institute for Agricultural Engineering Potsdam-Bornim
Ireland: Teagasc – the Irish Agriculture and Food Development Authority
Italy: University of Milan, Occupational & Rural Health Center; University of Sassari (Sardinia, Italy) Dept Ag Engineering, University of Tuscia, Dept of Ag Engineering
The Netherlands: The Netherlands Center for Occupational Diseases
New Zealand: Employers and Manufacturers Association
Sweden: DeLaval; University of Uppsala; Swedish University of Agricultural Sciences
U.S. HICAHS, SW Center, NFMC-UMASH, Central States, GPCA, Western Center, NMSU, SDSU

IDRC Conferences / Workshops - Dissemination

• 2011: Colorado IDRC
  Ireland Nordic Conference
• 2012: Spain International Conference of Agricultural Engineering
  Sweden Nordic Conference
  Ragusa Italy International Conference on Safety, Health and Welfare in Agriculture and Agro-food Systems
  New Zealand World Safety Conference
• 2013: ISASH, June 2013
  Italian Association of Agricultural Engineering: Horizons in agriculture, forestry and biosystems engineering
  Colorado IDRC
• 2014: Saskatoon, Canada, 7th International Symposium: Safety & Health in Agricultural & Rural Populations: Global Perspectives
Original Meeting Goals & Accomplishments

- Share information on industry and programs
- Identify global issues and priorities
- Identify opportunities for collaboration
- Develop objectives and schedule
- Identification of Resources

2015 Conferences associated with IDRC
Examples of IDRC Outcomes

Journal of Agromedicine
Editors: Reynolds, Lundqvist, Colosio

A Global Perspective on
Modern Dairy: Occupational
Health and Safety Challenges
and Opportunities
Italian Collaborations

Faculty and Student Exchanges

- Rosecrance visiting professorship in Dept. Agricultural Engineering, University of Sassari in 2012 and 2013.
- Three CSU graduate students participating in dairy research in Italy and presenting their research at the University of Sassari.
- Rosecrance Sabbatical 2014 - University of Milan to build dairy research opportunities with Colosio’s research team at the International Centre for Rural Health.
- Doctoral student from the University of Milan - visiting scholar at CSU in 2013 & 2014 focusing on ergonomic exposures of the upper limb among dairy workers. Working with Rosecrance and CSU graduate students involved in dairy research.

Grant Proposals

- 2014 - Received grant in 2014 to study energy usage and ergonomic issues in cow and ewe dairy operations (Murgia, University of Sassari) (Rosecrance, Colorado State University) – funded.
- 2014 - Submitted proposal with Colosio and Masci (Milan) to Italian MINISTRY OF AGRICULTURE, FOOD AND FORESTRY concerning Prevention of Zoonotic Diseases among Dairy Workers.
- 2015 - Submitted training proposal with Colosio (Milan) to Marie Curie Programs related to Horizons 2020 (80 billion Euros).

Presentations and Publications

Collaborative Scientific Presentations:
- Two presentations at International Conference of Agricultural Engineering (CIGR-AgEng2012), Valencia, Spain, 2012.
- Two presentations at the Italian Association of Agricultural Engineering: Horizons in agriculture, forestry and biosystems engineering. Viterbo, Italy, 2013.

Collaborative Publications

Other HICAHS International Collaboration

ATV presentation at IEA meeting in Melbourne, Australia

ROPS and Tractor Design - Ragusa, Italy Conference
Computer-based ROPS Design Program and National ROPS Rebate Program

Paul Ayers
Biosystems Engineering
University of Tennessee

NIOSH Ag Centers Intervention project with High Plains Intermountain Center for Agricultural Health and Safety (HI-CAHS).
This presentation was supported by Grant Number 2U54OH008085-11 from CDC-NIOSH. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC-NIOSH.

Significance
• Tractor rollover still the leading cause of agricultural fatalities in the US
• Roll-over Protective Structures (ROPS) virtually eliminate tractor rollover fatalities
• Some post-ROPS tractors do not have ROPS designs

Objective- Develop, implement and evaluate a simple approach to develop 2 post ROPS mechanical drawings from tractor dimensions/mass

Input – Tractor dimensions and mass
Output – Mechanical drawings for ROPS construction

Computer Design Program Model (using Excel)

Model
Tractor Inputs ➔ ROPS Design Decision Criteria (from database) ➔ ROPS Outputs
Tractor Dimensions (sample) – 26 needed

Tires/Axles:
- rear tire diameter (RTD)
- rear tire width (RTW)
- front tire width (FTW)
- front tread width (center to center) (FTRW)
- front tire diameter (FTD)
- tractor wheel base (horizontal distance from front axle to rear axle) (WB)
- vertical distance from ground to front tire point (FTPZ)
- vertical distance from ground to rear tire point (RTPZ)
- front tire movement (+ and -) (out and in) (RTMP, RTMN)
- front tire movement (+ and -) (FTMP, FTMN)

Seat:
- horizontal distance from rear axle to SRP (+ is towards front) (SRPX)
- vertical distance from ground to SRP (SRPZ)
- vertical distance from ground to top of back seat rest (BSRZ)
- thickness of back seat rest (STTH)

Example - Input Tractor Dimensions (26)
Model designed for tractors with square/grooved axle housings
**Design Criteria**

- **Baseplate thickness (RBTH)**
  - If $OW < 2000$, then $RBTH = 0.75$
  - If $2000 \leq OW < 3000$, then $RBTH = 1.0$
  - If $3000 \leq OW < 4000$, then $RBTH = 1.25$
  - If $OW \geq 4000$, then $RBTH = 1.5$

- **Bolt diameter (BD)**
  - If $OW < 2000$, then $BD = 0.5$
  - If $2000 \leq OW < 3000$, then $BD = 0.625$
  - If $3000 \leq OW < 4000$, then $BD = 0.75$
  - If $4000 \leq OW < 5000$, then $BD = 0.875$
  - If $OW \geq 5000$, then $BD = 1.0$

- **Bolt Hole Diameter (BHD)**
  - $BHD = BD + 0.125$

- **Bolt length (BL)**
  - $BL = 1.0 + 2 \times RBTH + AHZ$

- **If less than 8**, then $= 8$
  - **Between 8 and 10**, then $= 10$
  - **Between 10 and 12**, then $= 12$

**Baseplate width (RBX)**

- $RBX = AGSX + 2(BHD) + 2.0$
**ROPS Construction Summary**

<table>
<thead>
<tr>
<th>Tractor</th>
<th>Weight (kg)</th>
<th>Steel ($)</th>
<th>Bolts ($)</th>
<th>Fabrication ($)</th>
<th>Total ($)</th>
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</thead>
<tbody>
<tr>
<td>MF 265</td>
<td>2902</td>
<td>268.95</td>
<td>96.40</td>
<td>250.00</td>
<td>615.35</td>
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<tr>
<td>AC 5040</td>
<td>1845</td>
<td>168.70</td>
<td>88.40</td>
<td>300.00</td>
<td>557.10</td>
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<tr>
<td>Long 460</td>
<td>2036</td>
<td>157.51</td>
<td>96.40</td>
<td>250.00</td>
<td>503.91</td>
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**ROPS Test Results**

- ROPS Static testing (side, rear and vertical) conducted by FEMCO, MFG.
Upcoming Activities (Year 4)

– Modify CRDP based on test results (done)
– Develop “App” for tractor dimension input
– Conduct ROPS design, construct and test procedure for 3 tractors with ROPS manufacturers

National Tractor Safety Coalition

• Manufacturers and Dealers (Tractor and ROPS)
• Agricultural Organizations (Farm Bureau)
• Farm Safety Advocates
• Health and Safety Organizations (AgSafe)
• Financial and Insurance Companies
• Government (NIOSH)
• Academia
• Private Corporations
• Media

National Tractor Safety Coalition (NTSC)
National ROPS Rebate Program (NRRP)

- National Tractor Safety Coalition
  - Foldable ROPS Issues
  - NRRP - Steering Committee
    - Task Force (Promotion, Fund Raising, Manufacturing and Technology (ROPS availability))
- NY Center - NIOSH 3 YR Funding for NRRP (under review)
  - develop promotional plan
  - develop logistical support
  - insure adequate supply
National Tractor Safety Coalition (NTSC)
National ROPS Rebate Program (NRRP)

- National Tractor Safety Coalition
  - Foldable ROPS Issues
  - NRRP - Steering Committee
    - Task Force (Promotion, Fund Raising, Manufacturing and Technology (ROPS availability))

- NY Center - NIOSH 3 YR Funding for NRRP (under review)
  - develop promotional plan
  - develop logistical support
  - insure adequate supply

Timeline for National ROPS Rebate Program

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<tbody>
<tr>
<td>A. Establish ROPS fund with NTSC Foundation</td>
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<td>B. Draft line item for congressional funding</td>
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<td>C. Recherche ROPS statements/manuals for genuine industry funding</td>
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<td>D. Submit proposal for federal administrative funding</td>
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<td>E. Secure large portion of donations for ROPS</td>
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<td>F. Secure $50,000 in initial funding for year 1 of program</td>
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<td>G. Recherche ROPS website and tools for genuine industry funding</td>
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<td>H. Influence states to facilitate a national ROPS program</td>
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<td>I. Expand and enhance sufficient support of ROPS</td>
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<td>J. Address distribution/Supply issues</td>
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<td>K. Develop and submit marketing plan</td>
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<td>L. Set up regional promotion and outreach</td>
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Questions or comments? Email to ayers@utk.edu

NY ROPS Retrofit Program - Established in 2006

- List of price estimates and ROPS sources are sent
- Kentucky ROPS Guide
- Rebate check mailed within 30 days ($600 or 70%)
- Send proof of purchase and installation
- Call ROPS Staff for pre-approval and to confirm ROPS placed on order

Call the ROPS Hotline 1-877-ROPS-R4U or visit www.ropsr4u.com

Retrofitted tractor