The mission of the Southeast Center for Agricultural Health and Injury Prevention (SCAHIP) is to reduce the incidence of occupational illnesses, injuries and deaths in the southeastern United States, and improve the health of agricultural workers and their families through the use of prevention, research and education activities. As part of its Outreach and Evaluation core missions, SCAHIP, midway through its 5 year funding cycle, conducted a Stakeholder Survey project. The project solicited opinions regarding the top health and safety concerns from a number of stakeholders, including workers, their family members, and others involved in the agricultural, forestry and fishing industries. Data from the survey is intended to provide the evidence base through which the Center can best direct its outreach and research efforts towards areas of most concern to those affiliated with these industries across the region.

SCAHIP staff developed, in spring 2014, a 21 item survey designed to identify the top health and safety concerns of stakeholders in three areas (agriculture, forestry and fishing) as well as preferred modes of accessing health and safety information. Data on gender, state of residence, job/industry title, years involved in the industry was also collected. Data on health/safety concerns was analyzed, and grouped according to commonly used themes (for example, mechanical safety, slips/trips/falls etc.) The survey was disseminated from May-December 2014 electronically and in person. Electronic modalities included email distribution lists developed to include university researchers/academics in agriculture/fishing/forestry, cooperative extension agents across the states, Farm Bureau agencies, Future Farmers of America officials and members, Women in Agriculture members, and industry sites in each of the sectors, encompassing the 10 state Southeast Center’s region. The email invitation inviting participation in the survey also encouraged respondents to forward the survey link to others they felt might have a relevant opinion. The link to the survey was also posted on the Southeast Center’s webpage and Facebook site. The survey was also disseminated in person at select gatherings of stakeholder groups, including the Kentucky Farm Machinery Show, the Governor’s Safety Council meeting and the National FFA convention.

Respondents wrote what they concerned to be the top health and safety concerns for each of the 3 industries, and these responses were grouped into common categories. The categories were also examined in aggregate (all job classifications in a particular industry), and by respondents reporting direct involvement in a particular industry (farmers, foresters/loggers, and those engaged in fishing/aquaculture).
Respondent Demographics

A total of 366 responses were received. Of these, 358 (approx. 98%) provided information on at least one of the industries included, and thus were considered. Respondents reported having an average of 20.2 years (SD 12.3 years) of association with the agriculture/forestry/fishing industries, and were overwhelmingly male (70%). Figure 1 shows the distribution of respondents across the region – a plurality of respondents reported residing in Kentucky (138, or 38%). Given that the survey was distributed using a convenience/snowball sampling strategy this was expected given the extensive network of agriculture/forestry/fishing professionals across Kentucky.

Figure 1: Number of Respondents by State (n=358)

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<thead>
<tr>
<th>State</th>
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<tbody>
<tr>
<td>KY</td>
<td>138</td>
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<tr>
<td>TN</td>
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<td>WA</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>57</td>
</tr>
</tbody>
</table>

Figure 2 displays the specific job classifications respondents reported. Almost half of respondents reported being involved in Vocational Agriculture instruction (48.2%). In total, well over half (71.3%) of respondents reported job classifications other than farming/forestry/fish farming. While at first this might seem problematic (there is less representation from respondents who identify specifically with the forestry/logging and fishing industries), it is important to note that the vocational agriculture instructors, extension/outreach, safety and academic fields would likely have the background to provide informed opinions, given their experience and expertise in these sectors.

Figure 2: Percent Respondents Reporting Specific Job Classifications

- Vocational ag instructors/students: 48.2%
- Farmers: 24.4%
- Academics: 8.5%
- Safety officers: 5.2%
- Extension/Outreach specialist: 4.7%
- Fish farm owners: 3.3%
- Foresters/loggers: 1%
Figures 3 and 4 contain the top 5 agriculture safety concerns reported by 347/358 of the overall respondents, and by those identifying as farmers (89/358 respondents). Machinery and equipment safety was the area of concern most often mentioned by an overwhelming majority of respondents (90%) as well as those identifying as farmers (72%). Animal safety was the second most selected area of concern by those identifying as farmers (40%). Tractor and ATV safety were also in the top 5 overall and farmer-specific concerns. It is interesting to note that while chemical safety was ranked among the top 5 concern for farmers, it did not rank in the top 5 concerns for overall respondents; in contrast, slips/trips/falls ranked in the top 5 for overall respondents, while it did not rank in the top 5 for those identifying as farmers. These results suggest, collectively, that there are significant overlaps in the concerns between these two groups.
Figures 5 and 6 contain the top agriculture health concerns reported by 331/358 of the overall respondents, and by those identifying as farmers (89 respondents). Chemical exposure was the area of concern most often mentioned by a plurality of respondents (45%), closely followed by hearing loss (43%), while those identifying as farmers selected hearing loss most often (56%), followed by chemical exposure (50%). Both groups also identified sun exposure and respiratory issues as issues of concern, and those identifying as farmers also cited mental stress as being a health concern. These results also suggest that there are significant overlaps in the concerns between these two groups, and interventions targeted towards these areas may address the concerns of a large number of stakeholder groups.
Figures 7 and 8 contain the top forestry/logging safety concerns identified by 286/358 of overall respondents (this smaller number of respondents likely reflects less overall knowledge of the industry), and by those identifying as foresters/loggers (17 respondents). Equipment/machinery was the category most often identified by overall respondents (72%), followed by falling trees/limbs (37%). In contrast, falling trees/limbs was the category most often identified by loggers/foresters (65%), followed by equipment/machinery (59%). Respondents in both categories also mentioned falls/slips as areas of concern, while overall respondents specifically identified chainsaws as being a concern, while loggers/foresters identified transportation as an area of concern (particularly in the context of accidents along logging roads and transportation of logs along these roads). Once again the fair amount of overlap in safety concerns between the two groups suggests interventions in these areas may meet the needs of multiple groups of stakeholders.

![Figure 7: Overall Forestry/Logging Safety Concerns (n=286)](image1)

![Figure 8: Safety Concerns reported by Foresters/Loggers (n=17)](image2)
Figures 9 and 10 contain the top forestry/logging health concerns identified by 259 respondents (this smaller number of respondents likely reflects less overall knowledge of the industry), and by those identifying as foresters/loggers (17 respondents). Hearing loss was the category most often identified by overall respondents (41%), followed by extreme weather (35%). In contrast, musculoskeletal injury was the category most often identified by loggers/foresters (53%), followed by hearing loss (41%). Extreme weather and musculoskeletal injury were identified as areas of concern by both groups, while overall respondents identified respiratory issues as an area of concern, and foresters/loggers identified insects and mental stress as being areas of concern.
Figures 11 and 12 contain the top fishing/aquaculture safety concerns identified by 266/358 respondents (this smaller number of respondents likely reflects less overall knowledge of the industry), and by those identifying as fish farm owners (12 respondents). Equipment/machinery was the category most often selected by overall respondents (74%) followed closely by drowning (68%). Slips/trips/falls was the area most often reported by fish farm owners (58%) followed by drowning (33%). Equipment/machinery and slips/trips/falls were identified as areas of concern by both categories. Overall respondents also identified chemicals and pesticides as an area of concern, while fish farmers identified electrocution as an area of concern.
Figure 13 contains the **top health concerns** reported by 245 overall respondents. There was no clear primary health concern reported for the fishing/aquaculture industry. Skin cancer was mentioned by a plurality of respondents (30%), followed by musculoskeletal issues and heat illness.

![Figure 13: Overall Fishing/Aquaculture Health Concerns Reported by Respondents (n=245)](image)

*Note: Fish farm owners did not complete the health concerns questions.*

**Methods of Communication Respondents May Use**

Nearly **80% of respondents** (79.6%) reported owning a smartphone suggesting strategies using smartphones might be a viable option to disseminating timely and targeted health and safety information. Figure 14 contains the sources of information respondents reported being likely to use to access safety and health information. Respondents were asked to choose the different sources shown in the figure below. While the majority of the data was gathered through online survey collection, and may be biased towards online modes, it is clear that online modalities such as **YouTube** and **smartphone apps**, as well as **social media** have a role to play in disseminating safety and health information.

![Figure 14: Sources Respondents Reported Were Likely to Access for Safety/Health Information (n=358)](image)
Summary

Survey results suggest that, while stakeholders from three distinct occupations were surveyed (Agriculture, Forestry/Logging and Aquaculture) they share some common concerns, particularly regarding safety. Machinery and equipment safety and slips/trips/falls were cited as being areas of concern by overall respondents in all three occupations. Machinery and equipment safety was also cited as an area of concern by those who identified as being specifically engaged in a particular occupation (farming, forestry/logging, and aquaculture). While many outreach efforts related to worker safety in these areas may be targeted to particular machinery and conditions associated with these occupations, SCAHIP may wish to identify overarching safety related messaging and interventions that may span multiple occupations. It may be useful to look closer at the specific safety issues identified in the general areas by respondents, and determine if specific issues span multiple occupations.

There was less common ground regarding health concerns in the three occupations. Weather/climate related concerns (sun exposure, heat exposure and extreme weather) and respiratory issues were cited by overall respondents as areas of concern for all three occupations- this once again suggest that some overarching interventions targeted towards these issues may serve the needs of stakeholder groups in more than one occupation. In addition, other health concerns were identified by multiple categories of the three groups surveyed who reported being directly engaged in an occupation of interest- hearing loss, musculoskeletal injury and mental stress. Similar to safety related issues, SCAHIP may wish to identify overarching health related messaging and interventions that may span multiple occupations, as well as look closer at the specific health issues identified in the general areas by respondents, and determine if specific issues span multiple occupations.

The stakeholder survey results, through identifying key areas of concern related to health and safety from SCAHIP stakeholders, suggest SCAHIP may wish to tailor interventions and programs, and provide funding opportunities to areas of greatest interest to stakeholders, thus allowing SCAHIP to ensure the best return on investment from a health and safety perspective. The survey results also suggest that online and smartphone related modalities may be an effective way for SCAHIP to disseminate messages related to health and safety.