KENTUCKY FACE* PROJECT

ANNUAL REPORT

Federal Fiscal Year 1995
(October 1, 1994 through September 30, 1995)

*Fatality Assessment and Control Evaluation

Cooperative Agreement Number U60/CCU409879-02

KENTUCKY INJURY PREVENTION AND RESEARCH CENTER

Carl W. Spurlock, Ph.D., Principal Investigator
Tim W. Struttmann, M.S.P.H., Project Manager
Ellyn Moon-Hampton, Field Investigator
The Kentucky Fatality Assessment and Control Evaluation (KY FACE) Project is an occupational fatality surveillance project of the Kentucky Injury Prevention and Research Center (KIPRC)*. Its primary purposes are to gather data on work-related fatalities and to develop prevention strategies, which are disseminated to employers, workers, agencies with interests in public health, and others who may be in a position to effect change.

For more detailed information concerning KY FACE, or to obtain additional copies of this report, contact:

Ellyn Moon-Hampton  
Kentucky Injury Prevention and Research Center  
333 Waller Avenue, Suite 202  
Lexington, KY 40504-2915

TEL: (606) 257-4955  
FAX: (606) 257-3909

*KIPRC is a multidisciplinary research center located at the University of Kentucky Chandler Medical Center. It is a partnership between the Kentucky Department for Health Services and the University of Kentucky.
# TABLE OF CONTENTS

Executive Summary .................................................. 1

Program Objectives .................................................. 2

Programmatic Issues .................................................. 3
  Budget Summary
  Personnel
  Staff Training

Surveillance Program ............................................... 4

Investigation Program .............................................. 5
  Recommendations .................................................. 7

Prevention/Intervention Activities ................................. 9

Quantitative Analysis .............................................. 10
  Notification ....................................................... 10
  When and Where .................................................. 12
  Demographics ..................................................... 15
  Industry .......................................................... 16
  Occupation ......................................................... 18
  Cause .............................................................. 19
  Investigations ................................................... 22
  Conclusions ....................................................... 22

Evaluation .......................................................... 23

Appendices .......................................................... 24
  Appendix A, "FACE the Facts" Newsletter, June 1995 ............ 24
  Appendix B, Dissemination List for Investigative Reports ......... 26
  Appendix C, Report Order Form .................................. 27

References .......................................................... 28
EXECUTIVE SUMMARY

During federal fiscal year (FFY) 1995, KY FACE identified and recorded 142 traumatic occupational fatalities. The categories designated by NIOSH as eligible for field investigation during this period were falls and machinery-related incidents; in addition, logging was selected by KY FACE as an area of concern. Of these, 17 investigations were completed (15 machinery-related and 2 logging incidents). More than 30 recommendations for prevention were developed, based on incident analysis and expert consultation. Over 400 copies of these investigative reports were distributed to individuals and agencies in Kentucky.

In addition to investigative activities, following are some of the notable accomplishments of the KY FACE Project during its second year of operation:

- A slide presentation was made to the State Coroners' Association Annual Meeting in Louisville, Kentucky.
- A presentation was made to the American Society of Safety Engineers (ASSE) meeting in Lexington, Kentucky.
- A presentation was made to the Second National Conference for NIOSH-Sponsored Agricultural Health and Safety Centers Plenary Session in Fort Collins, Colorado.
- The KY FACE Program Manager was appointed a principal in the Behavioral Research Aspects of Safety and Health (BRASH) group, a multidisciplinary group based at the University of Kentucky.
- KY FACE staff members were interviewed for six statewide radio broadcasts, as well as a television news broadcast. Numerous articles were published in local newspapers across the state.
- The last of a series of three focus group meetings with agricultural extension agents was held during this period. Their primary purpose was to develop intervention strategies appropriate to agricultural workers.
- In June the first newsletter was generated (Appendix A), entitled "FACE the Facts." The KY FACE staff plan to issue these newsletters biannually, in June and December.
- An educational module for county coroners and deputy coroners was developed and distributed. Its purpose was to improve the rate of accurate completion of death certificates with respect to work-relatedness of fatal incidents.
- Abstracts were submitted to the National Institute for Farm Safety for its annual meeting to be held in June 1996: "Agricultural Fatalities in Kentucky, 1994-95" and "Death Certificate Sensitivity - An Education Program to Accurately Count Agricultural Fatalities."
PROGRAM OBJECTIVES

Following are some of the goals that were set by KY FACE at the beginning of FFY 1995, and, for each, a brief evaluation of progress made toward that goal:

(1) Continue to expand surveillance reporting systems so that KY FACE is notified of occupational fatalities as they occur.

During FFY 1995, we added Kentucky’s 120 county agricultural extension agents, who provide data on farm-related incidents, to our network of reporting agencies.

(2) Complete and transmit to NIOSH "first reports" of occupational fatalities in an accurate and timely manner.

One hundred forty-two first reports were transmitted during FFY 1995. For breakdowns of causes, occupations, industries, etc., refer to the quantitative analysis section of this annual report.

(3) When feasible, perform on-site investigations of fall-, machinery-related, and logging incidents.

Seventeen investigations were completed during FFY 1995. Of these, 15 were machinery-related and two were logging incidents. Some cases that would otherwise have been investigated were not due to the time lapse between the incident and FACE notification; in addition, limited resources did not permit site visits in all investigatable cases. For further information, see the investigation program section of this annual report.

(4) Develop and expand dissemination network (Appendix B) for communication of results of KY FACE investigations and other surveillance activities.

This network grew during FFY 1995 so that the number of copies of reports distributed increased to almost 500. Twice yearly copies of investigation reports are sent to our standard dissemination list; in addition, report order forms (Appendix C) are made available to other individuals, groups and agencies, who can order copies of all or specific reports in disk or paper form. FACE staff also generated and distributed the first "FACE the Facts" newsletter and made presentations to various groups in order to increase awareness of risk factors and intervention strategies.
PROGRAMMATIC ISSUES

Budget Summary

The KY FACE Project was funded by the NIOSH Division of Safety Research (DSR). The award of $63,550.00 was made to the Principal Investigator, Carl W. Spurlock, Ph.D., Epidemiologist at the Kentucky Department for Health Services and Director of the Kentucky Injury Prevention and Research Center.

Personnel

During FFY 1995, Tim Struttmann, M.S.P.H., served as project manager and field investigator. Susan Pollack, M.D., continued as medical consultant. In October a carryover of funds from the previous year allowed the temporary addition of a graduate student, Amy Scheerer, as research assistant. Ellyn Moon-Hampton worked as a field investigator, but did not receive salary support from the FACE agreement.

Staff Training

KY FACE staff members attended the three-day NIOSH training workshop held in Morgantown, West Virginia, in June 1995. This training and sharing of information with other FACE states was a valuable experience.

In addition, staff members attended computer training sessions provided by the University of Kentucky at various times during the year.
SURVEILLANCE PROGRAM

During FFY 1995 the KY FACE Project continued to develop and expand its network of notification sources while maintaining the relationships formed in its first year of operation. The following is a list of currently active notification sources:

- County coroners and deputy coroners
- Kentucky Department of Labor, Census of Fatal Occupational Injuries (CFOI)
- Kentucky Department of Labor, Occupational Safety and Health (OSH)
- Occupational Health Nurses in Agricultural Communities (OHNAC)
- State Vital Statistics Registrar
- Emergency Medical Services offices
- Southeast Center for Agricultural Health and Injury Prevention
- Kentucky State Police, Fatal Accident Reporting System (FARS)
- County agricultural extension offices
- Print and electronic media news reports

Table 1 illustrates the percentage of notifications attributable to each source listed above.

As a part of our effort to increase accurate reporting of occupational fatalities, KY FACE staff developed and distributed an educational module to county coroners and deputy coroners to increase their awareness of the "Operational Guidelines for Determination of Injury at Work" to be used when answering the "injury at work?" question on death certificates.
INVESTIGATION PROGRAM

The KY FACE Project continues to conduct on-site investigations of occupational fatalities which fall into the NIOSH-designated categories of fall or machinery-related incidents, as well as logging incidents. Agricultural machinery-related incidents remain the leading cause of work-related deaths in Kentucky.

It should be noted that some eligible cases were not investigated due to the time lapse between the incident and notification. In addition, limited resources did not permit site visits in all cases.

A chronological summary of incidents investigated by KY FACE between October 1, 1994 and September 30, 1995 follows:

1) On November 6, 1994, KY FACE received notice of the November 3 death of a part-time farmer in Monroe County, Kentucky. Cause of death was reported as "compression asphyxia sustained in a farm vehicle accident with rollover into body of water." Case #94KY14401.

2) November 25, 1994, KY FACE received notice of the November 23 death of a stave mill employee in Fayette County (incident occurred in Laurel County). Cause of death was reported as "cardiorespiratory arrest due to comminuted pelvic fracture due to industrial forklift accident." Case #94KY16101.

3) On March 15, 1995, KY FACE received notice of the March 11 death of a farmer in Monroe County, Kentucky. Cause of death was a "broken neck sustained in a farm vehicle runover incident." Case #95KY01101.

4) On March 23, 1995, KY FACE received notice of the March 22 death of a prison recreation director in Floyd County, Kentucky. Cause of death was "massive internal injuries/chest crushed/farm tractor turned over on victim." Case #95KY01501.

5) On March 24, 1995, KY FACE received notice of the March 16 death of a retiree/part-time farmer in Hardin County, Kentucky. Cause of death was "traumatic asphyxia secondary to chest compression by farm vehicle (rotary mower)." Case #95KY01701.

6) On April 14, 1995, KY FACE received notice of the April 12 death of a farmer in Warren County, Kentucky. Cause of death was "massive head trauma due to being struck by a tree limb." Case #95KY03001.
7) On May 8, 1995, KY FACE received notice of the May 7 death of a farmer in Elliott County, Kentucky. Cause of death was "(a) blunt force trauma to chest, (b) due to farm tractor accident, (c) possible MI (tractor rollover)." Case #95KY03901.

8) On May 26, 1995, KY FACE was notified of the May 25 death of a farmer/chemical analyst in Nelson County, Kentucky. Cause of death was "suffocation due to head being buried in mud by weight of tractor." Case #95KY04301.

9) On June 1, 1995, KY FACE was notified of the May 30 death of a farmer in Simpson County, Kentucky. Cause of death was "blunt traumatic injuries sustained when run over by disc cultivator." Case #95KY04601. (This was a partial investigation, as family refused to allow investigation.)

10) On June 2, 1995, KY FACE was notified of the May 27 death of a retiree in Allen County, Kentucky. Cause of death was "fracture of the 4th, 5th and 6th cervical vertebrae (tractor rollover)." Case #95KY04701.

11) On June 4, 1995, KY FACE was notified of the June 2 death of a farmer in Lee County, Kentucky. Cause of death was "blunt abdominal and chest trauma; acute myocardial insufficiency and acute and chronic myocardial ischemia (tractor rollover)." Case #95KY05001.

12) On June 28, 1995, KY FACE was notified of the June 27 death of a farmer in Jefferson County, Kentucky. Cause of death was "compression asphyxia due to hay baler accident." Case #95KY05501.

13) On July 29, 1995, KY FACE was notified of the July 28 death of a welder in Johnson County, Kentucky. Cause of death was "blunt force (crush) injuries of head and trunk with traumatic subtotal eversion of the thoracic abdominal organs (pipelayer runover)." Case #95KY06801.

14) On August 8, 1995, KY FACE was notified of the August 7 death of a self-employed logger and part-time minister in Harlan County, Kentucky. Cause of death was "blunt force (crushing) trauma of chest and abdomen (frontend loader rollover)." Case #95KY07301.

15) On September 1, 1995, KY FACE was notified of the August 30 death of a logger in Breathitt County, Kentucky. Cause of death was "skull fracture (struck by falling tree)." Case #95KY07801.
On September 9, 1995, KY FACE was notified of the September 8 death of a farm worker in Metcalfe County, Kentucky. Cause of death was "massive head injury (tractor rollover)." Case #95KY08801.

On September 9, 1995, KY FACE was notified of the September 8 death of a logger in Pike County, Kentucky. Cause of death was "massive internal injuries to chest (bulldozer rollover)." Case #95KY08901.

Recommendations

Following are samples of recommendations for prevention strategies that were developed and disseminated by KY FACE during FFY 1995:

- Retrofit tractors with rollover protective structures (ROPS) and seatbelts.
- Maintain equipment in prime working condition.
- Assess terrain prior to beginning any operation involving equipment.
- Offer training to include hearing conservation and instructions on the removal of hearing protection devices when leaving the work area.
- Install the loudest possible back-up audible warning systems available. Employers should also consider installing visible warning devices on loaders.
- Employee training should include instructions on the hazards and necessary precautions associated with log loaders.
- Employers should consider diverting foot traffic away from loader pathways.
- Never attempt to start a tractor unless seated in the driver's seat.
- Employers should provide tractor operation training by safety professionals.
- Older operators of farm equipment should have regular medical examinations by a qualified physician.
- Equipment operators should be aware of the side effects of medications and take precautionary measures to ensure their personal safety.
- Operators should realize that lifting the front end loader too high can change the balance of the equipment and its handling properties as well as result in objects falling toward the tractor.
- Power take-off drivelines (PTOs) should be turned off before working on attached equipment.
- Farmers should not work alone when operating unfamiliar equipment.
- Operators should be aware of limitations of equipment; equipment should not be operated for purposes other than the intended use. Company policies should state this and provide strict safety guidelines.
- Provide and enforce the use of personal protective equipment.
- Ensure that emergency messages can be transmitted and received quickly.
• Designate a qualified person to conduct regular safety inspections.
• Because it is widely recognized as the number to call in case of emergency, a countywide 911 service should be installed in counties that do not have 911 service.
PREVENTION/INTERVENTION ACTIVITIES

As soon as each investigation report was finalized, copies were sent to the employer, if applicable, to the coroner involved, and to any witnesses or others who assisted with the investigation.

Twice during the year KY FACE mailed to an extensive dissemination list copies of its investigative reports. A complete listing of these individuals and organizations is included as Appendix B.

Additionally, report request forms were made available to others (e.g., presentation audiences) who could request them in either paper or computer disk format. A sample form is included as Appendix C.

FACE flyers and brochures were distributed at state conferences for coroners and emergency medical service personnel.

The first issue of the FACE newsletter, FACE the Facts, was generated in June 1995. A copy is included as Appendix A. Future issues will be distributed twice annually.

An article entitled "Farm-Tractor-Related Fatalities - Kentucky, 1994," was published in MMWR on July 7, 1995 (44/26:481-484).

FACE staff made presentations during FFY 1995 to the following groups: State Coroners’ Association; American Society of Safety Engineers (ASSE); and the Second National Conference for NIOSH-Sponsored Agricultural Safety and Health Centers Plenary Session. These presentations served to expand our network of notification sources, and increased the number of requests for FACE data as well.

In addition, KY FACE has generated numerous safety-oriented newspaper articles which were published in local newspapers across the state. Six radio interviews with FACE staff were broadcast statewide.

A series of three focus groups was conducted with agricultural extension agents in three regions of the state. Their purpose was to develop interventions suitable for agricultural workers. The agents, due to their familiarity with farmers and day-to-day farm operations, were able to provide many helpful suggestions.

An educational module for coroners and deputy coroners was initiated. This is an on-going project related to accurate completion of death certificates with respect to work-relatedness.
QUANTITATIVE ANALYSIS

KY FACE identified 142 occupational fatalities in Kentucky during fiscal year 1995 (October 1, 1994 through September 30, 1995). This report presents a description of the FACE surveillance program and the workers killed on the job in Kentucky during that period.

Notification

Newspapers were the most common source of initial notification (Table 1). KY FACE was informed of 60% of the cases within 2 days (Figure 1). Prompt notification of fatalities provides the opportunity to gather further information and complete investigations in a timely manner. Factors that are important in putting together an accurate report of a fatal incident, such as witness perceptions, working conditions, and the incident site, can be affected as increased time elapses between occurrence and notification. In addition to the initial source of information, various other sources are used to gather data about a case, including death certificates, written reports from coroners and police, interviews with employers, coroners, police and witnesses, Mining Safety and Health Administration (MSHA) reports, and autopsy and toxicology reports.

Table 1. Initial Sources of Notification

<table>
<thead>
<tr>
<th>Source of Notification</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspapers (n=79)</td>
<td>53%</td>
</tr>
<tr>
<td>Census of Fatal</td>
<td></td>
</tr>
<tr>
<td>Occupational Injuries (CFOI) (n=19)</td>
<td>13%</td>
</tr>
<tr>
<td>Occupational Health Nurses in</td>
<td></td>
</tr>
<tr>
<td>Agricultural Communities (OHNAC) (n=13)</td>
<td>9%</td>
</tr>
<tr>
<td>Vital Statistics (n=12)</td>
<td>8%</td>
</tr>
<tr>
<td>Coroners (n=11)</td>
<td>7%</td>
</tr>
<tr>
<td>KY State Police Fatal Accident Reporting System (FARS) (n=10)</td>
<td>7%</td>
</tr>
<tr>
<td>Emergency Medical System (EMS) (n=2)</td>
<td>1%</td>
</tr>
<tr>
<td>Agricultural Extension Agents (n=1)</td>
<td>1%</td>
</tr>
<tr>
<td>News media called (n=1)</td>
<td>1%</td>
</tr>
</tbody>
</table>
Figure 1. Initial Notification Times

- 1 Day 26.8%
- 2 Days 28.8%
- Same Day 4.2%
- 3-14 Days 11.3%
- 15-28 Days 7.0%
- 29-56 Days 7.0%
- 57+ Days 14.8%
When and Where

Ninety-three percent of the workers killed on the job died within one day of the incident; another 3.5% died within one week. The four months of August, September, October, and November accounted for nearly half (45%) of the occupational fatalities during the year (Figure 2).

Figure 2. By Month

Seventy-four of Kentucky’s 120 counties had at least one work-related fatality during the year. Jefferson County showed the highest number with 11, followed by Pike County with 7, Monroe County with 5, and Allen, Boyle, and Perry Counties with 4 each.
Figure 3 shows the number of fatalities per area development district in Kentucky. The Barren River District had the highest number of fatalities with 21. Deaths occurring in agricultural settings accounted for nearly one-third (30%) of all work-related deaths in the state. These fatalities are mapped by area development district in Figure 4. The Barren River District also accounted for the highest proportion of agricultural deaths with 27% (n=12).

Figure 3. Number of Occupational Fatalities in Kentucky per Area Development District
Figure 4. Number of Agricultural Fatalities in Kentucky per Area Development District
Demographics

Worker demographics are shown in Figures 5, 6, and 7. Those killed while on the job were primarily white (95.6%) and male (95.1%). Ages of the workers ranged from 16 to 88; the age group of 30-39 showed the highest number of fatalities (n=33) (Figure 7). Fifty percent (n=32) of those over age 50 were farmers.

Figure 5. By Race

Figure 6. By Sex

Figure 7. By Age Group
Industry

Fatality rates for industries in Kentucky compared with the national rates are shown in Table 2 and Figure 8. The industry of agriculture/forestry/fishing shows the highest fatality rate of 75/100,000 workers, which is almost three times higher than the national rate of 26/100,000 workers. Seven of the nine industry divisions show rates that are higher than the national. Forty-two (95%) of the 44 fatalities in the agriculture/forestry/fishing division were in agricultural settings. Manufacturing had the second highest number of fatalities (n=22); logging, which is classified as a manufacturing industry, accounted for 55% (n=12) of the fatalities in this division. Workers in the service industry included health care providers and repairers; those in public administration were in government and military positions.

Table 2. Occupational Fatalities in Kentucky by Industry, Fiscal Year 1995. 
(Rates calculated per 100,000 workers*)

<table>
<thead>
<tr>
<th>Industry*</th>
<th>(n)</th>
<th>KY Rate*</th>
<th>US Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture/Forestry/Fishing</td>
<td>44 (31%)</td>
<td>75</td>
<td>26</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>22 (16%)</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Construction</td>
<td>20 (14%)</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Transportation/Public Utilities</td>
<td>19 (13%)</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>Mining</td>
<td>13 (9%)</td>
<td>38</td>
<td>26</td>
</tr>
<tr>
<td>Services</td>
<td>9 (6%)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Retail/Wholesale Trade</td>
<td>8 (6%)</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Finance/Insurance/Real Estate</td>
<td>4 (3%)</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Public Administration</td>
<td>3 (2%)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Totals</td>
<td>142 (100%)</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

*Occupational fatalities identified by the Kentucky Fatality Assessment and Control Evaluation (FACE) Project of the Kentucky Injury Prevention and Research Center. 10-1-94 through 9-30-95.
Figure 8. Fatality Rates By Industry
Occupation

Occupation was classified using the Alphabetical Index of Industries and Occupations (US Department of Commerce). The occupational division of farming/forestry/fishing, which includes both farming and logging occupations, accounted for 39% (n=55) of the fatalities in Kentucky. Fatality rates for occupations were calculated using 1990 Kentucky census data (Figure 9). Farming/forestry/fishing showed the highest rate with 95/100,000 workers. There was one fatality in a military occupation, however the military population was not available in the census data and thus is not included in Figure 9.

Figure 9. Fatality Rates By Occupation

Cause

Cause of death was classified using the International Classification of Diseases, Ninth Revision (ICD-9). The two most common causes of occupational fatalities were machinery (n=42) and motor vehicle incidents (n=41) (Figure 10). Of the 42 machinery-related incidents, 31 (74%) involved farm machinery. Tractors were the most common type, with 21 due to rollovers and 4 due to runovers.

Figure 10. By Cause

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number of Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suffocation</td>
<td>1</td>
</tr>
<tr>
<td>Drowning</td>
<td>1</td>
</tr>
<tr>
<td>Caught In</td>
<td>1</td>
</tr>
<tr>
<td>Fire</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
<tr>
<td>Nature/Environment</td>
<td>5</td>
</tr>
<tr>
<td>Homicide</td>
<td>5</td>
</tr>
<tr>
<td>Explosion</td>
<td>5</td>
</tr>
<tr>
<td>Fall</td>
<td>8</td>
</tr>
<tr>
<td>Electrocution</td>
<td>10</td>
</tr>
<tr>
<td>Struck By Falling Object</td>
<td>15</td>
</tr>
<tr>
<td>Motor Vehicle</td>
<td>41</td>
</tr>
<tr>
<td>Machinery</td>
<td>42</td>
</tr>
</tbody>
</table>
The leading cause of death in each industry is shown in Table 3. Motor vehicle incidents were the second leading cause of death for agriculture/forestry/fishing, manufacturing, construction, and wholesale/retail trade. Machinery-related incidents were the second leading cause of death in mining. In manufacturing, falling logs and tree limbs during logging operations accounted for seven of the eight (88%) struck-by incidents.

Table 3. Leading Cause of Death By Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Leading Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture/Forestry/Fishing</td>
<td>Machinery (68%)</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Struck By Falling Object (36%)</td>
</tr>
<tr>
<td>Construction</td>
<td>Electrocution (20%)</td>
</tr>
<tr>
<td>Transportation/Public Utilities</td>
<td>Motor Vehicle (63%)</td>
</tr>
<tr>
<td>Mining</td>
<td>Motor Vehicle (38%)</td>
</tr>
<tr>
<td>Services</td>
<td>Motor Vehicle (33%)</td>
</tr>
<tr>
<td>Wholesale/Retail Trade</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Homicide (25%)</td>
</tr>
<tr>
<td></td>
<td>Motor Vehicle (25%)</td>
</tr>
<tr>
<td>Finance/Insurance/Real Estate</td>
<td>Motor Vehicle (75%)</td>
</tr>
<tr>
<td>Public Administration</td>
<td>Machinery (67%)</td>
</tr>
</tbody>
</table>

Cause of death for the seven females killed on the job in Kentucky is shown in Figure 11.
Females make up 46% of the workforce, yet they account for only a small portion (5%) of the occupational fatalities in KY. Although females represented only 5% of the fatalities in the state, they accounted for 40% of the homicides in work settings.

Figure 11. Cause of Death for Females

Eighty-seven percent of the work-related fatalities involved Kentucky residents. Nineteen residents of ten other states and one foreign country were killed while working in Kentucky. The most common cause of death for non-residents was motor vehicle incidents (Figure 12).

Figure 12. Cause of Death for Non-Residents
Investigations

There were 56 fatalities in the categories of falls, machinery-related, and logging, which were defined as being cases eligible for investigation. Sixteen investigations were completed, plus one partial investigation, accounting for 30% of the in-scope cases (Table 4). Two of the machinery-related incidents occurred on logging sites (1 bulldozer rollover, 1 endloader rollover). Some eligible cases were not investigated due to the time lapse between the incident and notification. In addition, limited resources did not permit site visits in all cases.

Table 4. # Investigations Completed per Category, % Eligible for Investigation

<table>
<thead>
<tr>
<th>Category</th>
<th>Investigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery-related</td>
<td>15 (36%)</td>
</tr>
<tr>
<td>Logging</td>
<td>2 (30%)</td>
</tr>
<tr>
<td>Falls</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>17 (30%)</td>
</tr>
</tbody>
</table>

Conclusions

The 142 workers who died due to fatal occupational injuries in Kentucky represent a total of 2,626 years of potential life lost (YPLL), based on age 65. There were 18 farmers killed in Kentucky who were over the age of 65; based on age 85, these workers represent an additional 153 years of potential life lost. The rate of years of potential life lost in Kentucky is 147.5 per 100,000 workers; this is higher than the national rate in 1989 of 135.8 per 100,000 (Fatal Injuries to Workers in the United States, 1980-89: A Decade of Surveillance [National and State Profiles], NIOSH, US Department of Health and Human Services, August 1993).

A nationwide goal established in Healthy People 2000 is to "reduce deaths from work-related injuries to no more than 4 per 100,000 full-time workers" (NIOSH 1990). Kentucky's rate of 9 per 100,000 far exceeds the national goal. Retrospective sentinel event analysis projects, such as the FACE project, offer valuable insights into cause as well as recommendations for prevention, and thus can play a valuable role in helping Kentucky to move toward the national goal.
EVALUATION

Fiscal year 1995 saw the expansion of the Kentucky FACE Project, particularly in the areas of surveillance, dissemination and intervention. Following are a few examples of the growth of the project:

- Increased surveillance network: Kentucky’s 120 agricultural extension agents were added to FACE’s network of reporting agencies. Since agricultural incidents are the leading cause of work-related fatalities in Kentucky, the farm community-based agents are a valuable source of information.

- Moreover, one fatal incident was reported by a Louisville television news reporter, indicating that KY FACE is becoming better known across the state. In addition, requests for FACE data were received from a broad range of individuals in health care, agricultural safety, and related fields, further evidence of increased awareness of the Project.

- In this second year of operation, the time lapse between incident occurrence and FACE notification decreased: During FFY 1995, FACE was notified of 60% of fatal incidents within two days. During the previous year only 46% of incidents had been reported within two days.

- Dissemination of prevention information increased during FFY 1995. Production of a bi-annual newsletter was initiated in June 1995 (to be published each June and December). Copies of investigative reports were sent to an extensive dissemination list upon completion; in addition, report order forms were made available at meetings and conferences, resulting in numerous individual requests. FACE literature (brochures, newsletters, reports, etc.) was distributed at state and national professional meetings and conferences. Oral presentations were made by the FACE Project manager at several professional conferences. FACE messages were broadcast on radio and television stations and published in local newspapers across the state.
Kentucky FACE is an occupational fatality surveillance program of the Kentucky Injury Prevention and Research Center, University of Kentucky. Its purpose is to gather data on work-related fatalities in Kentucky. The data collected are used to develop recommendations for prevention which are disseminated to employers, workers, agencies with interests in public health and others who may be in a position to implement prevention strategies. The ultimate goal is to reduce the number of workers who are fatally injured on the job.

During 1994, there were 176 work-related deaths in the state of Kentucky; 161 men and 15 women lost their lives while on the job. Their ages ranged from 15 to 86 years, with a mean of 45.5 years. The chart below illustrates the Kentucky industries in which these fatalities occurred, with contrasting rates for the same industries on the national level for the year 1993.*

![Fatality Rates by Industry](image)

**Figure 3:** US Rates from CFOI, 1993
KY Rates from FACE Project, 1994

*The rate for the Agriculture/Forestry/Fishing industry is omitted from this chart, since, at 85/100,000, it is drastically higher than the other industries and thus makes the chart difficult to read. (The 1993 US rate Agriculture/Forestry/Fishing is 26/100,000.) Please see special agricultural section below.

FACE data indicate that the greatest numbers of occupational fatalities occurred in May, July, August, and September, with September having the highest number. These four months, therefore, should be targeted when implementing occupational fatal-injury education and prevention strategies. Anyone with an occupational injury prevention agenda may find this information valuable. The use of FACE-gathered data is encouraged when the purpose is an attempt to decrease work-related deaths or to find ways of communicating prevention strategies to Kentucky’s workforce.

**APPENDIX A**
FYI:

- Each week in Kentucky, 3.2 workers lose their lives in the course of their work.
- Kentucky residents made up 152 of the 176 work-related fatalities in 1994. The remaining victims were from Indiana (4), Ohio (4), Michigan (3), and various other states (13).

AGRICULTURE: IT'S EVERYBODY'S BUSINESS

Kentucky’s agricultural workers represent a vital part of our state’s economy. Although it comprised only 3.3% of the labor force, over 25% of the work-related deaths in 1994 were from the Agriculture/Forestry/Fishing** industry. On average, one farm worker died each week between May and October (a six-month period) in 1994. These staggering realities warrant the need for aggressive identification of risk factors in agricultural work settings. Careful analysis of the circumstances prior to, during and immediately following an incident can generate innovative intervention strategies. The chart below illustrates the types of injuries that took farmers' lives last year.

![AGRICULTURE/FORESTRY/FISHING TYPES OF FATAL INJURIES, 1994]

**Although the Standard Industrial Classification combines agriculture, forestry, and fishing into one classification, 45 of the 50 fatalities in this industry in 1994 were for agriculture alone.

REMEMBER, Prevention is everyone’s responsibility. Please take time to educate yourself and others on how to stay safe. If you have any questions, comments or concerns, please do not hesitate to contact Tim Struttmann, Program Manager, or Ellyn Moon-Hampton, Field Investigator and Data Manager, of the FACE Project, 333 Waller Avenue, Suite 202, Lexington, KY 40504-2915, 606-257-4955 or (within Kentucky) 800-204-FACE (3223).
DISSEMINATION LIST FOR INVESTIGATIVE REPORTS

Twice each year copies of all investigative reports are sent to:

1) Census of Fatal Occupational Injuries (CFOI)
2) Vital Statistics Registrar
3) Behavioral Research Aspects of Safety and Health (BRASH) (UK)
4) Department of Labor Division of Education and Training
5) National Safety Council, Agriculture Safety Director
6) UK Agricultural Engineering Department
7) Physician advisory staff for FACE
8) KY OSHA, Safety Program Director and Chief Compliance Officer
9) KY Labor Cabinet, General Counsel
10) KY Labor Cabinet, Secretary of Labor
11) Public Health Department, Western KY University
12) University of Louisville, Department of Community Medicine
13) Farm Bureau Federation
14) UK, Department of Family and Community Medicine
15) KY State Medical Examiner's Office
16) Preventive Medicine, Safety Health Network
17) Southeast Center for Agricultural Health and Injury Prevention (UK)
18) County agricultural extension agents

Immediately upon completion of each report, copies are sent to all parties involved, for example, the county coroner, law enforcement officials, emergency medical services personnel, witnesses, family members of the decedent, employer, manufacturer of equipment, and attorneys.
KENTUCKY INJURY PREVENTION AND RESEARCH CENTER
OCCUPATIONAL INJURY PREVENTION PROGRAM
FACE Project

Report Request Form

Please send copies of FACE investigation reports to:

Name: ____________________________

Organization: ____________________________

Address: ____________________________

City: ____________________________ State: _______ Zip: _______

Format Desired: Paper ______ Disk (WP5.1 unless otherwise specified) ______

(If you need additional information, please contact Tim Struttman or Ellyn Moon-Hampton at 606/257-4955, or (within Kentucky) 800/204-3223.)
REFERENCES


F A C E

The Kentucky Injury Prevention and Research Center, an extension of the Kentucky Department for Health Services, located within the University of Kentucky Department of Research & Graduate Studies at the Chandler Medical Center, through a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), conducts investigations on the causes of work-related fatalities. The goal of this project, known as the Kentucky Fatality Assessment and Control Evaluation (KY FACE) Project, is to identify work situations at high risk for fatal injuries. KY FACE aims to achieve this goal by identifying and studying the risk factors that contribute to workplace fatalities, by recommending intervention strategies, and by disseminating prevention information to those who can intervene in the workplace.

KY FACE also collaborates with engineering, occupational and preventive medicine, and agricultural engineering faculty at the University of Kentucky to identify technological solutions to the hazards associated with workplace fatalities.

Additional information regarding this report is available from:

Kentucky Injury Prevention and Research Center
Kentucky Fatality Assessment and Control Evaluation Project
333 Waller Avenue, Suite 202
Lexington, KY 40504-2915
(606) 257-4955
(800) 204-3223