THE JOURNAL OF RURAL HEALTH

ORIGINAL ARTICLE

Farmers' Concerns: A Qualitative Assessment to Plan Rural Medical Education

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This study was supported in part by grants from the Alabama Family Practice Rural Health Board and CDC/NIOSH Grant No. T42OH084736 via UAB Deep South Center for Occupational Health and Safety. The authors would like to thank Mr. Toice Goodson and Mr. Harold McCool, Co-Chairs of the Alabama Agromedicine Policy Group, for authorizing this work. For further information, contact: John R. Wheat, MD, The University of Alabama, Department of Community and Rural Medicine, Box 870327, Tuscaloosa, AL 35487-0327; e-mail jwheat@cchs.ua.edu.

doi: 10.1111/j.1748-0361.2011.00366.x

Abstract

Context: Limited research suggests that translational approaches are needed to decrease the distance, physical and cultural, between farmers and health care.

Purpose: This study seeks to identify special concerns of farmers in Alabama and explore the need for a medical education program tailored to prepare physicians to address those concerns.

Methods: We conducted 2 focus groups with 20 farmers from diverse communities, backgrounds, and farming operations. The sessions were audio-recorded, transcribed, coded, and analyzed for determined patterns.

Findings: The following categories were developed as areas of importance to farmers: the need for physicians to understand the culture of farming, occupational exposures in farming, and recommendations for improving the health of farmers.

Conclusion: Findings suggest that to adequately serve farmers, medical students interested in entering practice in rural areas should have or develop a relevant and adequate understanding of farming practices.

Key words: agricultural medicine, farmers' health care, medical education, participatory research, rural health.

Agriculture is one of the most dangerous and deadly occupations, rivaled only by mining and construction.[1] In addition to their occupation, farmers are a high-risk and medically underserved population due to geographic[2] and attitudinal[3] reasons. Medical practice in rural communities is a key component in meeting the health care concerns of farmers.[4] Medical educators have considered subject material needed to prepare physicians to care for the agricultural community,[5] but little is said of cultural competency in agricultural medicine. The National Institute for Occupational Safety and Health (NIOSH) has determined that effective translational approaches are needed to decrease the separation of farmers and health care providers.[6] In order to help develop these approaches, physicians should first understand barriers to care that farmers encounter.

To address rural health care needs in Alabama, the Rural Health Leaders Pipeline[7] and associated Rural Medical Scholars Program[8] were established to produce primary care physicians who are culturally consonant with the rural populations they would serve. Discovering that Alabama's agricultural community is an important rural subset with unmet health care expectations,[9] these programs' directors initiated studies to understand what and how rural medical education programs should teach regarding health care for the farming community. These programs committed to a participatory research approach with farmers as a way to avoid or overcome distrust that

often exists between this community and academe. Qualitative participatory research methods have been useful in creating effective research and intervention projects with farmers elsewhere.[10] This research builds on the traditions and expertise of cooperative extension in such translational relationships, approaching farmers through a partnership involving University of Alabama rural medical education programs, the Alabama Cooperative Extension System, and Tuskegee University Cooperative Extension Program. These extension programs guided the development of a formal farmer research policy group that oversaw and authorized each step in this research and development process.

Farmers' needs, concerns, and experiences can provide critical insight into developing rural physicians. The intention of this study was to explore the health concerns of Alabama farmers in relation to the medical care they perceive as needed. This exploration is an initial effort to develop a more appropriate and culturally relevant curriculum to be used by future rural physicians. Information gleaned through this study will help medical educators to better prepare future rural physicians. It is hypothesized that such a curriculum will result in medical professionals who are more competent to enter rural practice and care for farmers and rural citizens in Alabama.

For this study, individuals who were either owner operators or co-owner operators of farms were considered farmers. (Their characteristics are given below in the "Results" section in Table 2.) Farmers identified themselves as operating small- or large-scale farms. Small-scale farms were generally less than 100 acres with part-time farming, which did not produce the farmer's principal income. Large-scale farms were generally larger than 100 acres, required full-time effort, and generated the principal income for the farmer and family.

Methods

We conducted 2 focus groups with 20 participants from the Bullock and Madison County areas in north and south Alabama, respectively. Participants were purposively sampled, not to represent a population in the quantitative sense, but to access effective respondents for participation in a focus group. The inclusion criterion was being a farmer or spouse of a farmer known by local extension agents to engage in community deliberations, such as at farmer commodity meetings, educational sessions, and community events involving the extension agents where farmers had demonstrated comfort in expressing their views publicly. Local cooperative extension agents identified and invited the farmers to participate, thus creating a convenience sample of participants. Minority farmers were oversampled in order to facilitate their engagement in the discussions. We held the focus groups at familiar community locations and at times that were suggested by extension agents as comfortable and convenient to all participants. We obtained written consent at the beginning of each session according to the research protocol that was approved by the University of Alabama Institutional Review Board. We provided a meal and reimbursement for travel to the focus group participants.

An extension agent moderated the discussions, because through their selection participants were known to have comfort with the extension agent role that could not be replicated with an outside moderator. The moderator agent was trained through a Master's in Guidance and Counseling and over 2 decades of experience in extension work. Krueger's *Moderating Focus Groups*[11] provided the process followed by the moderator and assistants. The moderator's discussion guide consisted of 12 open-ended questions (See Table 1) to evoke discussion of the participants' experiences as farmers, distinctions between farm and nonfarm families, differences between small-scale and large-scale farmers, health concerns, and ideas of how rural physicians could be better prepared to serve Alabama farmers.

In addition, on an accompanying questionnaire participants were asked to provide basic demographic and health care information including gender, race, age, number of years in farming, miles to their personal physician, time since last physical examination, perceived

Table 1 Open-Ended Questions to Guide Focus Group Discussions

1. Why do you farm?
2. What does your farm produce?
3. To what degree is your farming a family activity?
4. How important to you is it to continue the farming lifestyle through your children?
5. What do you do as a farm family that your city friends/family do not do?
6. Do these questions suggest health issues or concerns that rural doctors should know about in order to help you accomplish these goals?
7. What are the major differences in problems faced by small and large scale farms?
8. What should students training for rural medicine know in order to help farmers control the risk related to sun exposure?
9. What should students training for rural medicine know about stockyards in order to help in the prevention of injury or illness related to stockyards?
10. What should students training for rural medicine know about farmers in order to be effective in getting their immunizations up-to-date?
11. What should students training for rural medicine know in order to help small and part-time farmers remain healthy?
12. What do students training for rural medicine need to know to assist their rural communities in preventing hunting accidents?

levels of stress, perception of physician's familiarity with farming, and perceived health status. These last 3 items were asked using a Likert scale format: How stressful is the day-to-day operation of your farm—No Stress (1) to High Stress (5); How familiar is your regular doctor with health issues related to farming—Not Familiar (1) to Extremely Familiar (5); and Please rate your personal health—Poor (1) to Excellent (5).

The audiotaped focus group interviews ranged from 1.5 to 2 hours long. Graduate students took notes to supplement the audio recordings. Audiotapes were transcribed, cleaned, and reviewed and compared to notes to ensure accuracy of the responses and their meanings. We analyzed transcripts as guided by Krueger.[12,13] Two researchers read the transcripts multiple times and developed a coding system to identify major themes recognized by members of both group discussions.

Results

Sample

Of the 20 total participants, 17 (85%) were male and 3 (15%) were female. Two of the females were sole operators of their farms, and one was an active cooperator with her husband. The 2007 United States Department of Agriculture (USDA) Census of Agriculture indicates 88% male and 12% female farm operators in Madison and Bullock counties and 87% male and 13% female statewide.[14] Eleven of the participants (55%) were white and 9 (45%) were African American, compared to a relative ratio of 94% to 6% statewide.[14] The average age of the participants was 59 years, compared to 58 years statewide.[14] Fifty-five percent considered themselves to be small-scale farmers and 45% were large-scale farmers. The number of years of farming among the sampled individuals ranged from 2 to 64 years and averaged 30 years. The average reported number of miles that participating farmers traveled to reach their personal physician was 23.13 miles (37.22 km). On average, participants reported that it was 17.4 months since their last physical examination. Over half of the participants (55%) reported moderate-to-high levels of stress due to their occupation, but 80% self-reported that they were in good or excellent health. These characteristics are summarized in Table 2.

Table 2 Characteristics of Participant Farmers (n = 20)

Variable	n (%)
Gender	
Male	17 (85%)
Female	3 (15%)
Race	
White	11 (55%)
African American	9 (45%)
Years in Farming	
<5	1 (5%)
5-15	5 (25%)
16-30	5 (25%)
31-45	5 (25%)
46-60	3 (10%)
>60	1 (5%)
Farm Size*	
Small scale	11 (55%)
Large scale	9 (45%)
Reported Stress From Farming	
No stress	1 (5%)
None to moderate stress	8 (40%)
Moderate stress	8 (40%)
Moderate-to-high stress	2 (10%)
High stress	1 (5%)
Perceived Physician Familiarity With Farming	
Not familiar	3 (15%)
Not to moderately familiar	2 (10%)
Moderately familiar	10 (50%)
Moderately to extremely familiar	2 (15%)
Extremely familiar	2 (10%)
Health Status	
Poor	1 (5%)
Fair	2 (10%)
Moderate	1 (5%)
Good	12 (60%)
Excellent	4 (20%)

*In these focus groups, small-scale farms were generally less than 100 acres with part-time farming, which did not produce the farmer's principal income. Large-scale farms were generally larger than 100 acres, required full-time effort, and generated the principal income for the farmer and family.

Thematic Analysis

The farmers expressed 3 broad themes as revealed in the analysis of transcripts: (1) the need for physicians to understand the culture of farming, (2) occupational exposures in farming, and (3) recommendations for improving the health of farmers.

Need for Physicians to Understand the Culture of Farming

Perhaps the most keenly felt concern of farmers in the focus groups was the perception that many physicians did not have an adequate background in rural and farm life and, therefore, did not understand the culture of farming. The culture of farming is multifactorial, but the farmers emphasized 2 aspects—farming heritage and the business side of farming.

The groups cited heritage and tradition as the most important reasons for farming. The farmers refer to an intergenerational aspect involving ownership and inheritance of land and the concept of continuing the farming lifestyle within families. Most farmers agreed that farming is something they were born and raised to do. Many of them learned farming from their parents and retain a strong emphasis on keeping the tradition of farming in the family. It was a consensus among the group that they would like for their children to continue the farming lifestyle, while knowing that this may be unlikely to happen, especially for those with daughters. One farmer stated:

> I'd like to see them [his children] hold on to the land that they will inherit, and I hope they keep it being an asset to them.

Farmers emphasized next the ever-present business aspect of farming, to which they attributed some barriers to health. All of the participants rely on the farm for income, as well as pleasure. However, both groups noted the need to also seek employment off the farm. As one farmer commented:

> It's a one-man show. My wife has an off the farm job, so I do about 99% of it.

This statement above makes it understandable that farmers complain about the time that would be taken away from the farm, if one were to see a physician regularly. A small-scale farmer, who does most of the farm work alone, is unable to halt work for physician visits. Productive workdays are limited by weather and seasons, and trips to the doctor often require a full day of travel and waiting. Nonemergent health care cannot compete with the opportunity to get in a day's work.

The farmers sought off farm employment for supplemental income and insurance for the family. This business decision further compromises farmers' ability to meet multiple demands on their time. Participants described these business issues as an example of farm culture, which if understood and taken into account by a physician, could enrich the doctor-patient relationship and improve the medical care encounter.

Occupational Exposures in Farming

Participating farmers found that, in their experience, physicians were not very knowledgeable of the occupational exposures that they face on the farm. Examples of these exposures included farm chemicals, animal wastes, animal-borne illnesses, and self-administered veterinarian supplies. They also considered stress to be an occupational exposure common to farming. As one farmer put it:

> Farmers are in an environment that maybe the medical profession is really not aware of exactly what all they're exposed to.

Farmers are exposed daily to diverse occupational hazards. Farmers in both groups pointed out that spraying chemicals and pesticides that are necessary for crop production is dangerous. Many reported that they had not been taught how to use pesticides correctly or how to apply chemicals using safety equipment such as respirators. They stressed how important it would be, in their opinion, to have this knowledge. The farmers also discussed the disposal of dead animals, animal wastes, and runoff waste water from chemical applications (eg, pesticides and fertilizers). As another farmer mentioned:

> We're exposed to the stuff that the person out on the golf course is probably not exposed to on a daily basis, whether it be the pollution inside the hog house or the chicken house or pesticides and stuff like that.

This comment underscores the farmers' impression that physicians would be better able to meet farmers' needs if they understood local farming practices. For example, knowing local exposures and associated diseases would sensitize physicians to expect signs, symptoms, and reactions that are likely to appear and, thus, decrease time needed for diagnosis and treatment. This idea was, perhaps, best relayed in the focus groups by a participant who said:

> If a farmer comes in and he's disoriented or whatever, one of the first things they should know is what have you been exposed to. Have you been applying some fertilizer, some chemicals; has your neighbor applied some?

Farmers in both focus groups commented on accidental injections while trying to vaccinate or inoculate large animals on their farms. They noted the importance of knowing what these injections contain and what farmers should do to prevent serious injury in the case of accidental self-injection. As one farmer stated:

> I don't know how many times I've given myself half the shot I tried to give the calf. He bucks at the wrong time and the needle comes down in you instead of the calf. It's real helpful to know the medicines you're using.

It is important, farmers believe, that physicians in rural areas are aware of the drugs most commonly used with farm animals and are able to treat accidentally injected farming patients in emergency situations.

Although we did not ask a question specific to stress due to farming in the focus group discussions, both groups raised this topic. Most of the large-scale farmers rented land from larger corporations and/or were responsible for a certain amount of production. Because of uncontrollable factors in farming due to inconsistent weather and equipment breakdown, as examples, deadlines and set production amounts seemed to be a big stressor for large-scale farm operators. The small-scale farm operators stated that, even though their production was on a smaller scale, financial obligations and stressors caused them similar worries.

> Everybody in the agriculture community knows there's certain times of the year when you're just more stressed out. I mean, you could go in with high blood pressure for a month out of the year and if you didn't tell them that day, 'I don't know where I'm gonna come up with this half-million dollars to put my next crop in,' they might just want you to go walk on a treadmill.

Physicians should be ever mindful of stress as an occupational exposure,[15] and stress in association with farming in other settings is well documented in the literature.[16-18] Ironically, participants only mentioned positive family interaction as a coping mechanism to counteract the stress that comes with farming. As one participant stated:

> I think one good thing about farming is...that teenagers today around 10 to 13 are hard to get to know and hard to talk to. But if you're working there with them elbow to elbow and you sit down at the dinner table and everybody's talking about the calf that was just born or the barn you just built, there's no such thing as not having anything to talk to your grandkids about.

Farming is more than a job to those involved; farmers describe it more as a way of life and bonding experience for families, with both health risks and benefits.

Farmers' Recommendations for Farmers' Health

Participating farmers provided some recommendations that could be implemented to improve their health. Not always having the time (or desire) to go to a doctor immediately after an injury on the farm is common among them. They suggested alternative solutions, when feasible, including written self-help material that could be distributed at the farmer's co-ops or local agriculture extension office. Weekend training and workshops were other alternatives. They suggested the employment of mobile units and weekend office hours to make needed direct medical services more accessible. However, to underscore their feelings about current medical care, at the end of one focus group a farmer matter-of-factly commented on the best way to improve the health of farmers via the education of physicians. He said, "You know, I think maybe they oughta do a year of internship on a farm."

Discussion

The findings from this research suggest some common themes among farmers in these 2 focus groups and perhaps among farmers throughout the state, as suggested by the diversity of the group participants. With these farmers having farmed on average for 30 years each, their suggestions represent the wisdom from many years of experience. It was the farmers' consensus that physicians in rural areas of Alabama should be better informed of the operations of farms. Seventy-five percent of these farmers believed that their physicians were only moderately or less familiar with farming and should have some additional exposure in this area before entering practice. Additionally, half of farmers reported moderate-to-high levels of stress from the business aspects and uncertainties of farming and, as detected in discussions of off-farm work, in the search for health insurance and other benefits not afforded by farming alone. Due to the average age of these farmers (ie, 59 years) and farmers in general, it is important that their health is monitored routinely and physician visits are regular. However, many report more than a year since their last physical examination, in part because their physicians were on average more than 20 miles (32.19 km) away, which joins farmers with the larger rural community in concern for accessible health care.[19]

Rural physicians, especially, should appreciate the primary importance of cultural aspects of farming as they seek to understand farmers' behavior as it relates to health. Even while acknowledging that some farming practices are detrimental to their health, the desire to perpetuate and pass on their lifestyle drives farmers to continue familiar, though harmful, activities. It is important for physicians in rural areas to recognize the bond that farmers have to their occupation and way of life in order to make professional adaptations to the farming lifestyle and establish therapeutic relationships. There is no question that a weak point in agricultural safety and health is the failure of translation of established principles from

health professions into health promoting behaviors on the farm.[6] Agromedicine is one approach to this dilemma. Agromedicine uses agricultural extension agents, who are a trusted resource within the farm culture, in partnership with health professionals to mediate and translate these important health principles.[20] Another approach is outreach to farmers using nurses specially trained in occupational health related to agriculture.[21] The effectiveness of these and other translational approaches deserves further study.

There are many barriers that may prevent farmers from going to their physician regularly. Most of these farmers know from experience that there are not enough doctors practicing in rural areas. Proximity to the doctor's office is a factor contributing to health-seeking behaviors. If a farmer has many or time-sensitive tasks to complete and the closest office is several miles away, often he or she is not going to go to the doctor or any other health care facility for nonemergent care that will risk the remaining work not being completed. Likewise, farmers may not take prescribed medicines if they find that side effects, such as sleepiness, dizziness, or phototoxicity affect their ability to accomplish necessary chores. Therefore, physicians who take care to adapt prescriptions for hypertension, diabetes, cold, allergies, and depression, as examples, to minimize such side effects stand a better chance of obtaining satisfactory therapeutic results among farmers. Farm families with limited transportation options also might simply neglect to go to the doctor, and the problem or issue may become worse. Doctors who made house calls and/or used mobile medical units could provide adequate access to health care until local physicians are secured.

Requiring a year of medical internship on a farm, mentioned facetiously by a farmer in a focus group, is not feasible. However, it would be practical to recruit and selectively admit to medical school students with farm backgrounds and the desire to become rural physicians. Similar admission policies are the hallmark of medical education programs that successfully produce rural physicians.[22] At least one medical education program currently introduces all medical students to agricultural extension agents, farmers, and the farm environment through required farm fieldtrips.[23] An affiliated program exposes rural students selected into a rural medical education program to agricultural medicine through both fieldtrips and occupational health and safety coursework.[8] It is the exposure to farmers and their concerns that seem to impact students' understanding of farmers' health in the farm culture context.[24,25] Modern textbooks[26,27] are available to supplement this experiential learning. Some medical educators are developing more comprehensive programs of preparation for physicians who make service to rural and agricultural populations a priority.[5]

In conclusion, from the information gathered in these focus groups and in current literature regarding education of rural physicians, we believe that fundamental change in the training of prospective physicians is needed to better prepare them for practice in rural areas with farm communities. We recommend that the specific course of change come not only from medical academia, but from communities and farmers as well. This highlights the importance of collaboration between scientists and citizens, as employed by the community-based participatory approach,[28] which is perhaps a most effective way of translating desired change into effect.[6]

Limitations

A limitation to this study occurred in the transcription of the audio recording. There were several inaudible or indistinguishable comments made by participants that could not be properly deciphered and included in the transcript. Additionally, qualitative data analysis software is available that may have aided in the management of data, but it was not used. To ensure adequate analysis, however, researchers with diverse and significant experience reviewed the transcripts and notes multiple times, constructing codes and identifying themes. Although convenience samples are often viewed as a drawback in research, the researchers found this method most feasible for producing a rich focus group dialog. We asked extension agents to invite those who would show up, actively participate in the discussion, and provide useful information. Since this is qualitative research, representativeness and generalizability in the statistical sense were not sought. While we believe that the farmers present in these 2 groups are similar in ways to the state's diverse farmer community, we cannot state that they are representative of all farmers and their local communities. Those present did provide the rich discussion we sought, fulfilling the purpose of the study. Perhaps this articulation of the issues raised will inform future studies to define the issues' prevalence and magnitude among a broader population of farmers.

References

1. Rivara FP. Fatal and nonfatal farm injuries to children and adolescents in the United States. *Pediatrics*. 1985;76:567-573.
2. Jones CA, Parker TS, Ahearn M, Mishra AK, Variyam JN. Health status and health care access of farm and rural populations. USDA Economic Research Service,

Economic Information Bulletin No. (EIB-57), 2009. Available at: http://www.ers.usda.gov/publications/eib57/. Accessed on September 13, 2010.
3. Brumby SA, Willder SJ, Martin J. The sustainable farm families project: changing attitudes to health. *Rural Remote Health*. 2009;9:1012 (Online, 13 pages).
4. Mutel CF, Donham KJ. *Medical Practice in Rural Communities*. New York, NY: Springer-Verlag; 1983.
5. Wheat JR, Donham KJ, Simpson WM. Medical education for agricultural health and safety. *J Agromedicine*. 2001;8:77-92.
6. NIOSH. *Agriculture, Forestry, and Fishing Research at NIOSH*. Washington, DC: National Academy Press; 2008, 124-139, 202-208.
7. Rackley BP, Wheat JR, Moore CE, Garner RG, Harrell BW. The southern rural access program and Alabama's rural health leaders pipeline: a partnership to develop needed minority health care professionals. *J Rural Health*. 2003;19s:354-360.
8. Wheat JR, Brandon JE, Leeper JD, Jackson JR, Boulware DW. Rural health leaders pipeline, 1990-2005: case study of a second-generation rural medical education program. *J Agromedicine*. 2007;12:51-61.
9. Wheat JR, Nagy MC, McKnight JT, Anderson RL. Alabama agromedicine program: rationale, proposal and supportive study. *J Agromedicine*. 1994;1: 63-82.
10. Schiller LF, Donham K, Anderson T, Dingledein DM, Strebel RR. Incorporating occupational health interventions in a community-based participatory preventive health program for farm families: a qualitative study. *J Agromedicine*. 2010;15:117-126.
11. Krueger RA. *Moderating Focus Groups*. Thousand Oaks, CA: Sage; 1998.
12. Krueger RA, Casey, MA. *Focus Groups: A Practical Guide for Applied Research*. Thousand Oaks, CA: Sage; 2008.
13. Krueger RA. *Analyzing & Reporting Focus Group Results*. Thousand Oaks, CA: Sage; 1998.
14. USDA National Agricultural Statistics Service. 2007 Census of Agriculture. Available at: http://www.agcensus.usda.gov. Accessed September 12, 2010.
15. House JS. Occupational stress and coronary heart disease: a review and theoretical integration. *J Health Soc Behav*. 1974;15:12-27.
16. Rosenblatt PC, Keller LO. Economic vulnerability and economic stress in farm couples. *Family Relations*. 1983;32:567-573.
17. Hovey JD, Seligman LD. The mental health of agricultural workers. In: Lessinger JE, ed. *Agricultural Medicine: A Practical Approach*. New York, NY: Springer; 2006: 282-299.
18. Booth NH, Lloyd K. Stress in farmers. *Int J Soc Psychiatry*. 1999;46:67-73.
19. Ricketts TC. The changing nature of rural health care. *Annu Rev Public Health*. 2000;21:639-657.
20. Phillips DM, Henning G, Bowman RC, Wheat JR. Agromedicine program development: a commentary and book review. *J Rural Health*. 2002;18:15-17.
21. Donham KJ, Venzke JK. Agricultural occupational health nurse training and certification program: addressing the need for occupational health professionals in agricultural environments. *J Agromedicine*. 1997;4:105-116.
22. Rabinowitz HK, Diamond JJ, Markham FW, Paynter NP. Critical factors for designing programs to increase the supply and retention of rural primary care physicians. *JAMA*. 2001;286:1041-1048.
23. Wheat JR, Turner TJ, Weatherly L, Wiggins OS. Agromedicine focus group: cooperative extension agents and medical school instructors plan farm field trips for medical students. *South Med J*. 2003;96:27-31.
24. Waits JB, Wheat JR. Preventive agricultural medicine: a medical student's perspective on an important component of rural community health. *J Agromedicine*. 1999;6:11-25.
25. Tabereaux PB, Wheat JR. Preventive agricultural medicine: a student's perspective of farmers' mental health. *J Agromedicine*. 2002;8:43-53.
26. Donham KJ, Thelin A. *Agricultural Medicine: Occupational and Environmental Health for The Health Professions*. Oxford, UK: Blackwell Publishing; 2006.
27. Lessinger JE, Ed. *Agricultural Medicine: A Practical Guide*. New York, NY: Springer Science+Business Media; 2006.
28. Wheat JR. Approaching actionable farm safety programs. *J Agromed*. 2005;10:5-7.