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Agricultural Community Is Aware of Skin Cancer Risks

Abstract

Most farmers are aware they are at increased risk for skin cancer, yet most still prefer unsafe headwear in the sun. This study replicated the "Trade Your Hat" projects and follow-up surveys conducted in other states. Approximately 50% of farmers answering the original or follow-up surveys believed they were at increased risk yet still chose unsafe headwear. Follow-up surveys show 25% of those indicating they wore no hat or ball caps when in the sun the day of the "trade-in" changed their behavior and wear sun safe headwear more than 50% of the time. Recommendations for further research are included.

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Introduction

Sun safety has been a popular topic in recent years due in part to the increasing incidence of skin cancer. Skin cancer is now the most common form of cancer. Nearly a million new cases are reported, and 10,000 deaths occur each year from it (American Cancer Society ACS 2003). It is estimated that one in five Americans will develop skin cancer in his or her lifetime (Weigel, 2001).

Death rates from the deadliest of skin cancers, melanoma, have risen steadily in the last 30 years, with a 50% increase from 1969 to 1999, but most of the increase has been in men 65 and older, their rates rising over 150% (Geller, 2002).

Skin cancer is caused by excessive amounts of sun, sunburns, and the total amount of sun received over time. By the nature of their work, farmers are at high risk for getting skin cancer because they often are exposed to excessive amounts of sun (Bean, Dresbach, & Nolan, 1997). The majority of skin cancers occur on the body in areas of chronic sun exposure: the neck, the face, ears, etc. The use of wide brimmed headwear can decrease the risk of skin cancer by protecting those vulnerable areas. However, results of the 1998 National Health Interview Survey indicated that only 23% of the 32,440 respondents were likely to wear sun protective clothing (Santmyre, 2001).

Methodology

Purdue University Cooperative Extension Service hosted a skin cancer and sun safety awareness exhibit during the 2001 Farm Progress Show. Visitors to the exhibit were asked to participate in a "Trade Your Hat" event similar to those conducted by other state Extension systems, including Wisconsin, Iowa, and Minnesota (Gahring, 1999). Anyone who completed a short questionnaire and gave Purdue Extension staff members a hat, had their choice of two styles of sun-safe headwear, either a wide brimmed canvas style hat or a wide-brimmed closed-weave straw hat. A total of 1,701 individuals took part in the project.

The survey used for the research effort was adapted from the "Operation Hat Check" project conducted by the National Farm Medicine Center (1998). Participants were asked if they were currently involved in a farming operation and whether or not they believed they were at risk of getting skin cancer. Questions asked for information on the kinds of headwear and clothing

presently worn when working outdoors. Simple demographic information was collected, as well as information on whether they would wear the sun-safe hat in future outdoor activities. Finally, they were asked if they would be willing to participate in a follow-up survey regarding skin cancer skin cancer awareness.

Follow-up surveys were mailed prior to the 2002 harvest, nearly 12 months after the show. Nine hundred fifty-seven follow-up surveys (56% of the original sample) were mailed, with 552 usable surveys (58% of the mailed sample) returned. Subjects responded to questions concerning how often the sun-safe hat they received was worn and by whom, whether or not they had purchased an additional sun-safe hat since the Farm Progress Show, and ideas for ways Cooperative Extension Services could promote sun safety in the agricultural community.

Results

This research effort involved surveying visitors to the Purdue Exhibit at the 2001 Farm Progress Show held in Indiana. The majority of those participating were engaged in agriculture, particularly in Indiana. Data from 1,701 usable surveys collected during the 3-day show and the 552 the usable follow-up surveys provided the results for this study.

Gender

Sixty-five percent (1,114 and 360) of both the original sample and the follow up sample was male, and 33.62% (572 and 187) was female. No response for gender was provided on 15 of the original surveys and five of the follow-up surveys.

Age

Table 1 provides detailed information about the age range of the respondents. The majority of respondents were in the 51-65 year age group (30.04% and 32.01%), closely followed by the 36-50 year age group.

Table 1.
Age of Respondents

Age	Show Sample	Percent	Follow-Up Sample	Percent
Under 21	281	16.5%	84	15.2%
22-35	142	8.4%	51	9.2%
36-50	490	28.8%	156	28.3%
51-65	511	30.0%	177	32.0%
66+	256	15.1%	79	14.3%
No Answer	21	1.2%	5	.01%
Total	1701	100%	552	99%

Perceived Risk of Skin Cancer

Table 2 provides information on the incidence of skin cancer in the families of the farmers surveyed at the farm show and whether those farmers personally felt they were at risk for getting skin cancer. Nearly 40% (677) reported someone in their family has had skin cancer, while over 50% (901) felt they were at risk for skin cancer. Twenty-two percent (380) felt they were not at risk, and 22% (385) did not know if they were at risk for getting the disease.

Table 2.
Risks for Skin Cancer

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Incidence of Skin Cancer in Family			Personal Risk for Skin Cancer		
Yes	677	39.8%	Yes	901	53.0%
No	879	51.7%	No	380	22.3%
Don't Know	119	7.0%	Don't Know	385	22.6%
No Answer	26	1.5%	No Answer	35	2.1%
Total	1701	100%	Total	1701	100%

Awareness of Skin Cancer

A wealth of information about the original samples' (agricultural community and others participating in the trade-in) knowledge of skin cancer was gained from the question asking respondents to explain why they were, or were not, at risk for skin cancer. Answers ranged from "I'm bald and have no cab on my tractor," to "tanning bed user" and "former sun worshipper." Table 3 provides information on the responses most often given for their perception of personal risk. By far the response most often reported was "in the sun a lot." Forty percent of the sample (387 of the 970 usable responses) provided this explanation.

Nearly 6% of the sample simply responded with "everyone is at risk." Only 4% did not know if they were personally at risk or not. Ten percent shared they were at greater risk because they had fair skin, and another 8.04% indicated their family history put them at greater risk.

For those who felt they were not at risk for skin cancer, the answers ranged from "use sunscreens" and "wear protection" to "not exposed much" and "computer geek." A small number reported no problems because there is no family history, or they do not burn easily.

Of particular concern, however, was the high number of respondents (121 of 970, 12.47%) who reported they were at risk because they have had skin cancer or they presently have skin cancer. Others shared they have had precancerous lesions and have regular checkups.

Table 3.
Explanations of Risk of Skin Cancer

Reasons for Risk or No Risk	Number	Percent
In sun a lot	387	40.0%
Have, or have had, skin cancer or precancerous lesions	121	12.5%
Fair skin	96	9.9%
Family history	78	8.0%
Everyone has risk	57	5.9%
Not much exposure	46	4.7%
Use sunscreen and protection	43	4.4%
Don't know if I am at risk	40	4.1%

No problems, or family history, or does not burn	34	3.5%
All other responses (severe sunburns, no protection, health factors, UV rays are not good, live in south, have regular checkups, Doc said so, tanning bed user)	68	7.0%
Total	970	100%

Results from Agricultural Community

Skin cancer and sun safety awareness is an issue for the entire population, and many of the people who participated in the survey were interested in the information provided because of their outdoor activities such as gardening, yard work, golfing, fishing, and other outdoor sports. However, this project targeted the agricultural community because of the high percentage of agricultural workers who spend long hours in the sun without the proper protection.

Fifty-three percent of both the original sample and the follow-up sample were from the agricultural community. The original sample contained 722 current farmers, and another 185 retired farmers. Two hundred forty-six current farmers and 48 retired farmers completed the follow-up surveys. Over two-thirds (68.3%) of the farm community samples were male.

Table 4 provides detailed information about the farm community respondents' perception of personal risk. Sixty percent of both samples' current farmers and approximately 50% of the retired group (51.6% of original sample and 47% of the follow-up survey) believed they are at risk for getting skin cancer.

Table 4.
Farming Community's Perception of Risk

Farming Status	Perception of Risk			
	Original Sample		Follow-Up Survey	
	Number	Percent	Number	Percent
Currently Farming				
At-Risk	248	57.4%	134	54.5%
Not at Risk	101	23.4%	59	24.0%
Don't Know	63	14.6%	35	14.2%
No answer	20	4.6%	18	7.3%
Totals	432		246	
Retired Farmers				
At-Risk	96	51.6%	22	46.8%
Not at Risk	50	26.9%	14	29.8%
Don't Know	35	18.8%	11	23.4%

No answer	5	2.7%	-	-
Totals	186		47	

Twenty percent of the total farming community samples (19.6% and 18.8% of original sample and 18.3% and 23.4% of follow-up sample) was not aware if they were at increased risk for skin cancer. Additionally, another 20% of the current farming community and 25-30% of retired farmers indicated they felt they were not at risk of getting skin cancer

Agricultural Communities' Choice of Headwear

Although the majority of the agricultural community knows they are at increased risk, many have not yet changed their headwear to provide more protection. The most popular choice of headwear for the farming community is a ball cap or no hat at all. Results show over 50% of the agricultural community is choosing ball caps as their preferred headwear.

Ball caps may be the headwear of choice because so many of the agricultural suppliers provide complimentary ball hats to those using their products. There may also be some peer pressure to choose the same headwear as friends and neighbors because ball caps are the style. Some farmers may like to sport a cap advertising a business or service they support, while others may choose a ball cap thinking the brim offers enough protection.

Table 5 provides information on the choice of headwear by both the original farming community sample and the follow-up survey sample who realize they are at risk for skin cancer. Respondents were asked if they felt they were at risk of getting skin cancer.

In the original sample, of the 722 current farmers, 432 believe they are at risk for skin cancer. Yet 248 still wear unsafe headwear (248 ball caps and 101 no hat). Additionally, 24% of current farmers and 15 - 20% of retired farmers, who know they are at increased risk, wear no hat or headwear at all. Only 14% of those currently farming and 24% of retired farmers presently wear wide-brimmed or sun-safe hats when working outdoors.

Table 5.
Choice of Headwear by Farming Community Who Believe They Are Risk

Farming Status	Choice of Headwear by Farmers Acknowledging Risk			
	Original Sample		Follow-Up Survey	
	Number	Percent	Number	Percent
Current Farmers				
Ball Cap	432	60.1%	149	60.2%
No Hat	138	19.2%	48	19.5%
Wide Brimmed Hat	141	19.6%	45	18.3%
No Answer	8	1.1%	4	1.6%
Totals	710		246	
Retired				
Ball Cap	52	54.2%	24	51.1%

No Hat	15	15.6%	9	19.2%
Wide Brimmed Hat	23	24.0%	11	23.4%
No Answer	6	6.23%	3	6.4%
Total	96		47	

Results show over 50% of the agricultural community is choosing ball caps as their preferred head wear. Of the 293 current and retired farmers responding to the follow-up survey, 170 indicated on the original survey that they believed they were at risk of contracting skin cancer. Believing this, however, 134 still chose no hat or a ball cap when out in the sun. Answers on their follow-up surveys indicated nearly 25% of the 170 (33) now wear a sun-safe hat when outdoors more than 50% of the time. Another 26% (35) wear a sun-safe hat between 25 and 50% of the time.

Use of Sun-Safe Headwear

All respondents (agricultural community and others) were asked how often they wore the sun-safe hat they traded for. Table 6 shows the amount of time hats were worn. Nearly a quarter of all respondents indicated they wore the hat 50% or more when they were in the sun. However, 198 of the sample (36%) shared that the hat was worn less than 25% of the time.

Table 6.
Amount of Time Sun Safe Hats Were Worn in Sun

Use of Sun Safe Hats				
Time Worn in Sun	Agricultural Community		Non-Agricultural Community	
	Number	Percent	Number	Percent
Less than 25%	95	32.4%	102	40.8/%
25-50%	85	29.0%	61	24.4%
50-70%	42	14.3%	25	10%
More than 75%	30	10.2%	31	12.4%
NA	41	14.0%	31	12.4%
Total	293		250	

Over 30% of the sample (174) said they purchased additional sun-safe hats since the Farm Progress Show.

Agricultural Community with Family History of Skin Cancer

Individuals trading hats at the Farm Progress Show were asked if there was a family history of skin cancer. Of the 907 current and retired farmers who responded, nearly 18% (162) indicated others in their family had the disease. Still, 122 of that group wore minimum or no protection.

Of the 293 current and retired farmers who completed the follow-up survey, 93 or 31.75% had a family history of skin cancer. Seventy-four of those 93 indicated at the Farm Progress Show they chose ball caps or no hat when they were in the sun. Answers on their follow-up surveys show 21 of them now wear a sun safe hat 50% or more of the time when they are in the sun, indicating a major change by 28% of the sample.

Conclusions and Recommendations

Conclusions

The "Trade Your Hat" event was a great success at the Farm Progress Show, as it has been in all other locations where it has been offered. The results of the study reported here show the majority of the farming community is aware of their increased risk for skin cancer. Statistics show at least 68 individuals, who previously wore little or no sun protection while working outdoors, changed their behavior. (Thirty-three now wear more than 50% of the time, and 35 now wear 25-50% of time outdoors.) Twenty-one (28%) of the 74 farmers who have a family history of skin cancer and did not wear sun safe headwear at the original show reported wearing sun-safe headwear on their follow-up survey. Over 30% of the follow-up sample (174) said they purchased additional sun safe hats since the Farm Progress Show. Additionally, hundreds of others were made aware of sun safe headwear.

Recommendations for Cooperative Extension Service

The Cooperative Extension Service could help raise awareness in the agricultural community of the dangers of the sun by incorporating sun safety educational segments in other Extension agricultural activities. A sun safety module should be incorporated in Master Gardener programs. Sun safety exhibits should be displayed at summer field day events. Extension educators should have a packet of sun safety publicity materials to use for local news releases.

Sun safety and skin cancer awareness educational materials should be incorporated into youth activities, as well. Educational materials already developed by a number of states should be promoted and adapted for use on a much wider scale in 4-H, after-school, and camping projects nationwide.

Other organizations are also very interested in promoting educational events to promote sun safety. Partnerships and coalitions with both agricultural and health organizations on the local and state level could ensure a broad based campaign take place to raise awareness and change behavior in the agricultural community. Networks should be developed with local hospitals, medical associations, cancer societies, Farm Bureau, Inc., and local feed, chemical, and implement dealers to promote safer work practices outdoors.

Efforts should be made to work with agricultural leaders not only within the university system, but also others in the private agricultural sector to lead by example. When working fairs, presenting at field days and other outdoor events, they should be encouraged to wear sun-safe headwear rather than the popular ball caps.

Contacts should be made with agricultural chemical, feed, implement, and other agricultural dealers to phase out their ball cap giveaway programs and to replace those unsafe hats with the safer wide-brimmed variety.

Recommendations for Further Study

This study replicated a number of studies conducted at Midwest farm shows to determine the agricultural community's awareness of skin cancer risks. A synthesis of these studies would provide opportunities to strengthen the research in this area.

Studies of the agricultural community's awareness of sun safe practices in the South, West, and Northeast would provide additional data on possible differences associated with weather or crops.

Additional studies that will add to the body of research of sun safety issues would target other professions where workers spend time outdoors. Studies to determine the use of sun screens and/or sun protective clothing by agricultural workers would also strengthen the research in this area.

References

- American Cancer Society (2003). *Cancer facts and figures 2002* [On-line]. Available at: <http://www.cancer.org/downloads/STT/CancerFacts&Figures2002TM.pdf>
- Bean, T. L., Dresbach, S. H., & Nixon, J. A. (1997). *Skin cancer: Are you at risk?* University of Ohio Extension Service [On-line]. Available at: <http://ohioline.osu.edu/aex-fact/0694.html>
- Gahring, S. (1999). Sunsmart Extension program helps families stay healthy. *Minnesota Impacts* [On-line]. Available at: <http://www.extension.umn.edu/mnimpacts/impact.asp?projectID=2981>
- Geller, A. C., et al. (2002). Melanoma incidence and mortality among US whites, 1969-1999. *Journal of American Medical Association*. 288(14), 1719-1720.
- National Farm Medicine Center, (1998). *Operation hat check*. [On-line]. Available at: http://www.marshfieldclinic.org/nfmc/nfmc_leadership_environment.htm

Santmyre, B. R., Feldman, S. R., Fleisher, A. B. Jr. (2001). Lifestyle high-risk behaviors and demographics may predict the level of participation in sun-protection behaviors and skin cancer primary prevention in the united States: Results of the 1998 national health interview survey. *Cancer* .92(5), 1315-1324.

Weigel, R. R. (2001). *Agriculture and skin cancer: What you should know*. University of Wyoming Cooperative Extension Service. [On-line]. Available at: <http://www.uwyo.edu/ces/PUBS/B-1105.pdf>

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