FINAL PROGRESS REPORT

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List of Abbreviations

PFFSDC – *Progressive Farmer* Farm Safety Day Camp®

PAF – Progressive Agriculture Foundation

NAGCAT – North American Guidelines for Children's Agricultural Tasks

EAG – Evaluation Advisory Group

Abstract

Agricultural production is among the industries with the highest rates of work-related injuries and deaths. Furthermore, this industry is unique in the high level of participation of children and adolescents. Children and youth are exposed to agricultural hazards in their work and play activities, as well as in observational roles during adult work. In response to this risk, farm safety day camps are offered in hundreds of communities across the country as a format for teaching children to use safe methods of play and age-appropriate work on farms and ranches. These camps generally take the form of one-day community-wide events or one-day programs conducted through schools. They offer lessons covering a variety of rural and agricultural safety issues. A number of organizations sponsor these events; one of the largest programs, offering several hundred camps throughout the nation, is organized by the Progressive Agriculture Foundation. The purpose of this project was to conduct an evaluation of this program, the *Progressive Farmer* Farm Safety Day Camp® Program.

Multiple data sources and methods were used to gather information relevant to process evaluation, outcome evaluation, and measures of impact. These sources included the camp coordinators who organized the camps, adult volunteers who helped with the camps, children ages 8-13 attending the camps, a comparison group of non-campers, a parent of the camper and non-camper participants, and on-site observations of a small number of camps. There were 253 camps eligible to participate in the study, and data were received from the coordinators for 228 of these camps, while volunteer questionnaires were received from 214 of the camps. Twenty-eight of these camps were selected as sources of camper data. In these camps the participants completed a written pre-test and post-test, and then a sample of campers was called for a three-month and a one-year follow-up interview. A comparison group of non-campers was recruited for a pre-test, three-month follow-up, and one-year follow-up interview. During the interviews, a parent of the target child was also interviewed. Six of the 28 camps were selected for on-site observation by one of the research team members. Recruiting and retaining the non-camper comparison participants was more difficult than anticipated, and this part of the data collection is not yet completed.

Results analyzed to this point show a significant increase in knowledge and safe behaviors for the camp participants on the three-month and one-year follow-up interviews in comparison to the pre-test responses. An analysis of knowledge scores for each age group in the sample shows that the effect is similar regardless of age. Furthermore, three months after the camp, half the parents report there has been some safety-related change in their child's behavior. It appears that camp participation does have an effect on safety awareness and behavior in children. However, additional data from non-campers are needed to complete this study, and replications of this study are necessary, before determining with greater certainty how much impact this one-time educational intervention has. The data also indicate that the indirect benefits of a farm safety camp in a community include enhanced safety awareness of the wider community as children and adult volunteers disseminate the information they learned, as well as enhanced community strength and cohesiveness resulting from the cooperation of many individuals and organizations in achieving a common goal.

Highlights/Significant Findings

For the camp participants, responses to the knowledge questions show an increased percentage of respondents answering the questions correctly from pre-test to post-test and follow-up interviews. Responses to the 11 knowledge questions were combined into a single knowledge score indicating the number of items answered correctly. A repeated measures analysis of variance indicates a significant difference between the mean pre-test scores (7.93) and all other scores. The mean for the post-test (9.27) was significantly higher than the pre-test, but then scores fell on the three-month follow-up (9.11), increasing again and exceeding the post-test scores on the one-year follow-up (9.38). An analysis of mean knowledge scores for each age group in the sample shows that the effect is consistent regardless of age. Thus, knowledge of safety hazards and safe practices improved significantly following participation in the camp.

These results show clear improvement in knowledge for the campers, but there is also an unexpected increase in knowledge for the non-campers, which shows up on the three-month follow-up and increases again on the one-year follow-up. Without additional analyses (and replication), it is not clear to what extent this improvement may be a result of repeated testing, maturation, or sensitization to the topic. The larger increase for the campers, however, reveals the potential added value of the camp experience over and above these other possible effects.

Analyses of the 19 behavior items on the pre-test and follow-up surveys indicated that more participants were making the safest choice on the three-month and one-year follow-ups than on the pre-test. For example, on the follow-up surveys more participants reported they "never" ride a tractor while someone else is driving, and more reported they wear a helmet "very often" when riding an ATV compared to the pre-test. Similar improvements occurred for nearly all behavior items.

These data further indicate that the indirect benefits of a farm safety day camp include enhanced safety awareness of the wider community as children and adult volunteers disseminate the information they learned, as well as enhanced community strength and cohesiveness resulting from the cooperation of many individuals and organizations in achieving a common goal. Coordinators reported an average of 61 local volunteers and an average of 19 local businesses or organizations supporting the camps. Approximately two-thirds (66%) of the volunteers said that they had learned some new safety information while volunteering with the camp; and 67% said they planned to make a safety change at their own farm or home. Approximately 23% of the parents interviewed named one or more changes the family had made following their child's participation in the farm safety day camp.

Translation of Findings

Farm safety day camps are attended each year by thousands of children in rural communities across North America. Significant financial and human resources are devoted to these camps each year, as they are a popular method for teaching safe practices to children living in these communities. The results of this study support the claim that such camps can have a long-term effect on the knowledge and safe practices of the children who attend them. Preliminary analyses indicate that the model provided by the *Progressive Farmer* Farm Safety Day Camp® program for conducting a camp leads to an increase in knowledge of safety-related issues and an increase in safer behaviors. Furthermore, these improvements may not be greatly affected by variations such as the length of the individual sessions, the size of the groups, or the length of the camp day. Because improvements were also seen in the non-camper comparison group, however, some of the improvements observed may be attributed to maturation or other extraneous effects. Nevertheless, the changes in the camp participants were greater than those in the non-camp participants. Thus, it appears that the camp does have an independent effect on safety awareness in

children. Additional data from non-campers are needed to complete this study, and replications of this study are necessary before determining with greater certainty how much impact this one-time educational intervention has. Even with these limitations, however, the farm safety day camp appears to be a relatively low cost, effective intervention for teaching safety to children. Additional benefits of conducting a farms safety camp accrue to the community as information is disseminated, awareness of safety is raised, and organization and individuals work together to achieve a common goal.

Outcomes/Relevance

The findings lend support to claims for the effectiveness of farm safety day camps for increasing knowledge and improving safe practices among camp participants. They contribute to the small, but growing body of research on the effectiveness of farm safety day camps, which are a relatively low cost intervention for teaching safety to children. Among the additional benefits the camps bring to a community are enhanced safety awareness of the camp volunteers and other members of the community, as well as enhanced community strength and cohesiveness.

Scientific Report

Background

Farm safety day camps are offered in hundreds of communities across the country as a format for teaching children to use safe methods of play and age-appropriate work on farms and ranches. These camps generally take the form of one-day community-wide events or one-day programs conducted through schools. They offer lessons covering a variety of rural and agricultural safety issues. A number of organizations sponsor these events; one of the largest programs, sponsoring camps throughout the nation, is organized by the Progressive Agriculture Foundation (PAF) with funding from more 50 national corporate and foundation sponsors, as well as numerous individual contributors.

Agricultural production is among the industries with the highest rates of work-related injuries and deaths. Furthermore, this industry is unique in the high level of participation of children and adolescents. Children and youth are exposed to agricultural hazards in their work and play activities, as well as in their observational roles during adult work.

Public responsibility for farm safety training is traditionally given to the Cooperative Extension Service within each state, but states are quite variable in the amount of resources available for this activity. With changes in agriculture toward the end of the 20th century, many groups lost the statewide safety specialists and/or programming efforts that had previously supported farm safety day camp organizers. However, this shift at the state level did not reduce the desire by local communities to conduct day camps to educate both farm and non-farm children about the dangers involved in living on and visiting farms. To help meet this need, the *Progressive Farmer* Farm Safety Day Camp® (PFFSDC) program was begun in 1995 to provide nationwide support for interested individuals and groups. The program was designed to meet the needs of local community members who want to help children in their area stay safe. It provides training, resources, support, and networking opportunities needed to conduct a camp that offers age-appropriate, effective lessons in topics related to farm safety. While providing such support on a nationwide scale, the program is specifically designed to be community-based, as each camp is planned and conducted at the local level, pairing the support and materials provided by PAF with support provided by local individuals and organizations.

A one-day camp can cover only a limited number of basic safety issues in the allotted time frame, so the curriculum and logistics for the camp must be well organized in order to introduce and reinforce the key concepts at age-appropriate levels in a short space of time. *Progressive Farmer* camp coordinators are provided with a modular curriculum from which they can choose the topics for inclusion in their specific camps, and they are given step-by-step instructions for the planning and organization of the camp. The goal of these camps is to make children safer on farms and ranches, preventing injuries by increasing safety-maximizing behaviors. Farm safety day camps, however, have been the subject of very little evaluation to determine the effectiveness of this format for accomplishing the goals of increasing safety awareness and knowledge, increasing safe behaviors, and reducing injuries among children on farms and ranches. Evaluations that have been conducted generally lack comparison or control groups and lack long-term follow-up. Still, significant financial and human resources are devoted to these camps, and communities and sponsors alike assume they are part of the solution to childhood farm-related injuries.

Specific Aims

The purpose of the project was to conduct an evaluation of the *Progressive Farmer* Farm Safety Day Camp® Program. This was not a new intervention or a change in the program as it existed, rather we were conducting an evaluation of a well-established, widely used community-based intervention. We planned to conduct both process and outcome evaluation. Process evaluation would consist of surveys completed by the camp coordinators and volunteers, reporting data for the camp, including attendance,

curriculum components used, assessments of success, and suggestions for improvements. Outcomes would be evaluated through pre-test, post-test, three-month follow-up, and one-year follow-up surveys to assess knowledge and behaviors of children ages 8-13 who attended PFFSDCs and a comparison group of children who did not attend. Impact of the camps would also be evaluated by asking about farm-related injuries in the pre-test, three-month, and one-year follow-up surveys. Target camps were those offered from March 2002 through October 2002. In addition to testing for changes among campers across time, and testing for differences between campers and non-campers, a comparison would be made between two types of camps: community-wide day camps and school-based day camps. An advisory group of camp coordinators would be formed to review plans for conducting the evaluation and for dissemination of the results to the communities that participate. Through the various components of the evaluation, we intended to address the following research question: Are the farm safety day camps in the *Progressive Farmer* program effective in increasing safety knowledge, increasing safe practices, and reducing injuries among the participants?

Procedures

The primary goal of the farm safety day camps is to make children safe on farms. This goal is accomplished through objectives which include reducing injuries, increasing knowledge about safety issues, and increasing safe behavior. Although the curriculum modules underwent revisions during 2000 and 2001, incorporating many of the principles from the North American Guidelines for Children's Agricultural Tasks (NAGCAT), and the training sessions for camp coordinators occasionally change somewhat, the basic format of the camps has not changed. That is, camps are planned and run by local volunteers for children in a specific community or school. Campers are divided into small groups that move from one learning center to another throughout the camp day for interactive educational activities and demonstrations taught by local volunteers. The camp coordinators attend a two-day training session preparing them for the one-day safety camp to be offered in their community. Progressive Agriculture Foundation sponsorship of a camp includes development and dissemination of curriculum modules, assistance with publicity, distribution of organizational materials necessary for camp preparations, provision of t-shirts and goodie bags for all campers, insurance, and the free required training sessions (including a 200-page step-by-step manual) that provide information and instructions for planning and conducting a camp. In addition, the Foundation provides some basic coordinated follow-up and evaluation of camps. We planned to enhance these evaluation efforts, including evaluation of process and immediate outcomes for the campers, as well as long-term impact on the campers.

Process Evaluation

For the process evaluation we focused on data related to two of the goals and components described by Rossi and Freeman (1993): (a) the extent to which the program is reaching the appropriate target population; and (b) whether or not its delivery of services is consistent with program design specifications. These two types of monitoring or process data can be analyzed to address three issues: (a) description of the project, (b) comparison between sites, and (c) conformity of the program to its design. The description of the project includes estimates of coverage and bias in participation; description of the program as it was delivered; and reactions of participants to services. The comparison between sites addresses possible differences in program implementation between the various sites in which it is offered. This analysis permits an understanding of sources of diversity in project implementation, including differences in staff, targets, and context, which can result in diverse outcomes. The question of conformity of the program to its design addresses the extent to which the program that is actually implemented resembles the program that was designed. Discrepancies between the designed program and the implemented program may lead to efforts to change in either direction, i.e., changing the implementation to meet the design plan more closely, or revising the design to meet the implementation that appears more feasible in the field.

Outcome Measures and Impact Evaluation

Outcome and impact assessments are undertaken to estimate whether or not interventions produce their intended effects. Although some evaluators do not distinguish between outcomes and impact, in educational and training research there is some advantage to making a distinction between immediate effects of training on knowledge, attitudes, behavioral intent, and actual behaviors, on the one hand (these are designated "outcomes"), and longer-term effects that are the result of the outcomes, such as reduced injuries or diffusion of training information, on the other hand (these are designated "impacts"). Both of these were included in the evaluation of the farm safety day camps.

The Role of the Community in Evaluation Planning

In order to conduct a PFFSDC, one or more individuals in a community apply to Progressive Agriculture Foundation for sponsorship. When a community is approved for a camp, one individual in the community is designated as the camp coordinator. This individual then attends one of the two-day training sessions required by PAF as part of their sponsorship of the camps. By the end of training, camp coordinators are prepared to work with other community members to plan and implement this event in their community, and they have been given or know how they can obtain the information and resources they need to conduct a successful camp tailored to meet the needs of their community. The camp coordinators provide the primary link between the program and the communities in which the camps occurs. In order to capitalize on this link, we proposed to form an Evaluation Advisory Group (EAG) composed of a small number (8-10) of coordinators. This group was intended to assist the evaluation team in the development of evaluation material and processes that would be compatible with the other demands placed on the camps and would be responsive to the needs of the communities and those planning the camps.

Methodology

In evaluating the camps, multiple data sources and methods were used to gather information relevant to process evaluation (camp coordinators, volunteers, camp observations), outcome evaluation (campers), and measures of impact (campers and parents).

Data Sources

Two sources of data came from all camps and were related primarily to process evaluation. (1) The camp coordinator conducting each camp provided information about the camp and the extent to which it occurred as planned. (2) The adult volunteers in each camp were asked to complete a written questionnaire at the close of the camp session indicating their role in the camp and their satisfaction with the experience. The remaining sources of data were collected for a sample of 28 camps targeted for data collection primarily related to outcomes and impacts, although they also allowed for more in-depth exploration of process questions. In these 28 locations, both campers and a non-camper comparison group provided longitudinal data for assessing the outcomes and impact of the camp. (3) All campers eight years or older in the camp sample were asked to complete a written pre-test prior to camp and a written post-test just after their camp participation. A sample of these campers was called for a three-month and a one-year follow-up telephone interview. (4) A comparison group of non-campers was recruited for a pre-test, three-month follow-up, and one-year follow-up interview. (5) During the follow-up interviews, a parent of the target child was also interviewed to obtain the parent's perspective on child behaviors. (6) Six of the 28 camps targeted for evaluation were selected for on-site observation by one of the research team members. The observer recorded information about the camp that was related to process.

Process Evaluation

In conducting the process evaluation of the camps, we intended to address the following three issues: (a) a description of the camps, (b) comparisons between sites, and (c) the extent to which the actual camp events conform to the events designed. Data to address these issues come from reports by

the coordinators and volunteers, from surveys and interviews by campers and non-campers, and from observations by research team members.

Outcome Evaluation

The outcome evaluation involved a quasi-experimental design involving campers and non-campers, measured at pre-test, post-test (campers only), three-month follow-up, and one-year follow-up. The evaluation was conducted with a selected sample of 28 camps for children 8-13 years old. Camper participants were selected from these 28 camps, and non-camper participants were recruited from the same or near-by communities. The survey instruments measured participants' knowledge of safety hazards, knowledge of appropriate safety behaviors, and their current practices with regard to safety behaviors. The pre-test questionnaire also established a pre-intervention injury rate by asking respondents if they had experienced an injury in the preceding three months.

Impact Evaluation

The long-term effects or impact of the day camp experience were measured in three-month and one-year follow-up telephone interviews, comparing a random sample of campers and non-campers across time. Measures of interest included behavior change in the direction of safe practices, retention of knowledge, diffusion of information to others, and reduction in injuries.

Sample

All *Progressive Farmer* Farm Safety Day Camps® held between March and October 2002 and serving children ages 8-13 were eligible for participation in the evaluation. From the 253 eligible camps, a sample of 28 camps was selected for the outcome and impact evaluation portion of the project. Camps were selected randomly with some constraints to be sure the final sample was representative of various sizes of camps, geographic locations, and the full calendar timeframe of camp offerings (March to October). Seventeen of the camps were community-based (i.e., recruitment is done throughout the community, and all children within the targeted age range are welcome), and eleven of the camps were school-based (i.e., the children participate as part of a school activity, and recruitment is limited to specific grades within specific schools). The choice of camp type is made by the local camp coordinator and planning committee; we simply used this characteristic as a selection factor. The school-based camps tend to be larger than the community-based camps. Within the camps, a random sample of campers was selected for participation in the follow-up telephone calls. The size of the selected sample for each camp was roughly proportional to the size of the camp, except that participants in very small camps (<30 campers) were oversampled.

In each camp community in our sample of 28, we also planned to conduct a telephone survey among a comparison group of children in the 8-13 age range who did not attend the farm safety camp. In each community, the camp coordinator would have a pivotal role in identifying a set of non-campers as comparable as practicable to the set of campers. For school-based camps the coordinator was to obtain the cooperation of the school or school system to make available a suitable class or classes that had not attended the camp. In school-based camps where this was not feasible and for non-school-based camps, the camp coordinator would contact local groups or find some other means of identifying suitable non-campers. In the event that these activities failed to produce a sufficient sample of suitable non-campers, we would turn to telephone solicitation of listed sample to obtain the most appropriate sample possible. In meetings with the EAG, the feasibility of relying on camp coordinators was discussed, and the EAG felt that camp coordinators would be capable of fulfilling this role. In several cases this strategy worked almost flawlessly; but for a considerable number of camps this strategy produced an insufficient number of non-campers, if any, so we fell back to the plan of making calls to listed households to recruit non-campers.

The desired sample size by the end of the one-year follow-up survey was 300 in each of the four between-subjects conditions: campers vs. non-campers X community-based vs. school-based sites. In order to allow for attrition, more than 300 were recruited for the pre-test. To increase initial compliance and to reduce later attrition, we offered the children who participated in the survey an incentive of $5.00 per completed interview.

Table 1 shows the experimental design, listing the target sample sizes for each cell and the achieved sample sizes. As seen in this table, the final sample size for campers is 624, with 348 of these from school-based camps and 276 from community-based camps. One camp, which originally was planned and selected as a community-based camp, was actually conducted as a school-based camp. Without this change, there would have been 19 additional community-based campers (and 19 fewer school-based campers) in the final sample. Thus, the final sample of campers is very close to what was planned.

Recruiting and retaining the non-campers was much more difficult than we had anticipated, and we are still working on the data collection for this comparison group. We had intended to collect the non-camper pre-test data at approximately the same time the camps were being held, and thus they would be on the same schedule. This plan did not work as we had expected. Although most of the coordinators had agreed that they could recruit non-campers in their communities, the recruitment of the non-campers was delayed considerably in a number of cases as the coordinators turned their attention to conducting their camp. Furthermore, a number of the coordinators found that they had trouble recruiting the non-campers or simply realized they did not have time for it. Thus we had a variety of circumstances regarding the non-camper samples. A number of camp coordinators successfully provided the project with a comparison sample through their own efforts – some were provided at the time of the camp and others came much later than the camp. A number of coordinators advised from the beginning that they would not be able to provide us with non-camper comparisons. For these camps, we attempted to collect a contemporaneous random sample of non-campers by calling listed numbers likely to have children in an area targeted to yield non-campers comparable to the campers. In many of the other camps, the camp coordinators produced insufficient non-campers, if any; and the delay in beginning to collect non-campers in these areas via telephone samples, led to non-camper samples that were out of step. Simultaneously with trying to make the calls to catch up on the non-camper samples, follow-up data collection for the campers began to absorb a great deal of the telephone survey unit's time. The result of these varied problems was that the pre-test non-camper data was not collected in the timely way in which we had hoped.

Regardless of the efforts of camp coordinators and attempts to identify and collect suitable non-campers via telephone, sufficient non-campers for some camps were not collectible. For some camps, repeated efforts to identify and collect non-campers were just not fruitful, due in part to the difficulty of identifying an area that seemed likely to yield non-campers comparable to the campers for a given camp. For several camps, little listed and targeted sample could be found for the areas that could be identified as likely to be comparable, due to sparse population and the need to avoid areas that were rife with farm safety camps. In spite of these initial difficulties, we were finally successful in recruiting more than our targeted sample size for the pre-test. Unfortunately, the attrition rate for this sample was also much higher than we expected. In fact, we were able to complete three-month follow-up interviews for only 55% of the sample for whom we had pre-test data. Furthermore, once our data collection got behind schedule, other commitments for our telephone survey facility caused scheduling conflicts, and thus we were not been able to time these interviews to occur at the three-month point. Some have occurred as much as a year after the pre-test interview. Our data collection for the non-camper three-month follow-up is complete, but somewhat short of the target number we had expected. Data collection for the one-year follow-up interviews is incomplete at this time. The remaining interviews are scheduled to be conducted during the Spring of 2006.

Table 1. Outcome evaluation design, target samples, and achieved samples										
			Pre-test		Post-test		3-month follow-up		1-year follow-up	
			C	NC	C	NC	C	NC	C	NC
Camp type	Community (17)	Site 1 Site 2 . . Site 17	N=All Campers n=746	N=400 n=481	All Campers n=746	---	N=335 n=384	N=360 n=270	N=300 n=276	N=300 n=117
	School (11)	Site 18 Site 19 . . Site 28	N=All Campers n=1802	N=400 n=505	All Campers n=1802	---	N=335 n=543	N=360 n=272	N=300 n=348	N=300 n=119
Total			n=2548	N=800 n=986	n=2548		N=670 n=927	N=720 n=542	N=600 n=624	N=600 n=236
			↑	↑	↑		↑	↑	↑	

C=Campers
NC=Non-campers
N=target sample size
n=actual sample size
↑=data collection complete

Hypotheses related to outcomes and impact for the camps were as follows:

1. There will be no difference between campers and non-campers on the pre-test with regard to knowledge and behaviors in relation to safe practices.
2. Compared to the pre-test, campers' post-test results will show increased knowledge and behavioral intentions regarding safe regarding safe practices.
3. At the three-month follow-up, compared to non-campers, campers will show higher levels of knowledge and behavior regarding safe practices.
4. At the one-year follow-up, compared to non-campers, campers will continue to show higher levels of knowledge and behavior regarding safe practices, and they will have lower levels of injuries related to the safe practices taught in the farm safety day camps.

Results

There were 253 PFFSDCs in 2002 that fit the inclusion criteria for the evaluation, serving children ages 8-13 years olds. The coordinators for these camps were asked to complete a coordinator report form following their camp and to distribute volunteer report forms to everyone who assisted with their camp. These forms were a standard part of the reporting procedures for Progressive Agriculture Foundation, but they were revised slightly for the evaluation. Coordinators were also asked to complete a consent form giving permission for data from their camp to be included in the evaluation project. From

the 253 eligible camps, 228 coordinators agreed to participate in the evaluation project and submitted a completed coordinator report form for their camp. These 228 camps, held in 34 states and one Canadian province, are the source of data for this report.

Process Evaluation

a. Description of the camps

On their report forms, coordinators provided information about their camp, including the size and type of camp they conducted, their prior experience with conducting camps, the number of volunteers they had, the amount of time involved in planning and conducting the camp, the amount of support from local businesses and organizations, and the curriculum topics covered. They also were asked to describe ways in which the local community benefited from the day camp.

In all camps, coordinators were asked to distribute report forms to all of their volunteers. The volunteers could return the report form to the coordinator, who bundled them and mailed them to the evaluation staff, or they could send the report form directly to the evaluators. A total of 5,037 completed volunteer report forms were received from 214 of the 228 participating camps. Approximately one-third of the volunteer respondents indicated they were less than 18 years of age, with the remaining two-thirds indicating they were adults. It is not possible to determine how many volunteer report forms were distributed by the coordinators, or even whether every coordinator distributed forms to their volunteers; thus we cannot compute a response rate for these reports. On the report forms, volunteers indicated what role they had in conducting the camp, and they rated the camp and their volunteer experience in a number of areas. They also were asked to report any safety-related information they had learned while volunteering and any safety-related changes they planned to make at home.

Table 2 reports some of the major characteristics of the camps participating in the evaluation. Coordinators reported having from 9 to 388 local volunteers, with an average of 61. They had averages of 18 instructors, 16 group leaders, 7 planning committee members, 4 safety committee members, 17 volunteers handling on-site logistics, and 12 additional volunteers. The coordinators estimated that an average of 391 person-hours was spent on all aspects of camp activities.[1] Coordinators reported an average of 19 local businesses or organizations supporting the camp with donations or volunteers. Cash donations averaged $744 per camp ($972 if those with 0 donations are omitted); estimated value for donated items averaged $914 ($980 if those with 0 donations are omitted); and estimated total donations (cash + items) averaged $1,661. The total estimated cash donations were $168,090; the total estimated value of items donated was $205,739.[2]

New camps and new camp coordinators are added to the program every year, but there also are many communities and coordinators who participate year after year. In this group, on average, the coordinators had experience with 4-5 prior camps, which is an indication of the value they see in this program and their interest in continuing it in their community. They also were unanimous in their recommendation of the program to other communities.

[1] We suspect this average is an underestimate of the person-hours involved in planning and conducting the camps. Using the average of 61 volunteers and 391 hours, this would give each volunteer an average of 6.4 hours spent in their role. Since most camps are 4-6 hours in length, we believe this number might not be inclusive of the hours spent planning for the event, setting things up ahead of time, and cleaning up.

[2] It should be noted that these are local donations raised by the local coordinator or planning committee, and they do not reflect donations made by national sponsors of the program, although some of the national sponsors might have been located in a community where a camp is held.

Table 2. Camp characteristics reported by coordinators

	# of camps in analysis	Mean	Median	Lowest	Highest
Camp Size					
Number of campers	228	173.16	119	13	1336
Campers < 8 years old	117	46.41	25	1	382
Campers 8-13	216	152.96	106	1	1336
Campers > 13 years old	54	16.46	9	1	145
Number of migrant campers	19	35.00	6	1	105
Number of adult participants	15	33.80	35.5	2	125
Community Involvement					
Number of volunteers	215	60.92	50	9	388
Instructors	227	17.74	15	4	72
Group leaders	224	15.80	12	0	202
Planning committee	224	7.26	6	0	29
Safety committee	219	4.18	3	0	30
On-site logistics	223	17.06	11	0	200
Additional volunteers	200	12.04	8	0	150
Volunteer hours	220	390.60	222.5	10	4240
Business & organization support	219	19.12	15	0	92
Cash donations	173	$971.62	500	5	21,000
Value of donated items	210	$979.71	500	20	7,903
Total donations	225	$1,661.35	850	0 (n=3)	21,000
Months of coordinator planning	227	6.89	6	1	16
Months of planning committee work	225	5.06	4	0	16
Prior Experience					
Prior camps in community	226	3.63	3	0 (n=21)	18
Prior camps by this coordinator	223	3.22	2	0 (n=22)	18
Prior camps where this coordinator helped	201	1.54	1	0 (n=94)	12
Total prior camp experience for Coordinator	201	4.74	4	0 (n=14)	18

Coordinator Ratings	% Responding "Yes"
Was coordinating the camp a rewarding experience?	100.0
Were you generally pleased with your camp?	98.2
Would you recommend organizing a camp to another community?	100.0

To what extent does the farm safety camp program reach children who are exposed to agricultural hazards? Reports of farm contact, from responses by the parents of the camp participants, are reported in Table 3. Over 40% of the participants in the community-based camps live on a farm and over half spend at least several days a week on a farm. As would be expected, these percentages are somewhat lower for the school-based camps. In both types of camps, those children who live on farms are very likely to do chores at least several days a week, and nearly 40% of camp participants do chores on someone else's farm at least several times a year. Thus, a significant proportion of children who attend farm safety day camps are in contact with the agricultural hazards addressed in the camp sessions. In addition, many of

the sessions, such as ATV safety or electrical safety, address topics of general concern beyond their specific application to farm settings.

Table 3. Amount of farm contact

	Campers		Non-campers	
	Community	School	Community	School
Live on a farm	42.8%	28.0%	33.3%	19.3%
Spend time on a farm at least several days a week	52.1%	36.3%	41.0%	29.4%
Never spend time on a farm	7.2%	22.2%	21.4%	16.8%
If live on a farm, do chores at least several days a week	81.3%	74.3%	76.9%	60.9%
Do chores on someone else's farm at least a few days a year	39.9%	37.1%	39.1%	36.4%

b. Comparison between sites

Reports from coordinators and observations of camps have shown that there are many variations in the camps, even though they follow basically the same format. The percentages of camps that included each of the curriculum topics in the camp schedule are presented in Table 4. The topics covered by the highest percentage of camps were animal safety (72%) and electricity (70%). The length of individual safety learning sessions ranged from 5 minutes to 45 minutes, with a mean of 18.8 minutes, and a median and mode of 20 minutes. The majority of camps had sessions of either 15 minutes (32%) or 20 minutes (41%) in length. Some analyses have been conducted to compare results at different camp sites. Comparisons of the knowledge gain and reported safe behavior across camps have shown there is little consistent effect for the number of teaching sessions offered or the length of teaching sessions. Participants in smaller, community-based camps showed slightly greater improvements in knowledge than those in larger, school-based camps, while those in the larger camps tended to report greater behavior change. Overall, these results indicate that the variations in length and number of sessions may not be of great importance in terms of overall learning.

Table 4. Curriculum Topics Included in Camp Schedules

Topic	Percentage	Topic	Percentage	Topic	Percentage
Animals	72.4	Small equipment	28.9	PTOs	60.5
ATVs	63.2	Firearms	46.1	Railroad	11.8
Bicycles	29.4	Fires	64.9	Roadway	11.0
Chemicals	65.4	First aid	65.4	Sun exposure	36.4
Disability awareness	34.2	Grains	42.1	Tractors	64.5
Electricity	70.2	Hidden hazards	25.9	Water	36.8
Farm equipment	53.1	Lawn equipment	61.8	Other topics	63.2

c. Conformity of the program to its design

One source of information regarding the conformity of the camps to the intended design of the program is the feedback received from volunteers who work with the camps. Volunteer report forms were received from over 5,000 individuals who served in a variety of roles, including instructors in the camps,

group leaders, planning committee members, safety committee members, and people who helped with on-site logistics and food on the day of the camp. Volunteers' ratings of the camps, presented in Table 5, were very positive in all areas. Across all camps, over 80% of the volunteers said that they were given enough information to do their jobs effectively, camp participants were safe, topics were taught at age-appropriate levels, sessions involved fun learning activities, they could easily identify camper groups, their volunteer experience was rewarding, and they would like to help with a camp again. Approximately 71% of volunteers said the camp was "very effective" in teaching safety to children, and 76% rated the safety of the camp itself as "excellent." Approximately two-thirds of volunteers rated their camps "excellent" on all of the following: location, appropriateness of the setting for the number of campers, adequate staff for the number of campers, planning and organization, instruction, and scheduling. In addition, 66% of volunteers said they had learned new safety information while volunteering, and 67% said they planned to make some safety changes at home. These percentages for learning something new and planning to make a change did not differ between youth and adult volunteers.

Table 5. Volunteer ratings

Camp Ratings and Impact -- All camps	% "Yes"
Given enough information to do job effectively	91.6
Participants safe at all times	95.2
Topics taught at age-appropriate level	92.6
Sessions involved fun, active, hands-on learning	90.3
Could easily identify camper groups	85.1
Your role a rewarding experience	93.5
Would like to help with camp next year	83.4
Learn any new safety information	66.3
Plan to make safety changes at home	66.7

Camp Ratings -- All camps (% giving each response)	Very effective	Somewhat effective	Not effective	Don't know/No answer
How effective was the camp?	71.2	22.1	0.1	6.5

	Excellent	Good	Fair	Poor	Don't know/No answer
Location	67.9	25.6	2.3	0.3	3.9
Appropriate setting	66.6	27.0	2.1	0.2	4.2
Adequate staff	68.8	24.7	2.0	0.2	4.4
Planning & organization	67.7	24.1	3.4	0.3	4.6
Food	50.1	30.1	6.0	1.2	12.5
Instruction	63.3	27.8	2.0	0.0	6.9
Scheduling	60.8	29.5	4.4	0.3	4.9
Safety	76.0	18.7	0.6	0.1	4.7

Experience of instructors. For the selected camps, 43% of the volunteers who completed report forms indicated they were instructors at the camp, and 37% of volunteers from the non-selected camps said they were instructors. As shown in Table 6, among all instructors, 41% said they had taught the topic previously at a farm safety day camp, 56% said they had taught the topic previously in another setting, and 42% said they used materials from the curriculum manual. (Some instructors might have used *Progressive Farmer* curriculum materials but not been aware of the source of information given to them by the camp coordinator.) Instructors who had taught the topic in another setting were the least likely to say they used the materials in the manual (approximately 29%). The group of instructors who had never taught the topic were the most likely to say they used the manual, but 38% of these inexperienced

instructors said they did not use the materials in the manual. Most instructors (93%) thought the number of campers in each group was about right and a majority of instructors (81%) thought the amount of time for each session was about right.

Table 6. Experience of camp instructors

Instructor Experience -- All camps	% Responding "Yes"
Instructor – Used materials from manual	41.9
Instructor – Taught topic at camp before	41.3
Instructor – Taught topic in another setting	56.4

	% of all instructors	% of this group who used manual
Taught topic only at farm safety camp before	9.1	54.7
Taught topic only in another setting before	24.8	28.3
Taught topic both at farm safety camp and another setting before	33.1	29.3
Never taught topic before	32.9	61.6

	Too large	Too small	About right	No answer
Number of campers in each group	2.4	0.8	93.4	3.3
	Too long	Too short	About right	No answer
Amount of time for each session	5.2	10.0	81.3	3.5

As seen previously in Table 2, the coordinators give very high ratings to their experience with coordinating the camps and would recommend organizing a camp to another community. Though these are indirect measures, it appears that the coordinators feel they were able to conduct the camp in a way that met their expectations. Additional information on the perspective of coordinators regarding the success of their camp is available in open-ended comments written on the feedback forms and in the in-depth interviews conducted with the coordinators of the selected camps (26 of the 28 coordinators were able to complete a lengthy in-depth telephone interview about their experience with the camp).

d. Additional analyses to be conducted related to process.

We have additional information and data related to the process evaluation that remain to be analyzed. We will continue working with these data to describe the implementation of the camps and to determine the extent to which the camps conform to program expectations. This will include a review of the suggestions for improvements offered by camp coordinators on their surveys and in-depth interviews and a review of observational data recorded during our camp visits.

Outcome and Impact Evaluation

Outcomes and impacts were evaluated by assessing knowledge increases and safety-related behavior changes on the part of camp participants, wider community impact of the camp, and self-reported injuries before and after camp participation. Camp participants were compared with children who did not attend a PFFSDC.

a. Knowledge and self-reported behavior

Because full data have been collected for the campers, but not for the non-camper comparisons, some analyses have been conducted with the camper data alone. For the campers, frequencies of responses to the 11 knowledge questions generally show an increase in the percentage of respondents answering the questions correctly from pre-test to post-test and follow-up interviews. Responses to the

11 knowledge questions were combined into a single knowledge score indicating the number of items answered correctly. A repeated measures analysis of variance indicates a significant difference between the mean pre-test scores (7.93) and all other scores. The mean for the post-test (9.27) was significantly higher that the pre-test, but then scores fell on the three-month follow-up (9.11), but increased again and exceeded the post-test scores on the one-year follow-up (9.38). An analysis of mean knowledge scores for each age group in the sample shows that the effect is consistent regardless of age.

Analyses of the 19 behavior items on the pre-test and follow-up surveys indicated that more participants were making the safest choice on the 3-month and one-year follow-ups than on the pre-test. For example, on the follow-up surveys more participants reported they "never" ride a tractor while someone else is driving, and more reported they wear a helmet "very often" when riding an ATV compared to the pre-test. The behaviors do have a variety of trajectories, however, with some showing improvement both on the 3-month and the one-year follow-up, others improving at the 3-month point and then remaining level at the one-year follow-up, and still others falling off after the 3-month point, but not returning to the levels of the pre-test. A combined index of improvement on the behavior items has not been developed yet, and thus the analysis has remained at the level of the individual items. Nearly all items showed improvement from the pre-test to the three-month follow-up interview.

Because data collection is not completed for the non-campers, it is not possible yet to conduct the final analyses for this project. Following are preliminary results including data for campers and for non-campers who have completed the study. As seen in Table 7, analyzing all the data at each time point, in cross-sectional fashion, campers and non-campers were significantly different at each point. Overall, non-campers actually began with an advantage in knowledge, scoring significantly higher on the pre-test than the camp participants. Both groups had higher scores on the three-month follow-up interview, with the campers having significantly higher scores than the non-campers. Similarly, both groups improved on the one-year follow-up, but the campers had higher scores than the non-campers.

Table 7. Knowledge scores for all participants

	Campers			Non-campers			t-value	Sig. level
	Mean	St. Dev.	N	Mean	St. Dev.	N		
Time 1 – pre-test	7.499	2.070	2547	7.962	1.973	986	-6.163	.000
Time 2 – post-test	9.096	1.688	2547	N/A	N/A	N/A	--	--
Time 3 – 3-month follow-up	9.095	1.414	927	8.705	1.641	542	4.622	.000
Time 4 – 1-year follow-up	9.375	1.383	624	9.059	1.562	236	2.727	.007

A repeated measures analysis of variance was conducted for those participants with all data points, comparing campers and non-campers, camp types, and differences across time. The means are presented in Table 8, and the ANOVA results are presented in Table 9. The main effect for camp type reveals a higher level of knowledge for the participants in community camps than those in school-based camps, and the significant effect for the time factor reveals an increase in knowledge scores across time. There is not a significant main effect for campers vs. non-campers, but the significant interaction of time by camper/non-camper reveals a greater improvement across time for the camp participants compared to the non-campers.

Table 8. Knowledge scores for participants with complete data					
Time factor	Camp type	Campers Community n=275 School n=345		Non-campers Community n=116 School n=110	
		Mean	St. dev.	Mean	St. dev
Time 1	Community	8.26	1.99	8.22	1.87
	School	7.67	1.85	8.29	1.69
Time 3	Community	9.29	1.35	8.77	1.64
	School	8.97	1.45	8.65	1.66
Time 4	Community	9.47	1.30	9.05	1.58
	School	9.30	1.45	9.08	1.47

Table 9. Repeated measures analysis of variance on knowledge scores			
	F	df	Sig.
Camper/Non-camper	2.651	1	.104
Camp type	3.935	1	.048
Time	124.393	2	.000
Camper/Non-camper * Camp type	3.832	1	.051
Time * Camper/Non-camper	13.644	2	.000
Time * Camp type	.943	2	.390
Time * Camper/Non-camper * Camp type	1.652	2	.192

These results show clear improvement for the campers, but there is also unexpected improvement for the non-campers, which shows up on the three-month follow-up and increases again on the one-year follow-up. Without additional analyses (and replication), it is not clear to what extent this improvement may be a result of repeated testing, maturation, or sensitization to the topic. The larger increase for the campers, however, reveals the potential added value of the camp experience over and above these other possible effects.

Camper and non-camper responses to 14 behavior questions are shown in the Table 10, reporting the percentage of respondents answering the item with the "safest" response, e.g., "never" riding a tractor with another driver, or wearing a helmet "very often."

Table 10. Percent of respondents giving the "safest" response to behavior questions						
	Pre-test		3-month follow-up		11- month follow-up	
	Campers N=2,548	Non-campers N=986	Campers N=927	Non-campers N=542	Campers N=624	Non-campers N=236
Ride tractor with other driver – never	53.3	60.5	57.3	61.8	62.0	61.0
Drive an ATV – never	32.2	47.6	49.9	47.4	41.3	37.7
Ride ATV with other driver – never	37.4	44.5	44.8	44.1	41.3	39.4
Wear helmet on ATV – very often	27.8	31.6	46.3	44.9	46.1	45.7

Table 10. Percent of respondents giving the "safest" response to behavior questions (continued)

	Pre-test		3-month follow-up		11- month follow-up	
	Campers N=2,548	Non-campers N=986	Campers N=927	Non-campers N=542	Campers N=624	Non-campers N=236
Wear helmet on bike – very often	26.7	30.9	38.7	31.5	35.3	28.5
Ride mower with other driver – never	71.1	76.5	83.4	83.0	87.5	89.4
Pick up debris before mowing – very often	53.1	49.0	70.9	64.0	70.3	60.5
Near large animals without fence – never	48.3	61.4	67.3	62.5	56.6	61.0
Wear sunscreen outdoors – very often	20.4	28.5	37.3	33.0	30.8	35.6
Ever around wagons or bins of grain – no	58.8	71.0	76.1	74.4	74.5	76.3
Stand near PTO – never	57.8	69.2	77.3	78.0	77.2	76.3
Family has emergency phone list	70.1	69.3	79.1	81.5	85.1	82.2
Family has first aid kit	65.4	71.7	83.3	78.4	87.3	84.7
Family has fire extinguisher in the house	46.8	49.6	57.8	56.3	61.9	57.2

The pattern for behavior items was similar to that of the knowledge questions. On all behavior items, the sample of campers reported more safe behaviors on the three-month follow-up interview than they did on the pre-test. These improvements tended to be sustained at the time of the one-year follow-up interview. The non-camper sample also reported safer behaviors on the three-month follow-up interview, but some of the differences were not as large as for the campers. This analysis has looked only at the percentage of respondents giving the safest response. We also plan to look at shifts toward safer responses, which would indicate less frequent exposure to risks. For example, a child who shifts from riding an ATV with another driver "a few days a week" to doing it only "a few days a year," has shifted toward less frequent exposure to risk, although not to the safest response which would be "never."

In open-ended responses from the camp participants during the three-month follow-up interview, 54% reported safety-related changes in behavior resulting from what they learned at camp, and half of the parents indicated changes in their child's behavior following camp. The greatest changes reported by the children were related to tractor safety, followed by ATVs, lawn equipment, animals, fire, bicycles, farm equipment, and electrical safety.

Although we have not conducted a thorough analysis yet, it does appear that those who participated in the full study had higher scores on the pre-test than the larger population of participants who took the pre-test. To complete the major analyses to answer our research questions, we must first complete the data collection for the non-campers and then conduct additional and more complex analyses to investigate and control for a variety of extraneous, intervening, or mediating variables.

b. Wider community benefits

In addition to the direct outcomes of a farm safety day camp on its participants' knowledge, behavior, and safety awareness, there are extended and indirect effects that occur through the wider dispersion of information and the involvement and cooperation of community members. Reports completed by 228 coordinators of farms safety day camps, report forms completed by 5,037 volunteers at farm safety day camps, and telephone interviews with 924 parents of farm safety day camp participants were analyzed for evidence of the impact of the camps beyond the immediate knowledge gained by the children who participated. These data indicate that the indirect benefits to a community include enhanced safety awareness in the wider community as children and adult volunteers disseminate the information they learned, as well as enhanced community strength and cohesiveness resulting from the cooperation of many individuals and organizations in achieving a common goal. Approximately two-thirds (66%) of the volunteers said that they had learned some new safety information while volunteering with the camp; and 67% said they planned to make a safety change at their own farm or home. Approximately 23% of the parents interviewed named one or more changes the family had made following the child's participation in the farm safety day camp. In addition, 95% of parents said the camp was effective in making their child safer, and many were able to cite specific ways in which the camp had made the child safer. Over 90% of the volunteers at the camps also rated them as effective in teaching safety to children.

c. Self-reported injuries

On the pre-test, three-month, and one-year follow-up, participants were asked if they had experienced an injury in the past three months that required a visit to a doctor or restricted activity for part of a day or more. Very preliminary analyses of these data have been conducted for the camp participants. Rates of self-reported injuries for camp participants decreased from the pre-test (16.1%) to the three-month follow-up (9.2%) and then rose again somewhat on the one-year follow-up (13.0%). The source of the injuries provides additional interesting data. For the pre-test, approximately 30% of the reported injuries were related to one of the farm-safety camp topics. On the three-month and one-year follow-up surveys, just 20% of the reported injuries were related to one of the camp topics. Areas in which injuries occurred included ATVs, large animals, small animals, bicycles, tractors, electricity, guns, and lawn mowing. The largest reduction was in the area of ATV-related injuries. Additional analyses of these data are needed, as well as analysis of the injury data from the non-campers.

d. Additional analyses to be conducted

In order to fully answer the questions and test the hypotheses related to the outcome and impact evaluation, we must first finish the data collection for the non-campers. Following this, we will conduct a full analysis of knowledge and behavior data. In addition we plan to investigate the correspondence between the child self-reports and the adult reports of child behavior; the connection between what topics are taught and what is learned; the influence of farm residence or exposure on knowledge and behavior change; and additional issues related to the injury data for both campers and non-campers. We also have received permission from many of the participants to call them again for another follow-up interview. As time and resources permit, we will conduct additional long-term follow-ups with this group to track changes in knowledge, behaviors, and injuries.

Discussion

Data from the process evaluation indicate that, for the most part, the PFFSDCs are carried out in the manner in which they are intended and that they reach an appropriate audience. Approximately 40% of the participants in these camps are on farms several times a week or more, and many others visit a farm at least occasionally. Thus, many of the participants are exposed to farm hazards. Furthermore, most camps address a variety of topics, many of which are applicable to non-farm environments, as well. Thus, all camp participants learn information that is relevant to their lives. Although the camps tend to follow the PFFSDC model fairly closely, based on the volunteer reports and observations of the camps, it

is not clear that the instructors always have access to or use the specific curriculum provided by the PFFSDC program. This is an issue that may need to be addressed in the future to make the presentations somewhat more uniform while still giving ample room for variation and innovation. Volunteers, coordinators, camp participants, and parents of camp participants all express a great deal of satisfaction with the camp experience. There is quite a bit of variation across sites in terms of the topics covered, the length of each session, the size of the camper groups, and the overall length of the camp day; but most of these variations are within the guidelines and recommendations of the program. Preliminary results indicate there is not a large impact of these variations on children's learning of the basic safety information, but additional analyses are needed to investigate this issue fully.

Analysis of knowledge and behavioral reports indicates that the camp participants improve their knowledge and change their behaviors in response to their camp experience. These changes tend to be retained when measured a year after the camp experience. In addition to the children's reports of behavior change, half of the parents name some change in the their child's behavior three months following their participation in camp. Preliminary comparisons with non-campers show that there is improvement even for non-campers across time, but the improvement for campers is significantly greater. Although the improvements for camp participants are very promising, much more work needs to be done with the current data and additional data that will be collected for this study, as well as additional studies with strong comparison groups, in order to determine the extent to which improvements can be attributed to the camp experience versus other factors.

In addition to the direct effects on the camp participants, there are the strengths of the camps that translate into indirect effects or impact on the community. As they gain knowledge, the camp participants become agents of change within the wider community. Many of the coordinators' comments referred to the ability of children to disseminate information to the larger community by taking it back to their families. Nearly a quarter of the parents interviewed indicated that the child's camp experience had led to some safety-related changes in their households or on their farms, thus confirming this effect. Some of the lessons taught at the camps are things that children can implement on their own, such as staying away from PTOs; but most require some action and support from the adults in their lives, and thus, the impact of the camp will be tempered by the child's ability to share the information with his or her parents and influence them to change their behavior. For example, wearing a helmet when riding an ATV is something a child can do independently, but only if the helmet is made available by the parent. For families that have the helmets, the camp reinforces the importance of wearing it; for those that do not have helmets, the child must convey the importance, and the adult must then purchase the helmet so the child can change his or her behavior. Similarly, the child might learn and understand the importance of roll-over protection (ROPS) on tractors, but the child cannot directly make a change to the tractor on the family farm. By discussing these and other issues with the family, however, parents may be encouraged to rethink some of the issues and reinforce other safety practices that have lapsed.

Going beyond the families that participate in the day camp, there is an arousal of safety awareness among others in the community. Volunteers' comments regarding what they learned and changes they planned to make in their own lives provide evidence that the people involved in conducting the camp benefit from increased attention to safety issues. Additionally, many of the coordinators' comments referred to the camp providing an opportunity in their community for increased attention to safety concerns. This attention could arise from the preparations and planning of the camp, pre-camp publicity, post-camp news coverage, corporate sponsorship, or informal discussions occurring among community members as a spontaneous outcome of a community event.

Finally, there is the aspect of community building that is a product of the process of planning and conducting a farm safety day camp event. Indications of the community building opportunities are shown in many of the coordinators' comments about how their communities benefited from the camps. They

cite the development of cooperation and cohesiveness among various groups in the community as they work together to achieve a common goal. Concrete evidence of widespread community cooperation comes from data on volunteers and the involvement of community groups. Camps engage the participation of a large number of community members and the involvement of many local businesses and organizations. While relying on community cooperation to plan and conduct the camp, the process contributes indirectly to strengthening these communities as they work together to improve the safety of the children and the community as a whole.

These data provide insight into the potential impact that sponsoring a farm safety day camp can have on a community. From the coordinator reports, volunteer reports, and parent interviews, it is clear that a farm safety day camp touches many people in the community, taps a rather large number of resources, and has benefits that go beyond the immediate education of the camp participants. Among these benefits are the enhanced safety awareness of the volunteers themselves and other members of the community, as well as enhanced community strength and cohesiveness.

The lack of good comparison groups remains one of the weaknesses of evaluation research in the area of farm safety day camps and other community education programs. The difficulties we encountered in identifying, recruiting, and retaining an adequate set of comparison non-campers indicate that another procedure may need to be identified to provide a stronger comparison with the campers. This might involve matching the camper and comparison samples a priori, or selecting the sample of camps based on the probability that a good comparison sample could be obtained. This may be easiest to do with school-based camps. While providing a stronger comparison, this procedure would have the potential problem of being less representative than the sample of camps selected for the current study. Future research efforts will need to focus even more intently on the issue of comparison group data.

Conclusions

These results indicate that camp participants gained important knowledge and information about safe behaviors while participating in the farm safety day camp program. Furthermore, they retained the knowledge and reported changes in their behaviors up to a year after their camp participation. The increases were evident at all age levels. The findings lend support to claims for the effectiveness of farm safety day camps for increasing knowledge and improving safe practices among camp participants. They contribute to the small, but growing body of research on the effectiveness of farm safety day camps, which are a relatively low cost intervention for teaching safety to children. Among the additional benefits the camps bring to a community are enhanced safety awareness of the camp volunteers and other members of the community, as well as enhanced community strength and cohesiveness. The problems encountered with recruiting an adequate comparison group for this evaluation have delayed the completion of the project and limited, to some extent, the clarity with which conclusions can be drawn. Some of the problems introduced by the delays can be handled with statistical controls, and they may not have a big impact in the long run; but the situation has been less than ideal. In future research, more information from good comparison groups will be needed to know with greater certainty how large an impact the camps have.

Publications

Nothing has been published yet using the data from this project.

The following publication reported data collected for evaluating the same farm safety program from 1999 through 2001, prior to this grant. The manuscript was prepared during the timeframe of this project:

McCallum DM, Conaway MB, Drury S, Braune J, & Reynolds SJ: [2005]. Safety-Related Knowledge and Behavior Changes in Participants of Farm Safety Day Camps. Journal of Agricultural Safety and Health 11: 35-50.

Results from data collected under this grant have been reported in the following conference presentations and papers:

Reed D, Claunch D, McCallum D, Conaway M, Burgus S, Slusher D, & Reynolds S. *Survey research lessons learned from children.* Presented at the Fifth International Symposium: Future of Rural Peoples: Rural Economy, Healthy People, Environment, Rural Communities, Saskatoon, Saskatchewan, 2003.

McCallum DM, Reynolds SJ, Conaway MB, Braune J, Kelley SC, & Bennett A. *Evaluating farm safety day camps,* presented at conference: Improving Agricultural Health and Safety Programs Through Evaluation: rigorous and Practical Strategies, Great Lakes Agricultural Safety and Health Center, Columbus, OH, 2004.

McCallum DM, Reynolds SJ, Conaway MB, Kelley SC, & Braune J. *The community impact of farm safety day camps*, presented at 2004 Summer Conference of the National Institute for Farm Safety, Keystone Resort, Colorado, June 20-24, 2004

This manuscript was revised and is under review at the *Journal of Agricultural Safety and Health*: McCallum DM, Reynolds SJ, Kelley SC, Conaway MB, & Braune J. *The community benefits of farm safety day camps.*

McCallum DM, Reynolds SJ, Conaway MB, & Braune J. *One-year retention of increases in knowledge and safe behavior by participants in farm safety day camps*. Presented at the 2005 National Injury Prevention and Control Conference, Denver, CO, 2005.

The following abstracts are under review for conference presentations in 2006:

McCallum DM, Reynolds SJ, Conaway MB. *Effectiveness of farm safety day camps: Influence of camp characteristics.* Abstract under review for presentation at the 2006 National Occupational Research Agenda meeting, NORA Symposium 2006: Research Makes a Difference.

McCallum DM, Conaway MB, & Reynolds SJ. *Self-reported changes following participation in a farm safety day camp.* Abstract under review for presentation at the 2006 Summer Conference of the National Institute for Farm Safety.

Gender and Minority Enrollment – report attached

Inclusion of Children – The Farm Safety Day Camps that are the subject of this evaluation project are designed for children. Therefore, the primary research participants were children. The project specifically targeted children ages 8-13. In addition there were adult participants in the evaluation research. These adults included the parents of the camp participants and non-camper comparisons, camp coordinators, and volunteers at the camps.

Materials available for other investigators – All data collection instruments used in the evaluation are available for other investigators. This includes pre-test and post-test surveys, follow-up interviews, parent interviews, camp coordinator surveys, volunteer surveys, and observational data checklists and forms.