

The benefits of a farm safety program

David L. Bayer

Work-related injuries impose substantial costs on employers as well as employees. This is as true of agriculture as of other industries. Moreover, because crops may perish if accidents delay harvest, and expensive machinery must be handled by experienced workers, farmers cannot afford to lose key people. There is ample proof from other industries that effective safety programs can reduce injuries and save companies money. The DuPont Company, for example, saved \$26 million on workers' compensation, or the equivalent of 3.6 percent of its net profits, because management made safety the first item on its agenda (Jeremy Main, "When Accidents Don't Happen," *Fortune*, September 6, 1982). However, until now, the literature has provided few examples of such success in agriculture.

This article attempts to fill that gap by relating the experience of a California farm (given the fictitious name of "Farm XYZ" here), which has combined five key elements in a successful safety program: (1) management commitment and involvement; (2) a clearly developed safety policy written in the company handbook; (3) an award and incentive system to back it up; (4) a safety committee to implement and monitor the program; and (5) continuous feedback of work-related information between management and labor, from meetings and open lines of communication.

This study was conducted through informal interviews of management and labor, attendance at safety meetings held on the farm, and participant observation of annual farm safety programs.

Farm XYZ has 10 year-round employees and more than 180 seasonal employees. Seasonal employees include heavy-equipment operators who work nine months of the year, irrigators who work six months, pear pruners who work only four months (November to February), and pear pickers who work only three weeks each August. Besides pears, the farm grows a number of other crops, such as wheat, tomatoes, corn, sugar-beets, and safflower.

The outstanding feature of this diversified farming company is the way it deals with its people, in particular, the

innovations of its managers, who have built a positive personnel system rooted in the company safety program.

Results of the program

Accident and cost figures demonstrate the economic success of the safety program at the farm (table 1). In a typical year such as 1977, before the safety program began, 27 accidents occurred totaling \$28,125, with an average cost of \$1,042. By 1982, five years after the program was established, total accidents had dropped to 12, costing only \$8,216, with an average cost of \$685. The safety program reduced the number of accidents by more than one-half, cut the average cost per accident by almost one-half, and lowered total costs by more than one-third. Refunded dividends were 10 times higher in 1982 than in 1977, verifying the farm owner-operators' assertion that "Refunds pay for the safety program."

In 1979, when very little was done or spent on the safety program, accident rates and costs shot up. This is the "cycling effect," whereby the accident rate begins to increase as safety training decreases, even after the rate has been brought down by previous training. Other research has shown that, to eliminate the cycling effect, safety programs must continue after achieving the goal.

Regarding average costs of accidents, the National Safety Council estimates that each accident in industry costs approximately \$9,400. Robert Brazelton, UC Cooperative Extension specialist in farm safety, estimates that farm accidents in California cost an average of \$6,000 each in 1979, a figure obtained by multiplying an average direct cost of \$1,500 by four to account for such indirect costs as lost time by the injured person, co-workers, and supervisors, plus the damage to tools and equipment and delays in the production schedule. In 1982, the average total cost per farm accident was estimated at \$6,800.

Multiplying Farm XYZ's average direct cost of \$621 per accident (representing the five-year safety program) by the factor of four to account for indirect costs results in \$2,484. This is less than 40 percent of the average cost of a farm

accident in California as estimated by Brazelton. If 1979 were left out of the average, then the average for the four years is \$374 direct cost or \$1,496 including indirect costs. This is only 22 percent of the state average cost per farm accident. In short, the safety program not only has reduced the farm's average cost per accident by nearly one-half, but has been even more successful when compared with the state average. Moreover, when accidents happen on Farm XYZ, most appear to be less serious and less costly than in the past.

Award and safety training costs are not necessarily high. During the five years (1978 to 1982) that the safety program was in place, the average yearly combined cost of awards and training was \$1,848, or less than \$2,000. This might have been high during the first year, 1978, when only \$4,180 was refunded as a dividend. But by 1982, the average investment of \$2,000 for awards and training was more than offset by a refund of \$20,000.

People who received the least amount of safety training, such as pruners and pickers, tended not to have any big improvements in their accident rates (table 2). Pickers receive little or no safety training, since they work for about 21 days and are sometimes brought on the farm by a labor contractor; their accidents increased from four to six between 1977 and 1982. Accidents to other employees, such as equipment operators and irrigators, who generally receive more safety training, tended to decrease.

A special effort was made in the training program to concentrate on avoiding back injuries. This seemed to have a big payoff, since back accidents went from seven to one. The owner-operators of Farm XYZ were very pleased with this result, because back injuries generally involved key people and were the most disruptive to production schedules.

Reasons for success

The safety program at Farm XYZ is successful for several reasons. First, the safety policy is clearly stated in the company handbook in Spanish as well as English, stressing that: accidents are

caused by people; all employees must cooperate to prevent accidents; everyone is required to use safety equipment and follow safety rules; all hazards should be reported to the employer; a safety committee will meet quarterly to review the program, and employee participation is requested; safety training will be an integral part of the program; and management is vitally interested in the safety of its employees.

Backing up the policy is the safety incentive program, designed to instill a high level of safety consciousness into each individual through a combination of awards and disciplinary action. The employee safety committee is responsible for implementing and monitoring this program.

At quarterly meetings, the safety committee, composed of employees elected yearly, plus the two top managers, discusses each accident and votes to determine who is responsible. If all safety rules were followed, all safety equipment was used, and the individual did everything possible to prevent the accident, it is nonchargeable and is not counted against his or her safety awards. If these conditions cannot all be met, the accident becomes chargeable against the employee's safety record.

Three types of safety awards reinforce desired behavior. Monthly awards are accumulated in the form of points, both for working safely and for avoiding disciplinary notices. Certificates of these points go into the monthly pay envelope and can be used to select items from a gift catalog. Yearly safety award pins are given to employees who have worked at least six months without any chargeable accidents. Finally, a wristwatch with the employee's name inscribed on the back is given to anyone with no chargeable accidents over a five-year period. The yearly and five-year awards are presented at an annual safety awards dinner.

The whole program generates continuous feedback that extends management control and solidifies employee identification with the enterprise. Rewarding employees in the short run as well as the long run generates participation in the safety program. Existence of the committee ensures that, with the individual involved, each accident is analyzed and suggestions are considered for preventing future accidents.

Sometimes accidents, near-accidents, or unsafe procedures have indicated that the individuals involved may be bothered by other problems or interper-

sonal disturbances, based on the way they are relating to each other. For example, one worker on the farm was spilling oil on the shop floor without cleaning it up. The fact that he was not concerned about anyone slipping on the oil suggested that he had negative feelings about the people with whom he was working. The existence of the safety program and committee makes such behavior less likely to be superficially labeled as a "negative attitude." The program is set up to seek an explanation and work out a solution aimed at creating positive, more cooperative behavior among employees before problems are magnified.

Management involvement is another key factor in success of the program. The two top managers are members of the safety committee and chair the annual company safety meeting. Besides sending their employees to county safety meetings sponsored by UC Cooperative Extension, the Farm Bureau, and other organizations, they attend these meetings themselves. Managers work closely with employees on the same farming tasks and speak Spanish as well as English. Also, the rules apply equally to everyone: managers are judged by the same safety standards as other workers when they are involved in accidents.

Farm safety meetings demonstrate management's serious attitude and commitment to safety. For example, at annual meetings, safety committee members are elected, all accidents that occurred during the year are reviewed, use of safety equipment is reviewed, parts of the company safety handbook are discussed, and awards are presented. Suggestions implemented by the safety committee during the year are discussed, and new suggestions solicited. Employees participate in equipment demonstrations, with emphasis on working correctly and safely, protecting oneself and partner as well as the machinery.

This study of a safety program at a specific farm indicates that such an approach has economic and social benefits that make the effort and investment worthwhile. Employee morale and motivation seem to have increased: employees say they feel proud to work for the company, and workers from other farms have expressed a desire to be employed by Farm XYZ.

David L. Bayer is Farm Advisor in Personnel Management, Cooperative Extension, Sacramento County. This study is part of a research project on the effects of training on employee motivation. Special thanks are given to the cooperating growers, as well as to Howard Rosenberg, Gary Johnston, Robert Brazelton, and Theodore Torngren, UC Cooperative Extension, and to Julien Phillips of McKinsey Corporation for their suggestions.

TABLE 1. Accidents and costs for Farm XYZ

Year	Workers' compensation premiums paid	Refunded dividend	Award costs	Training costs	Total accidents	Total accident costs	Average cost per accident
1977*	\$ 28,652	\$ 2,187	\$ 0	\$ 0	27	\$ 28,125	\$ 1,042
1978	30,436	4,180	500	2,768	11	2,639	240
1979†	37,191	6,778	0	250	20	32,169	1,608
1980	33,800	13,738	500	1,520	11	1,693	154
1981‡	44,017	44,017	700	970	10	4,155	416
1982§	33,500	20,000	700	1,330	12	8,216	685
Average 1978-82	35,789	17,743	480	1,368	12.8	9,774	621

NOTE: "Farm XYZ" is the fictitious name of the farm studied.

*There was no safety training program in 1977.

†Figures for 1979 are high, because they include a \$21,000 claim that should not have been included, since it was a highway accident and the other party was at fault. Also, the safety program was inactive; there were no company meetings, and the safety committee met only once.

‡In 1981, refunded dividends became based on accident performance. Farm XYZ was one of six in the state to get its total premium refunded.

§One pear-picking accident in 1982 accounted for over half the accident costs. Also, premiums were down, since the farm used less labor. The \$20,000 refund is a conservative estimate; the actual refund may be closer to \$25,000.

TABLE 2. Accidents by type of employee, and back injuries

Year	Total employed	Accidents/employee*	Accidents by type of employee†					Back injuries
			Full-time employees	Equipment operators	Irrigators	Pruners	Pickers	
1977‡	201	0.134	6	8	5	4	4	7
1978	201	0.055	3	4	1	2	1	0
1979§	201	0.100	7	2	5	4	2	5
1980	208	0.053	3	2	2	3	1	3
1981	219	0.046	5	2	1	2	0	2
1982	186	0.065	5	1	0	0	6	1

*Number of accidents per employee was obtained by dividing the number of accidents (see table 1) by the number of employees and rounding off to three decimal places.

†For amount of time worked by each type of employee during the year, see text.

‡During 1977, there was no safety program.

§During 1979, the safety program was nearly inactive.