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Poster: 0001

A Theory-Driven, Evidence-Based Intervention: Seven Years, Four Thousand Businesses, Three Safer Ways To Work

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Broad Importance of the Research Problem: In most industries, many managers continue to rely on "older" production practices despite the ready availability of practices that can be more effective, less costly, and less hazardous to the health of the workforce but that, for various reasons, are not yet widely used. Often, what appears to stand in the way is a lack of awareness on the part of firm managers about the existence, value, and ease of use of the improved practices, at least in part attributable to the absence of convincing, comprehensive, and well-targeted interventions to optimize information flow. Our research results provide evidence that better information flow can be associated with increased adoption of safer production practices.

Purpose: Dairy work is especially hazardous compared to agricultural work overall. Previous research shows that agricultural managers resist adopting safer practices because they face few penalties for unsafe work and because many safer practices reduce profits compared to traditional practices. Consistent with production theory in economics, agricultural managers are known to adopt more profitable practices quickly.

Methods: Our intervention promoted three practices that were more profitable than traditional practices and reduced safety hazards:

- Barn lights improve both milk production and workplace visibility and reduce risks of falls and animal contact injuries versus poorly lighted barns.
- Bag silos require less work to store and access feed and reduce fall, asphyxiation, and machinery injury hazards versus traditional tower silos.
- Calf feeding systems reduce feeding time and musculoskeletal injury hazards versus traditional feed carrying and lifting to calf hutches.

We used diffusion of innovation theory to increase information flow about the three practices in the sources dairy managers were known to rely on (i.e. other farmers, trade publications, farm shows and field days, etc.). We conducted and evaluated the intervention throughout Northeast Wisconsin (4,300

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operations in 1998) and used mail questionnaires to annually evaluate independent, rolling, probability samples (n=300-600) including a baseline sample before the intervention. After the second intervention year, we also evaluated comparison samples of Maryland (later New York) dairies likely exposed to only the trade publications and Internet aspects of our intervention.

Findings: Univariate analysis suggested that our intervention's information reached managers because they reported seeing, reading, or hearing about both barn lights and bag silos more often in print media, at public events and from equipment dealers after the seven year long intervention than before. Logistic regression analyses (that controlled for farm manager age, experience, education, operation size, debt load) indicated that dairy farm managers were significantly more likely, after the intervention, to be aware of the barn lights and the calf feeding practices and more likely to have adopted all three practices.

How the Findings Advance the Field: This work exemplified good intervention evaluation practice bypromoting engineering controls, intervening with a large population of thousands of operations, minimizing information access costs via existing farmer information channels, and evaluating the intervention at baseline and after each year over a multi-year time frame.

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