ECONOMICALLY MOTIVATED ADULTERATION OF FOOD: CHALLENGES

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Economically-motivated adulteration (EMA) is the adulteration of food for financial advantage. Adulterants are often used to dilute the product or substitute for a more expensive ingredient and are typically benign. However, as in the example of melamine contamination of infant formula, the adulteration may result in unintentional public health consequences. Furthermore, EMA events reveal vulnerabilities in our food system that could be exploited for intentional harm. The objective of this study was to document and characterize historical EMA events, including the quality assurance (QA) methods that were evaded, and to identify patterns in EMA behavior. We reviewed journal articles and media reports of EMA events since 1980 and compiled them into a database. Our literature review identified 94 unique events of EMA in 13 food product categories. The food products with the most identified events of EMA included dairy products, fats and oils, meat products, and sweeteners. Adulterants identified included protein substitutes, alternate fat sources, artificial colors, alternate sugar sources, banned antibiotics, and transshipped products. Recognizing the QA methods in place at the time, the perpetrators evaded QA and regulatory detection in various ways. Understanding prior events of EMA can help us identify QA systems at risk for EMA to focus prevention efforts. In addition, current activities surrounding assessment of QA methods can help prioritize vulnerabilities in the food production system.