

Aflatoxin: An Old Problem that Requires New Solutions Today and Tomorrow

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Aflatoxin contamination has been a constant struggle and focus of the peanut research community for the last 60 years. Since the discovery of aflatoxins, progress has been made in the mitigation of their contamination of peanut in several vital areas including processing, shelling, moisture control, harvest practice, variety development, and biotechnology. However, as the 2019-2020 season clearly demonstrated, this old problem is still very relevant to the industry today. New solutions are needed to address vital components of the aflatoxin issue to mitigate contamination and losses in the future. While many avenues are being explored by the research community for developing control measures in the future, this recent outbreak highlights the immediate need for solutions today and in the short term. Progress, however, must be rooted in the lessons of the past which are at risk of being overlooked as the research community looks to the future. Here, a review of past and more recent advances in our understanding of aflatoxin contamination will be covered to shed light on novel research directions including host plant resistance, genetics and plant breeding, biotechnology and genetic engineering, biological controls, aflatoxin sampling and detection methodologies, and optimized cultivation and processing practices. The goals of these endeavors must be two-fold, to bring practical, immediate relief to stakeholders today, and to develop new solutions for the future. Moving forward in a coordinated fashion, all of these approaches will be vital to the creation of an integrated management strategy to combat aflatoxin contamination.