The Aflatoxin-Affair: 
The Invisible Victims of Crime in the Food-Sector¹

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The aflatoxin affair is an example which can be assumed as a typical offence committed in the food sector in a globalized world. In 2013 mouldy Serbian feed was distributed by an international logistics company to Germany. The exceptional danger of aflatoxin infested feed is the carry over effect, which means that harmful substances devolve into animal products like milk. Generally speaking victims are identifiable persons who have been physically injured or suffer from financial losses or psychological damage. In contrast to e.g. victims of violence we know almost nothing about the effects of victimization as a result of offences committed in the food sector. The aim of this article is to show and discuss the possible effects of the aflatoxin scandal on consumers who have been victimized. As a result it suggests that victimization effects of offences related to food in general are ignored hitherto both by policy and criminologists.

Keywords: aflatoxin, contaminated milk, food safety, infested food and feed, white-collar crime


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Food fraud and food scandals

Food safety scandals are not a new phenomenon, neither in Europe, nor in the rest of the world. One early and prominent example was the accidental arsenic poisoning of more than 200 people in Bradford (England) in 1858, who consumed contaminated sweets (Jones, 2000), followed by a long list of scandals in the last century up to today (Lüdemann, Ohlemacher, 2002; Linzmaier, 2007; Orlamünder, 2008; The Economist, 2014). In 2013 for example there were three important topics regarding crime in the food sector: the so called “horse meat scandal” which affected almost the whole of Europe, fraud with conventionally produced eggs which were declared as organic in Germany and the aflatoxin infestation of milk and dairy products in several European countries.

Aflatoxins: feed, milk and dairy products

Aflatoxins are known to be the most carcinogenic moulds in nature. According to this, estimation the European Food Safety Authority states: “In consideration of the carcinogenic properties of aflatoxin B₁, human exposure should be reduced to levels as reasonable achievable” (EFSA, 2004). They are “secondary metabolites produced by species of Aspergillus […]”, which are found worldwide in air and soil and are found to infest both living and dead plants and animals. The discovery of aflatoxins dates back to the year 1960 following the severe outbreak of the turkey ‘X’ disease, in the UK, which resulted in the death of more than 100000 turkeys and other farm animals” (Rustom, 1997: 57). This disease was caused by feed containing Brazilian peanuts heavily infested with Apergillus flavus. One peculiarity of aflatoxin is that not only “[h]uman exposure to aflatoxins can result directly from ingestion of contaminated foods, […] [but] indirectly from consumption of foods from animals previously exposed to aflatoxins in feeds” (Rustom, 1997: 57; my emphasis).

This indirect way of contact, the carry over effect, comprises a special danger for the consumer’s health. Exposure to aflatoxins can cause acute hepatic necrosis, cirrhosis or carcinoma of the liver. Especially babies’ and small children’s health may be threatened by milk and milk products containing aflatoxins. Therefore commercial crops are routinely screened for contamination.

The acronym aflatoxin has been formed from the following combination: ‘A’ for Aspergillus, ‘FLA’ for the species flavus and the noun ‘TOXIN’ for poison (Rustom, 1997: 57).
In the EU the following regulation is laid down: The Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs:

“As regards aflatoxins, the SCF expressed in its opinion of 23 September 1994 that aflatoxins are genotoxic carcinogens (3). Based on that opinion, it is appropriate to limit the total aflatoxin content of food (sum of aflatoxins B1, B2, G1 and G2) as well as the aflatoxin B1 content alone, aflatoxin B1 being by far the most toxic compound. For aflatoxin M1 in foods for infants and young children, a possible reduction of the current maximum level should be considered in the light of developments in analytical procedures” (European Commission, 2006).

This regulation is operative in all countries of the EU and therefore contaminated food and feed has to be destroyed. After the formal application for membership the leaders of the EU member states decided and confirmed to grant the Republic of Serbia the status of an official candidate country to the EU on 1\textsuperscript{st} of March 2012. As a candidate country, Serbia is committed to acting according to EU law.

Milk can be contaminated with hydroxy-metabolite aflatoxin M\textsubscript{1}, caused by exposure of lactating animals to aflatoxin B\textsubscript{1}, present in foodstuff. Due to a lower carcinogenic potential, the maximum levels for aflatoxin M\textsubscript{1} have been set for consumable milk at 0.005 mg/kg and 0.0025 mg/kg for infant formulae (EFSA, 2004: 1).

The aflatoxin scandal

In February and March 2013, the Balkans, especially Serbia, reported problems with milk and milk products which were contaminated with aflatoxins. Presumably caused by special weather conditions during the harvest in 2012, the maize in the Republic of Serbia was infested with aflatoxins. Nonetheless the infested milk was put into circulation and the ministry tried to solve the problem by raising the maximum level from 0.005 mg/kg to 0.05 mg/kg.

Serbia itself has problems with testing agricultural products according to EU standards, because they do not have enough suitable laboratories which are able to carry out the analyses demanded. 25 tests sent to a German laboratory could not be analyzed exactly: all results were higher than 0.008 mg/kg, the maximum value for analyses (Roser, 2013).
In March 2013 the Netherlands and Germany reported problems with infested feedstuffs and milk. Eight companies in Germany processed 10000 tons of contaminated maize from Serbia, a total of 45000 tons having been imported. This corn was transported from Alfred C. Toepfer International (‘product full-liner’), one of the largest commercial companies offering a comprehensive range of agricultural commodities in world trade\(^3\). The German producer of concentrated feedstuff accused Toepfer International of inadequate controls. Because the aflatoxin is located in “nests” the measured values can vary extremely within a corn batch. The maize was transported via the Danube into the Black Sea and from there to Lower Saxony in Germany (SPIEGEL-ONLINE, 2013).

In autumn of 2012 European countries had already been informed about problematic values of aflatoxin by the Rapid Alert System for Food and Feed (RASFF). It can be safely assumed that the problem was known in the whole agricultural sector including transportation companies. According to its own specifications the importer Alfred C. Toepfer International operates closely with the authorities. This raises the unanswered questions of why the goods had not been inspected in Serbia and who the supplier was (SPIEGEL-ONLINE, 2013).

The Federal Office of Consumer Protection and Food Safety in Germany states:

> “Accurate bookkeeping is a key element to traceability in the case of problems with a particular product. The competent authorities of the Bundesländer collect official samples within the scope of their control activities if there is a risk or indication of a hazard emanating from feed. Controls are carried out at all stages of the animal feed chain. Included in the process are, for instance, […] freightage and border entry points. […] Specific feed, feed additives and premixes that are produced in third countries can be imported into the Community through specific border posts” (BVL, 2013).

In sum, it could be said that from early on all persons, institutions and companies involved in Serbia as well as in Germany knew about the problematic contamination of maize. This leads to two main questions: How was it possible to bring the infested feed into circulation? Why did the persons involved act in the way they did despite knowing about the dangerous levels of aflatoxins?

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Motives

In the author’s view it can almost certainly be assumed that the aflatoxin affair was no chain of unfortunate circumstances but the result of calculating individuals. It therefore is a typical example of white-collar crime in the food sector. “Taken as a whole, the literature on the etiology and development of white-collar crime is a hodgepodge of studies looking at different crimes from different levels of analysis” (Coleman, 1987: 408).

This food and feed scandal should be explained by Coleman’s theoretical assumptions about white-collar crime based on individual behaviour in combination with Sykes’ and Matza’s techniques of neutralization (Sykes, Matza, 1957) taking into account the legal framework.

Coleman remarks that “All types of white-collar crimes are rational calculating crimes, not crimes of passion. The goal of the vast majority of white-collar criminals is economic gain or occupational success that may lead to economic gain” (Coleman, 1987: 408). He extracts at least four factors which determine the opportunity’s attractiveness: first the individual perception of how great the expected gain is, second the perception of potential risks, such as detection and severity of sanctions, third the compatibility with the individual ideas, rationalizations and beliefs and fourth a comparison of the illicit opportunity with the legal ones (Coleman, 1987: 424).

These assumptions can be summarized in the following figure:
The decision of whether an opportunity is attractive or unattractive depends on the individual standpoint of a particular actor or group of actors (Coleman, 1987: 424).

1) Referring to the aflatoxin affair we can assume that after the harvest in 2012 Serbia had scarcely enough uncontaminated feed for their own cattle let alone for export. One large part withered as a result of drought and other parts became mouldy (Roser, 2013). In other words: Serbian producers had had nearly no legal chance to earn money with their own crops and so the illegal opportunity became attractive. Coleman further states: “A decrease in the availability or attractiveness of legitimate opportunities will normally increase the attractiveness of illegal opportunities” (Coleman, 1987: 424).

So, the Serbian farmers, who are usually small producers, were under great economic pressure: are they offenders or are they victims of the climatic changes and outdated agricultural structures and farming methods? Moreo-
ver we don’t know whether the Serbian producers were aware of the aflatoxin related risks.

2) Perception of potential risks and sanctions: In the food and feed sector in general it is difficult or even impossible to prove intended criminal acts. Products can be contaminated inadvertently with producers not knowing the real origin or ingredients and so on. Another problem is that especially fresh products are consumed soon after the making or are perishable and not collectable for a longer period of time like other goods. Furthermore almost none of the contaminations can be seen or smelt and the origin of products is not visible; grain looks like grain and cannot be identified without using special analytical methods. Everyone involved in the value chain has to trust the accompanying shipping documents. If someone has doubts, this may cause difficulties for him or her or at least it would require more time. Taking this into account it is obvious that after weighing up the consequences most individuals will do nothing.

To estimate the incidence of white-collar crime is nearly impossible, to estimate crime in the food sector is nearly utopian. But there are plausible assumptions that “there are a very large number of prosecutions for street crimes, far fewer for occupational crimes, and only a handful for organizational crime” (Coleman, 1987: 426).

In the Republic of Serbia the probability of being detected and sanctioned is nearly zero, because Serbia itself has no modern laboratories of its own and cannot test food and feed according to EU standards. The areas of competence are not clear and official information about contaminated food and feed is contradictory. While the consumers are uncertain and mistrust the authorities, the offenders can be certain: they will not be accused.

3) Comparison of the opportunity with the individual ideas, rationalizations and beliefs in the aflatoxin affair: There are a lot of typical aspects referring to the phenomenon of neutralization belonging to illegal acts in the food sector: a globalized world is characterized by anonymity. Usually there is no direct connection between the producer and the consumer of food, and of course, no contact between offender and victim. This is important in order to understand the role of internalized norms. Norms are regulating human behaviour and empirical research shows that the effect of internalized norms preventing crime is higher than the effect of sanctions (Kerschke-Risch, 2004). Sykes and Matza (1957) discuss five strategies to neutralize feelings of guilt about criminal acts. It will be shown that these techniques cannot only
explain juvenile delinquency or the behaviour of white-collar criminals but especially offences in the food sector. The central ideas of neutralization are adopted to describe and explain the aflatoxin affair:

a) **Denial of responsibility**: Different producers, employees, countries and authorities were involved in different parts of the value chain. If there are no clear structures and responsibilities most individuals will deny their own responsibility.

b) **Denial of injury**: Involved persons assume that their acts do not cause any harm: “For the delinquent, however, wrongfulness may turn on the question of whether or not anyone has clearly been hurt by his deviance, and his matter is open to a variety of interpretations” (Sykes, Matza, 1957: 667). The Serbian minister and authorities denied that the infested milk had caused any danger, the maximum level of aflatoxin allowed was raised and a leading politician demonstrated food safety by drinking Serbian milk (SPIEGEL-ONLINE, 2013). As a consequence of these official statements none of the offenders would have had any problem in denying his or her intention to injure others. On the other hand there is no awareness of the victim’s feelings and possible fears about their health and uncontaminated food.

c) **Denial of the victim**: “…the victim is transformed in a wrong-doer […] Insofar as the victim is physically absent, unknown, or a vague abstraction […] the awareness of the victim’s existence is weakened” (Sykes, Matza, 1957: 668). In this case unknown foreigners are the customers. In addition it can be assumed that there are a lot of people who do not understand the connection between infested maize and the carry over effect. This is a ‘vague abstraction’ relating to the consumers as well as to the offence, the contaminated feed and milk.

d) **Condemnation of the condemners**: One could assume that the people in question tried to blame the EU for all the regulations and laws, especially the reference levels for food and feedstuff. Moreover there was a rumour that the EU wanted to weaken Serbian agriculture.

e) **Appeal to higher loyalties**: “Social controls may be neutralized by sacrificing the demands of the smaller social groups to which the delinquent belongs” (Sykes, Matza, 1957: 669). The offenders might rather identify themselves with their own social group, such as their fairly poor home country and its particular norms and demands rather than with those of the EU or a foreign country like Germany.
4) Comparison of the illicit opportunity with the legal ones: It can be assumed that the illicit opportunity (selling and trading the infested maize) is advantageous for all persons involved. The contaminated feed can be sold instead of being destroyed, which means financial gain instead of loss. Coleman states in this context: “Another common rationalization holds that certain types of criminal behaviors are necessary to achieve vital economic goals or just to survive” (Coleman, 1987: 412). The risk of being detected is low as well as the risk of severe sanctions. As shown above, no one has to have a bad conscience because moral scruples can be neutralized in an easy and comprehensive manner.

Discussion

It could be shown that Coleman’s assumptions in combination with the techniques of neutralization can explain the behaviour of the people involved in the aflatoxin affair. The producers barely had any other chance than to sell the contaminated maize; otherwise they would have faced immense financial losses. The logistic company wanted to transport goods as usual and therefore obtain money as usual which is obviously the inherent motive for trading and commerce. Rapid transport and reliability are important to defend one’s own position in the international market. Toepfer advertises:

“For us, it is of prime importance that all commitments are met promptly and accurately. Due to our large and growing trading volume and the logistical opportunities we have available as a result, we are in a position to offer complex logistical services in conjunction with other carriers, including waterway navigation”\(^4\).

This shows the reciprocal dependency of the involved partners. On the other hand it is possible “that some persons become involved in organizational crimes because of their identification with the interests of their employer and not of their desires for personal success” (Coleman, 1987: 417). The adoption of Sykes’ and Matza’s techniques of neutralization to explain offences in the food sector corresponds to Coleman’s judgement: “When convicted white-collar offenders are asked to explain their behavior, they frequently

\(^4\) www.toepfer.com, accessed 16.4.2013
claim that their actions did not harm anyone, and they have therefore done nothing wrong” (Coleman, 1987: 411). In other words: in the offender’s opinion there are no victims.

According to the individualistic theory of behaviour, and the assumptions made in the wide version of rational choice theory, norm compliance can be explained by costs and benefits (Opp, 2013). In special cases referring to deviant behaviour in the food sector the risk of being detected is small, the risk of prosecution is almost zero and there is nearly no risk of being sentenced. Offences cannot be prevented if there is no risk of detection and simultaneously there are no internalized norms. On the other side, Serbian farmers have severe existential problems. These facts lead to the conclusion that there might not have been any other options than to trade the infested maize.

As a consequence consumers lose confidence in official statements, the authorities and the government. They are the victims, who are, if not physically, at least emotionally harmed. Especially parents of small children or babies are under a great deal of psychological pressure. There is a great need for further fundamental criminological research not only about white-collar crime in general but on crime related to the food sector. The victims of white-collar offences have been partly forgotten, the victims of food related crime still do not exist.

Recommendation for the future: what to do?

Due to global warming, it can be assumed that problems with infested feed will occur more frequently with negative consequences as discussed. The best solution to this particular problem is to prevent infestation:

“The frequent incidence of these toxins in agricultural commodities has a potential negative impact on the economies of the affected regions, especially in the developing countries where harvest and post-harvest techniques adequate for the prevention of mould growth are seldom practiced” (Rustom, 1997: 57).

The EU is challenged not only to solve these problems by supporting and supervising the candidate member Republic of Serbia, but also to protect all consumers concerning food related victimization in the whole of Europe.
“Enhancing food safety is important to improved health and nutrition in all countries. […] One strategy […] is to instruct food producers and handlers on ways to reduce aflatoxin contamination ‘at source’ and so encourage the adoption of process-based approaches. Some examples are good agricultural practices (GAPs) before harvest, good manufacturing practices (GMPs) after harvest, and the use of HACCP. Risk mitigation is thus achieved throughout the production, handling, and processing chain with limited impacts on the final output. […] To minimize the risk of aflatoxin contamination and reduce the likelihood that tolerance levels will be exceeded, the private and public sectors need to consider investing in basic infrastructure related to the implementation of process-based standards such as GAPs, GMPs, and HACCP” (Cheng, 2007).

In summer 2013, after the infested maize had been seized, the logistics company Toepfer exported the feed to the US – legally, because in the US they have different limits for different animal species. The benchmark for cattle is 15 times higher than in the EU. Since July 2014 Toepfer is owned by Archer Daniels Midland and renamed into ADM Germany Ltd.

This can be seen as a typical example of international companies being largely unaccountable for their actions, and which are faceless and thus are irresponsible organizations.

To summarize the problems discussed, it can be concluded: while the European framework is sufficient, the feasibility to control is insufficient. In addition it is of the utmost urgency to perceive the enormous risks and extent of food related crime in general. And this is synonymous with being aware of the impact on the hitherto unknown victims, their still unknown individual perceptions and reactions. That is why we cannot only agree with Tombs and Whyte (2005: 24) who state, that there is a lack of academic attention paid to corporate crime but we can add that there is nearly a total lack of – not only academic attention – to crime in the food sector and their victims. One can avoid a lot of risks by being careful and attentive, but no one can avoid eating. Therefore everyone is a potential victim.

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Afera aflatoksin: nevidljive žrtve kriminaliteta u prehrambenom sektoru

Aflatoksin afera je primer koji se može posmatrati kao tipično krivično delo u prehrambenom sektoru u globalizovanom svetu. U 2013. godini buđava stočna hrana je iz Srbije, preko međunarodne logističke kompanije, distribuirana u Nemačku. Izuzetna opasnost od hrane zaražene aflatoksinom je prenošenje, što znači da štetne materije završavaju u proizvodima životinjskog porekla, poput mleka. Uopšteno govoreći, žrtve su osobe koje je moguće identifikovati i koje su fizički povređene, pate od finansijskih gubitaka ili psiholoških posledica. Za razliku od, na primer, žrtva nasilja, gotovo ništa se ne zna o posledicama viktimizacije koja je rezultat krivičnih dela učinjenih u prehrambenom sektoru. Cilj ovog rada je da pokaže i analizira moguće posljedice aflatoksin skandala po potrošače koji su viktimirani. Kao rezultat analize, ukazano je na to da su posledice viktimizacije krivičnim delima u prehrambenom sektoru uopšteno do sada ignorisane od strane kreatora politika i kriminologa.

Ključne reči: aflatoksin, kontaminirano mleko, bezbednost hrane, zaražena hrana za ljude i stočna hrana, kriminalitet belog okovratnika.