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## Aflatoxin in feed for dairy cows as risk for milk safety in Serbia

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Aflatoxins are naturally occurring mycotoxins that are produced by many species of *Aspergillus*, most notably *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxins often occur in crops in the field prior to harvest. Postharvest contamination can occur if crop drying is delayed and during storage of the crop if water is allowed to exceed critical values for the mold growth. Insect or rodent infestations facilitate mold invasion of some stored commodities.

The occurrence of aflatoxins is influenced by certain environmental factors; hence the extent of contamination will vary with geographic location, agricultural and agronomic practices, and the susceptibility of commodities to fungal invasion during pre-harvest, storage, and/or processing periods. Aflatoxin production is the consequence of combination of species, substrate and environment. Optimal temperature is 25°C to 35°C, but they cannot be produced below 12°C and over 42°C. Aflatoxin production is particularly favored by very moist conditions, minimum relative humidity varies between 83 and 88%.

Climatic conditions and agricultural practices in Serbia do not stimulate aflatoxin production as in the case of some Asian countries. There is no evidence of acute aflatoxicosis in humans in Serbia. For our country more important are the effects of long-term exposure to low levels of mycotoxins on humans. The toxin can be found in the milk of dairy cows which are fed with contaminated feed. After entering the body, aflatoxins may be metabolized by the liver to a reactive epoxide intermediate or be hydroxylated and become the aflatoxin M<sub>1</sub>. We present the results of examination of aflatoxin presence in feed produced in Serbia and raw milk samples also produced in Serbian farms. The 339 samples of feed ingredients (corn, barley, soya bean meal, sunflower meal, maize silage) and 246 samples of complete feed meal for cows were analyzed with TLC and ELISA methods. Aflatoxin B<sub>1</sub> was detected in 19.67% samples in average concentration of 36 µg/kg. The 50 samples of raw cow milk was examined also with TLC and ELISA methods and aflatoxin M<sub>1</sub> was detected in 4% samples in average concentration 0.01 µg/kg. Detected concentrations are lower than MRL (0.05 µg/kg), but the ability of aflatoxins to cause cancer and related diseases in humans given their seemingly unavoidable occurrence in foods and feeds make the prevention and detoxification of these mycotoxins an important safety issue.

**Keywords:** aflatoxin, feed, milk, Serbia