



## Hazards Associated with Feed Production

*NOTE: SAFE guidance materials are provided for educational purposes only and do not guarantee adequacy of procedures or compliance with regulations.*

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A “hazard” in this context is any biological, chemical, or physical agent that has the potential to cause illness or injury in humans or animals (Code of Federal Regulations Title 21, Section 507.3). This guidance provides a list of hazards that may be associated with livestock feed; however, this is not an all-inclusive list.

Some of these hazards (**highlighted in red**) can affect humans that consume the animal derived products (meat, milk, eggs). The animal acts as a filter for human consumption, therefore not all the hazards associated with the animal are also considered a hazard for humans.

### **Biological:**

- Viral, prion and bacterial infectious diseases
  - **Bovine Spongiform Encephalitis, Prohibited Mammalian Proteins**
  - ***Salmonella spp.***
  - ***E.coli O157:H7***
  - ***Listeria monocytogenes***
  - **Avian Influenza/Newcastle Disease**
  - *Campylobacter spp.*
  - *Clostridium Botulinum*
  - *Clostridium Perfringens*
  - *Staphylococcus Auerus*
- Parasitic Agents

### **Chemical:**

- Natural Toxins/Mycotoxins
  - **Aflatoxin**
  - Fumonisin
  - Ochratoxin
  - Toxic Weeds (alkaloids)
  - Free Gossypol
  - Glucosinolates
  - Nitrates
- Medication/ Drug Residues
  - **Animal drug residues (antibiotics)**
  - Carryover of ionophores into horse feed



## Hazards Associated with Feed Production

- Heavy Metals (Lead, Arsenic, Cadmium, Mercury)
- Nutrient Deficiency or Toxicity
  - Minerals
    - Selenium
    - Copper (sheep)
    - Sodium (poultry, close-up dairy)
    - Calcium
  - Vitamins
    - Vitamin D
  - Non-protein Nitrogen
- Pesticide Residues
- Dioxins
- Industrial Chemicals, Cleaning Agents, Non food-grade Lubricants
- Unapproved Food Additives, Ingredients
  - Intentionally introduced
  - Novel (risk and safety is unknown)

### Physical:

- Any foreign object/clips/twist-ties
- Glass
- Metal, nuts, bolts
- Stones
- Wood
- Plastics

**NOTE:** Receiving ingredients from an approved supplier will limit the hazards that will be of a significant risk to the receiving facility. Because approved suppliers must operate under conditions limiting the opportunities for material to become adulterated, there are several hazards that will be deemed “no significant risk,” because the ingredients or material comes from an approved supplier.

More information regarding these hazards can be found in FDA [Guidance for Industry # 245; Hazard Analysis and Risk-Based Preventive Controls for Food for Animals.](#)