Principle 2:
Critical Control Points

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Feed Industry HACCP

HACCP Principles

1. Conduct a Hazard Analysis (HA)
2. **Identify Critical Control Points (CCPs)**
3. Establish Critical Limits (CLs)
4. Establish CCP Monitoring Requirements
5. Establish Corrective Actions (CA)
6. Establish Verification Procedures
7. Establish Record-Keeping Procedures

HACCP Principle 2 – Identify Critical Control Points

- NACMF definition of CCP:
  - A step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level
- FSMA definition of CCP:
  - A point, step, or procedure in a food process at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce such hazard to an acceptable level

Control Point Definition

- Any step at which biological, physical, or chemical factors can be controlled
- Controls, other than those at CCPs, that are also appropriate for the animal food safety

FSMA 507.34(a)(2)(ii)

Control Point vs. Critical Control Point

- Control points are generally related to product quality or regulatory compliance
- CCPs specifically target food safety and are established only at points where hazards exist that are not controlled at some point in the process

HACCP Principle 2 – Identify Critical Control Points

- The HACCP team evaluates the potential hazards that are reasonably likely to cause illness or injury in the absence of their control (identified through Principle 1) to determine if they are CCPs.

HACCP Principle 2 – Identify Critical Control Points

- Potential hazards that are reasonably likely to cause illness or injury **must** be addressed in determining CCPs
- Use information developed for Principle 1: Conduct a Hazard Analysis

HACCP Principle 2 – Identify Critical Control Points

- Recognize that there is a range in the ability to control a hazard:
  - Partial control, absolute control
  - Sequencing to reduce cross-contamination will reduce a chemical hazard posed by medicated feed additives
  - Steam conditioning and pelleting have the ability to eliminate some biological hazards

Examples of Process Step CCPs

Process steps as CCPs

- Receiving
- Weighing of medications
- Batching ingredients
- Mixing
- Pelleting
- Labeling
- Delivery

Process controls contained in FSMA §507.34

- Includes procedures, practices and processes to ensure the control of parameters during operations
  - Heat processing
  - Irradiating
  - Refrigerating
  - Other preventive controls

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Sanitation as a Preventive Control

Sanitation Controls

Include procedures, practices, and processes to ensure that the facility is maintained in a sanitary condition adequate to significantly minimize or prevent hazards such as environmental pathogens and biological hazards due to employee handling

FSMA Rules

- Cleanliness of animal food-contact surfaces including utensils and equipment
- Prevention of cross-contamination
- Looks very much like SSOPs

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Preventive Control – Not Required

§507.36

a) Not required to implement preventive controls
   1) Feed could not be consumed without appropriate controls
   2) Rely on your customer who is subject to requirements to implement preventive controls
   3) Rely on your customer to provide assurances of control later in the distribution chain
   4) Establish, document and implement a system that ensures control at subsequent distribution step

b) Documentation requirements for paragraph (a)

c) Written assurance by customer involving paragraph (a)

d) Written assurance required in paragraph (a)(4)

§507.36

A facility that provides the written assurance must act consistently with the assurance and document its actions

Identifying CCPs

- The number of CCPs in a HACCP/Food Safety Plan will depend upon the production process and the hazards
- Goal is to identify all CCPs needed to assure product safety
- Debate over:
  - Which steps in a process are CCPs
  - How and how well CCPS can be controlled
  - Level of confidence that hazards can be prevented when CCPS are under control

Identifying CCPs

- Use the list of hazards generated from hazard analysis
- Employ CCP decision tree as a tool
- Use model HACCP plans only as a guide
- For each CCP, method of control must be identified
- Different facilities preparing the same product can differ in hazards and the points, steps or procedures which are CCPs

CCP Decision Tree Form

Processing category – Cattle medicated feed

Process step	Hazard	Q1A: Do preventive measures exist for the identified hazard? If no, go to Q1B. If yes, go to Q2.	Q1B: Is control at this step necessary? If no, not a CCP. If yes, modify process and return to Q1A.	Q2: Does this step reduce occurrence of hazard to an acceptable level? If no, go to Q3. If yes, it is a CCP.	Q3: Could contamination by hazard exceed an acceptable level of increase to unacceptable level? If no, not a CCP. If yes, go to Q4.	Q4: Will subsequent step reduce or eliminate hazard to an acceptable level? If no, it is a CCP. If yes, not a CCP.	CCP
Bulk receiving	Prohibited animal protein	Yes		Yes			1 B
Bulk receiving	Aflatoxin	Yes		Yes			1 C
Bulk Receiving	Sulfur	Yes		Yes			2 C

Ingredient or Processing step	Potential hazards introduced, increased or controlled at this step	Do any potential feed hazards require a CCP? Severity: Likelihood		Justification for significance		Control measures to prevent, eliminate or reduce animal and human hazard	Is this a CCP?
		Animal	Human	Animal	Human		
Bulk receiving	Biological Prohibited animal protein	Yes	Yes	Cross contamination by prohibited animal protein (21 CFR:589:2000-1) is a potential source of bovine spongiform encephalopathy (BSE)	BSE in cattle can cause the human disease variant Creutzfeldt Jakob disease (vCJD)	Prohibited animal protein policy, approved supplier, carrier inspection	**CCP 1B**
	E. coli O157:H7	No	No	Low likelihood in animal feed ingredients	Low likelihood in human food		
	Salmonella	No	No	Low likelihood in ingredients for S. Newport and Dublin	Low likelihood of it causing a human food problem		
	Chemical Wrong ingredient or grade	No	No	Low likelihood resulting from approved supplier program	Low likelihood of transfer to human food		
	Aflatoxin	Yes	Yes	Toxic to finishing cattle at concentrations above 300 ppb	Transfer to human food when feed to lactating dairy cattle	Sampling and testing incoming ingredients prone to aflatoxin	**CCP 1C**
	Sulfur	Yes	No	At high levels causes polioencephalomalacia	Low likelihood of transfer to human food	Approved supplier	**CCP 2C**
	Physical Metal Plastic Stones Glass	No No No No	No No No No	Low likelihood of physical hazards damaging cattle due to Equipment (screens, de-stoning device, metal detectors, and magnets) in place to eliminate hazard	Low likelihood of transfer to food		

CCPs

- Potential hazards that are reasonably likely to cause illness or injury **must** be addressed in determining CCPs
- If a hazard is identified which cannot be controlled, then the process may need to be redesigned or the product reformulated

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How are CCPs designated?

- Sequentially numbered
  - CCP 1, CCP 2, CCP 3 …
  - CCP 1b, CCP 2c, CCP 3b …
- Sequentially within hazard category
  - CCP 1b, CCP 1c, CCP 2b …
- By process step name
  - Mixing CCP, Flushing CCP

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