



# **Generic HACCP Plan for Millers of Grains, Oilseeds & Pulses**

Copy No. Uncontrolled

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Canadian Grain Commission  
Process Verification and Accreditation Office  
Industry Services  
800-303 Main Street  
Winnipeg, Manitoba  
Canada R3C 3G8

## INTRODUCTION

The Canadian Grain Commission HACCP-based programs, CIPRS+ HACCP and CGC HACCP require that grain companies develop and implement a food safety system that includes prerequisite programs and a HACCP plan based on this generic HACCP plan. This generic HACCP Plan was developed by technical committees comprised of industry, scientific, provincial and Canadian Grain Commission experts using the forms developed by the Ontario Ministry of Agriculture, Food and Agribusiness for their *Advantage Series of Food Safety Programs*<sup>™</sup>.

The generic plan was designed to include the inputs and processes most common to the grain industry. The technical committees assessed the hazards associated with those inputs and processes, and determined how they can be controlled or prevented through a HACCP-based food safety system.

A complementary tool developed in collaboration with industry and government experts is a group of generic prerequisite programs made up of 16 Good Operating Practices (GOPs). These GOPs can be used by grain companies as a basis for developing their own prerequisite programs as part of their HACCP-based food safety system. It is not mandatory to use the GOPs, but CIPRS+ HACCP and CGC HACCP do require that companies have prerequisite programs in place that meet the required outcomes of Annex 2 of the CGC Food Safety and Identity Preserved Quality Management System Standard. Companies must develop their prerequisite programs prior to developing a HACCP plan.

Grain companies should use this generic HACCP Plan by comparing it to their own operation and processes and apply only those aspects of it that are appropriate to their facility and, if necessary, adding inputs or processes. For example, a company may only process bulk grain and would therefore not receive bags as incoming material. As a result, they would not include bags on Form 2, would have no packaging in their Process Flow Diagram on Form 3, and would not include bags or packaging on Form 5. When each form is reviewed and changed to reflect each company's inputs and processes, the result is a HACCP Plan that is tailored to the facility.

The CGC has established a Technical Expert Advisory Committee that reviews the generic HACCP Plan annually. This review assesses the need for changes to the generic HACCP plan and GOPs in light of scientific information on new or emerging potential grain safety hazards, information brought forward from audits and new industry processes. If the generic HACCP model is revised, companies with CIPRS+HACCP or CGC HACCP certification will be advised and will be responsible for implementing any changes that are applicable to their facility. The implementation of applicable changes will be verified at the company's next CIPRS+HACCP or CGC HACCP audit.

Guidance on how the HACCP forms are to be used is included at the top of each form.

# Form #1: Finished Product Description

**Guidance:** Delete any information that does not describe the finished product you ship to customers and add information needed to accurately describe your finished product(s).

Product Name	Grain *
<b>1. Product Type</b> (e.g. cooked, raw, processed, ready-to-eat)	Ground, milled Ready-to-eat (flaxseed)
<b>2. Product Characteristics</b> (e.g. pH, A <sub>w</sub> , salinity, state, other qualities)	Dry, as defined in Chapter 2 of the Canadian Grain Commission Official Grain Grading Guide Wheat flour: moisture <15.1% Cool, no off odours
<b>3. Finished product and recipe meets the requirements of <i>Food and Drugs Act</i> (Y/N)?</b>	Yes
<b>4. Label meets requirements of <i>Safe Food for Canadians Act</i> and <i>Regulations</i> (Y/N)?</b>	Labelling includes: Common Name, Net Quantity Declaration, Lot Code or Unique Identifier, Name and Principle Place of Business of the person by or for whom the grain was handled as required by the Act, on bag or bill of lading. Unprocessed grain intended for further manufacturing, processing or treatment must bear the expression "For Further Preparation Only" on the bag or bill of lading. Retail packaging must include List of Ingredients, Nutrition Fact Table, and Durable Life Date.
<b>5. Product contains restricted ingredients as per <i>Food and Drugs Act</i> (Y/N)?</b> If yes, list restricted ingredients.	No
<b>6. Product contains allergens as per <i>Health Canada Guidelines</i> (Y/N)?</b> If yes, list allergens.	Yes - wheat, triticale, soybeans and mustard
<b>7. Shelf-life of Product</b>	Years
<b>8. Storage Instructions</b> (e.g. keep fresh, keep frozen, humidity control, ready-to-cook)	Cool and dry
<b>9. Intended Use of the Product:</b> include special delivery instructions, special consumer groups (e.g. elderly, immuno-compromised)	Further processing by customer or consumer

\* Grain = cereal grains, oilseeds, and pulses

## Form #2: Ingredients and Incoming Materials

**Guidance:** Delete any incoming ingredients and materials that you do not actually use in your facility. Retain only those that are used and the potential biological, chemical or physical hazards associated with each. If you have an ingredient or input not listed in this generic form, and do not know the associated hazards, contact the CGC for advice.

Identify potential biological, chemical or physical hazards associated with each. Answer each question and fill in "B" for biological, "C" for chemical or "P" for physical hazard and identify the specific hazard, if a hazard exists.

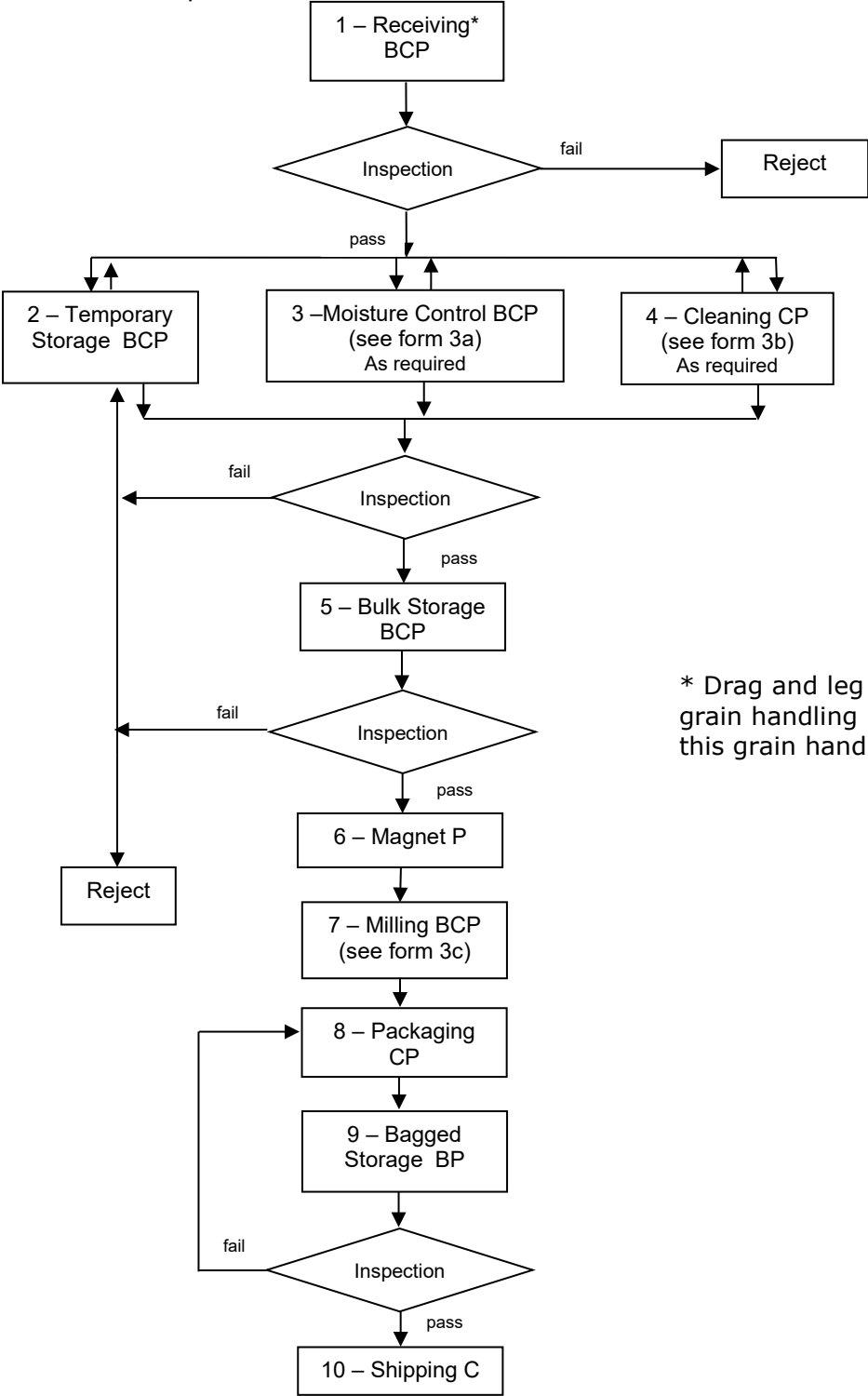
Ingredient / Material	List all incoming raw materials, processing aids, packaging materials and ingredients by product name.	Is a potential biological hazard associated with the item (e.g. bacteria, parasites)?	Is a potential chemical hazard associated with the item (e.g. antibiotic residues, pesticide residues allergenic concerns)?	Is a potential physical hazard associated with the item? Address both metallic and non-metallic (e.g. environmental concerns – stones, dirt; foreign material – needles, bones).
Grain	Grain	Pathogenic Bacteria *	Pesticide residues (includes rodenticides, herbicides) Treated seed Fertilizer residues Granular fertilizer pellets Allergens Heavy metals Ergot alkaloids Alkaloids in weed seeds Mycotoxins	Stones Glass Bones Metal Wood chips Vegetative matter
Packaging	Paper bags	Pathogenic bacteria		
	Poly Bags/totes	Pathogenic bacteria	Plasticizers	
	Jute Bags	Pathogenic bacteria		
	Thread			
	Paper Tags			
	Inks		Non-food grade ink	
	Shrink-wrap			
	Pallets			Nails Wood slivers

Ingredient / Material	List all incoming raw materials, processing aids, packaging materials and ingredients by product name.	Is a potential biological hazard associated with the item (e.g. bacteria, parasites)?	Is a potential chemical hazard associated with the item (e.g. antibiotic residues, pesticide residues allergenic concerns)?	Is a potential physical hazard associated with the item? Address both metallic and non-metallic (e.g. environmental concerns – stones, dirt; foreign material – needles, bones).
	Bulkhead or cardboard liners/slip sheets	Pathogenic bacteria		
	Poly-container liners/slip sheets	Pathogenic bacteria	Plasticizer	
Water	Water	Pathogenic bacteria	Heavy metals	
Ingredients	Fortificants & Other Additives	Pathogenic bacteria	Concentration of fortificants higher than listed	Extraneous material (e.g. metal, glass)
Processing Aids	Bleaching Agents		Concentration of bleaching agents higher than listed on the label  Contamination by non-food chemicals	
	Container desiccant		Unapproved desiccant material	
	Compressed air	Pathogenic bacteria	Non-food chemical vapours	

\* Examples include *E. coli*, *Salmonella sp.*, *Listeria monocytogenes*

# Form #3: Flow Diagram with Critical Control Points

**Guidance:** Add, delete or change the order of processes to reflect what you do within your own company, eg, magnets. Moisture control and cleaning are expanded on Form 3A and Form 3B. Be sure to include the biological (B), chemical (C) or physical (P) hazards associated with each process.

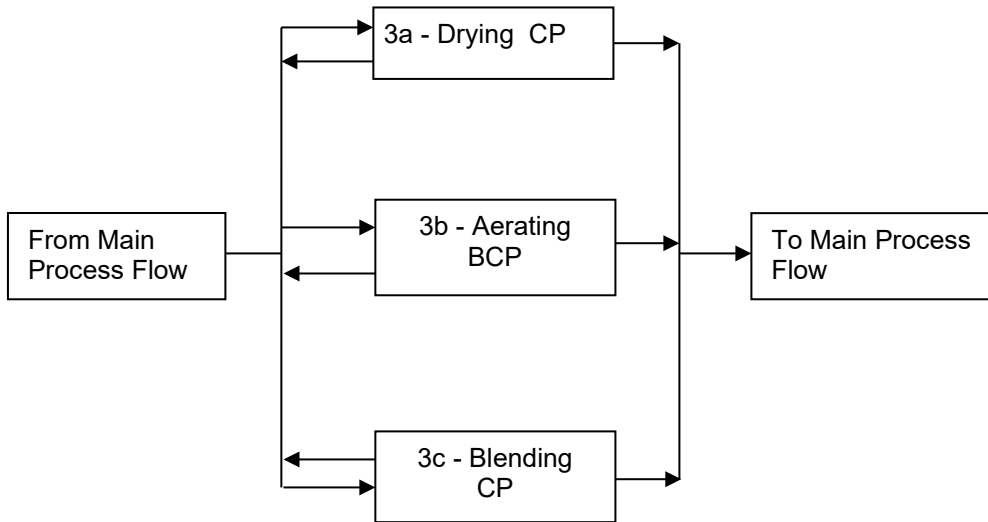


\* Drag and leg component of grain handling is assessed in this grain handling step

# Form #3a: Moisture Control Process Flow Diagram

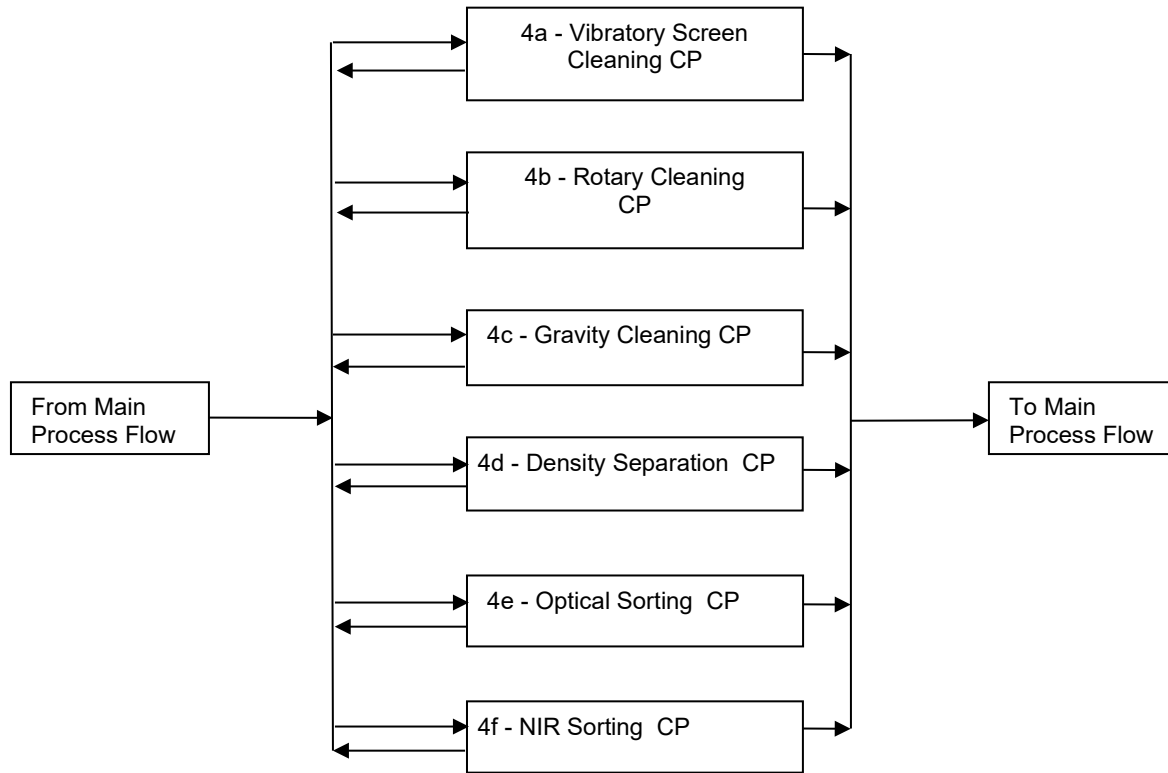
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**Guidance:** Add, delete or change the order of processes to reflect what you do within your own company. Be sure to include the biological (B), chemical (C) or physical (P) hazards associated with each process.



# Form #3b: Cleaning/Processing Process Flow Diagram

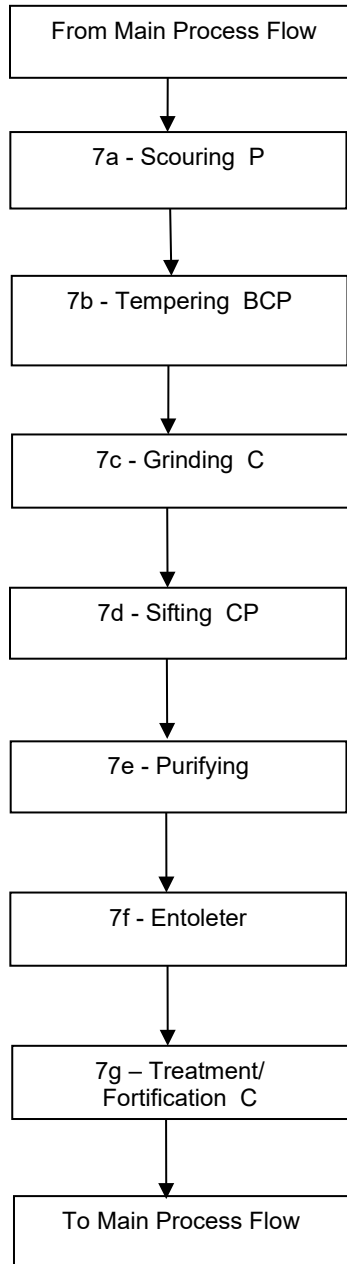
**Guidance:** Add, delete or change the order of processes to reflect what you do within your own company. Be sure to include the biological (B), chemical (C) or physical (P) hazards associated with each process



## Form #3c: Milling Process Flow Diagram

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**Guidance:** Add, delete or change the order of processes to reflect what you do within your own company. Be sure to include the biological (B), chemical (C) or physical (P) hazards associated with each process.



## **Form #4: Plant Schematic**

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**Guidance:** Construct a plant schematic (site plan, floor plans) of your facility and grounds. Identify all bins, buildings, equipment, rooms. On the floor plan, identify the product flow. You may need more than one sheet to include all buildings, personnel welfare areas, bin locations and equipment. Number them 4 a, b, c, etc. if necessary.

**TO BE COMPLETED BY INDIVIDUAL PLANT**

## Form 5 Summary – Hazard Description and CCP Identification - Incoming Ingredients & Materials

**Guidance:** Transfer incoming ingredients and materials that have associated hazards from Form 2 to this section. Answer each of the 5 questions relating to each to determine how the potential hazard is controlled. If you have added ingredients or materials not identified on the generic plan, be sure to document your reasons for identifying the hazard and its control. When a hazard is identified on this form as being controlled by a GMP/GOP, ensure it is clear in the referenced GMP/GOP how the hazard is controlled.

Ingredient/ Material	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program? <b>If answer is “yes” identify the GMP/GOP. Do not proceed to next question.</b>	2. Is hazard likely to exceed acceptable levels? <b>If answer is “no”, do not proceed to next question</b>	3. Could a control measure be used at any step? <b>(If no, go to Form 6)</b>	4. Is this control measure designed to eliminate/ reduce this hazard?	5. Will this hazard be eliminated /reduced to acceptable level later?
<b>Ingredients</b>							
Grain	B	Pathogenic bacteria	No	Yes	No		
	C	Visible mould and associated mycotoxins	Receiving Training				
	C	Mycotoxins due to improper storage prior to delivery	No	Yes	No		
	C	High moisture grain leading to mould and mycotoxin development	Receiving Handling Storage Training				
	C	Pesticide residues, liquid fertilizer residues	No	Yes	No		
	C	Treated seed	Receiving Shipping Training				
	C	Allergens	Allergen Control				
	C	Heavy metals	No	Yes	No		

Ingredient/ Material	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program? <b>If answer is “yes” identify the GMP/GOP. Do not proceed to next question.</b>	2. Is hazard likely to exceed acceptable levels? <b>If answer is “no”, do not proceed to next question</b>	3. Could a control measure be used at any step? <b>(If no, go to Form 6)</b>	4. Is this control measure designed to eliminate/ reduce this hazard?	5. Will this hazard be eliminated /reduced to acceptable level later?
	C	Ergot alkaloids	Receiving Training				
	C	Alkaloids from weed seeds	No	No			
	C	Granular fertilizer pellets	Receiving Shipping Training				
	P	Metal, bones, stones, wood chips, vegetative matter	Receiving Shipping Equipment Cleaning & Maintenance Training				
	P	Glass	Receiving Equipment Cleaning & Maintenance Training				
Fortificants & Other Additives	B	Pathogenic Bacteria	Purchasing Receiving Training				
	C	Concentration of fortificants/ additives higher than listed	Purchasing Receiving Training				
	P	Extraneous material	Purchasing Receiving Training				
<b>Packaging Material</b>							
Poly bags & totes	B	Pathogenic bacteria	Receiving Purchasing				

<b>Ingredient/ Material</b>	<b>Type</b>	<b>Hazard Description</b>	<b>1. Is hazard controlled by a pre-requisite program? If answer is “yes” identify the GMP/GOP. Do not proceed to next question.</b>	<b>2. Is hazard likely to exceed acceptable levels? If answer is “no”, do not proceed to next question</b>	<b>3. Could a control measure be used at any step? (If no, go to Form 6)</b>	<b>4. Is this control measure designed to eliminate/ reduce this hazard?</b>	<b>5. Will this hazard be eliminated /reduced to acceptable level later?</b>
			Training				
	C	Plasticizers	Purchasing Receiving Training				
Paper bags	B	Pathogenic bacteria	Receiving Training				
Jute bags	B	Pathogenic bacteria	Receiving Training				
Pallets	P	Nails, wood slivers	Storage Shipping Training				
Inks	C	Non-food grade ink	Purchasing Receiving Training				
Bulkhead or cardboard liners/slip sheets	B	Pathogenic bacteria	Purchasing Receiving Training				
Poly container liners/slip sheets	B	Pathogenic bacteria	Purchasing Receiving Training				
	C	Plasticizer	Purchasing Receiving Training				
<b>Processing Aids</b>							
Water	B	Pathogenic Bacteria	Potable Water				
	C	Heavy Metals	Potable Water				
Bleaching Agents	C	Concentration of bleaching agents higher than listed	Purchasing Receiving Training				

Ingredient/ Material	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program? <b>If answer is “yes” identify the GMP/GOP. Do not proceed to next question.</b>	2. Is hazard likely to exceed acceptable levels? <b>If answer is “no”, do not proceed to next question</b>	3. Could a control measure be used at any step? <b>(If no, go to Form 6)</b>	4. Is this control measure designed to eliminate/ reduce this hazard?	5. Will this hazard be eliminated /reduced to acceptable level later?
	C	Contamination with non-food grade chemicals	Purchasing Receiving Training				
Container desiccants	C	Unapproved desiccant material leaking from desiccant package into grain in containers	Purchasing Receiving Training				
Water softener salt	C	Non-food grade	Purchasing Receiving Training				
Compressed air (contact with grain and grain handling equipment)	B	Pathogenic bacteria	No	No			
	C	Non-food grade chemical vapours	Equipment cleaning and maintenance				

## **Form 5 Summary – Hazard Description and CCP Identification - Process Flowcharts**

**Guidance:** Transfer all processes that have associated hazards from Forms 3, 3a and 3b to this section. Answer each of the 5 questions relating to each to determine how the potential hazard is controlled. If you have added processes not identified on the generic plan, be sure to document your reasons for identifying the hazard and its control. When a hazard is identified on this form as being controlled by a GMP/GOP, ensure it is clear in the referenced GMP/GOP how the hazard is controlled.

Process	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program?	2. Is hazard likely to exceed acceptable levels?	3. Could a control measure be used at any step? (If no, go to Form 6)	4. Is this control measure designed to eliminate/reduce this hazard?	5. Will this hazard be eliminated/reduced to acceptable level later?
1 - Receiving	B	Pathogenic bacteria from pests	Premise Housekeeping Pest Control Training				
	C	Mould & associated mycotoxins in pit and boot	Housekeeping Training				
	C	Road salt/sand, automotive fluids from conveyance vehicle	Receiving Training				
	C	Hydraulic/pneumatic fluid from probe during sampling	Equipment Cleaning & Maintenance Training				
	C	Equipment lubricant	Equipment Cleaning & Maintenance Purchasing Receiving Training				
	C	Cross-contamination with allergen due to misdirection of incoming grain.	Allergen Control Receiving Training				

Process	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program?	2. Is hazard likely to exceed acceptable levels?	3. Could a control measure be used at any step? (If no, go to Form 6)	4. Is this control measure designed to eliminate/ reduce this hazard?	5. Will this hazard be eliminated/ reduced to acceptable level later?
	P	Stones, metal from conveyance vehicle	Receiving Training				
	P	Debris from receiving area falling into pit	Premise Housekeeping Training				
	P	Foreign material falling into product	Equipment Design Equipment Cleaning & Maintenance Training				
2 - Temporary Storage	B	Pathogenic bacteria from due to contamination from pests	Premise Housekeeping Pest Control Training				
	C	Mould & associated mycotoxins in bin	Receiving, Handling, Storage & Shipping Training				
	P	Foreign material falling into the product	Equipment Cleaning & Maintenance Training				
3 – Moisture Control	B	Air used in bin aeration drawn near a source of pathogenic bacteria	Premise Design Premise Maintenance Training				
	C	Cross-contamination with allergen from previous use of equipment	Allergen Control Equipment Cleaning & Maintenance Training				
	C	Equipment lubricant	Equipment Cleaning & Maintenance Purchasing				

Process	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program?	2. Is hazard likely to exceed acceptable levels?	3. Could a control measure be used at any step? (If no, go to Form 6)	4. Is this control measure designed to eliminate/reduce this hazard?	5. Will this hazard be eliminated/reduced to acceptable level later?
			Receiving Training				
	C	Mould growth due to insufficient drying within specified time parameters.	Receiving, Handling, Storage & Shipping Training				
	C	Air used in bin aeration drawn near a source chemical contaminants	Premise Design Premise Maintenance Training				
	P	Foreign material falling into product	Equipment Cleaning & Maintenance Training				
4 – Cleaning	C	Cross - contamination with allergen from previous use of equipment	Allergen Control Equipment Cleaning & Maintenance Training				
	C	Equipment lubricant	Equipment Cleaning & Maintenance Purchasing Receiving Training				
	P	Foreign material falling into product from screen failure	Equipment Cleaning & Maintenance Training				
	P	Pieces of metal from equipment falling into product	Equipment Cleaning & Maintenance Training				
5 – Storage bulk	B	Pathogenic bacteria due to contamination from pests	Premise Housekeeping Pest Control Training				

Process	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program?	2. Is hazard likely to exceed acceptable levels?	3. Could a control measure be used at any step? (If no, go to Form 6)	4. Is this control measure designed to eliminate/reduce this hazard?	5. Will this hazard be eliminated/reduced to acceptable level later?
	C	Visible mould & associated mycotoxins due to leak/condensation	Equipment Design Equipment Cleaning & Maintenance Training				
	C	Pesticide residues from fumigation	Chemical Use Training				
	P	Foreign material falling into the product	Equipment Cleaning & Maintenance Training				
6 - Magnet	P	Metal in the product due to magnet failure	Calibration Training				
	P	Metal in the product due to insufficient magnet cleaning	Equipment Cleaning & Maintenance Training				
7a) - Scouring	P	Metal falling into product	Equipment Cleaning & Maintenance Training				
7b) - Tempering	B	Microbial contamination of grain from contaminated water	Potable water				
	B	Growth of pathogenic bacteria from inadequate cleaning of bin	Equipment Cleaning & Maintenance Training				
	B	Growth of pathogenic bacteria from the addition of excessive amounts of water in the tempering bin	Equipment calibration Training				

Process	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program?	2. Is hazard likely to exceed acceptable levels?	3. Could a control measure be used at any step? (If no, go to Form 6)	4. Is this control measure designed to eliminate/reduce this hazard?	5. Will this hazard be eliminated/reduced to acceptable level later?
	C	Chemical contamination from over treatment of water	Potable Water Training				
	C	Mould and mycotoxin development from infrequently/inadequately cleaned bin	Equipment cleaning and maintenance Training				
	P	Metal falling into product	Equipment cleaning and maintenance Training				
7c) - Grinding	C	Mould and mycotoxin development from infrequently/inadequately cleaned equipment	Equipment cleaning and maintenance Training				
	C	Equipment lubricant	Equipment cleaning and maintenance Purchasing Receiving Training				
7d) - Sifting	C	Equipment lubricant	Equipment cleaning and maintenance Purchasing Receiving Training				
	C	Mould and mycotoxin development from infrequently/	Equipment cleaning and maintenance Training				

Process	Type	Hazard Description	1. Is hazard controlled by a pre-requisite program?	2. Is hazard likely to exceed acceptable levels?	3. Could a control measure be used at any step? (If no, go to Form 6)	4. Is this control measure designed to eliminate/reduce this hazard?	5. Will this hazard be eliminated/reduced to acceptable level later?
		inadequately cleaned equipment					
	P	Foreign material falling into product from screen failure	Equipment Cleaning & Maintenance Training				
	P	Pieces of metal from equipment falling into product	Equipment Cleaning & Maintenance Training				
7e) – Treatment/ Fortification	C	Overdosage of fortificants and/or other additives.	Equipment calibration Training				
8 Packaging	C	Equipment lubricant.	Equipment Cleaning & Maintenance Purchasing Receiving Training				
	C	Allergen concerns due to improper labelling of consumer packaging	Allergen Control Purchasing Handling Training				
	P	Metal in finished product from packaging equipment	Equipment Cleaning & Maintenance Training				
	P	Needles in finished product	Equipment Cleaning & Maintenance Training				
9 - Storage, bagged product	B	Pathogenic bacteria due to contamination from pests	Pest Control Storage Training				

<b>Process</b>	<b>Type</b>	<b>Hazard Description</b>	<b>1. Is hazard controlled by a pre-requisite program?</b>	<b>2. Is hazard likely to exceed acceptable levels?</b>	<b>3. Could a control measure be used at any step? (If no, go to Form 6)</b>	<b>4. Is this control measure designed to eliminate/reduce this hazard?</b>	<b>5. Will this hazard be eliminated/reduced to acceptable level later?</b>
	P	Packaging breached due to improper handling of product	Shipping Training				
10 - Shipping	C	Incompatible material in the trailer at shipping may cause potential contamination	Shipping Training				

## Form #6: Uncontrolled Hazards

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**Guidance:** When the answer to Question #3 on Form 5 is “no”, that hazard should be included here, with suggestions as to how it could be addressed.

<b>Hazard</b>	<b>How the hazard could be addressed</b>
Pathogenic bacteria in raw grain	Product intended for further preparation by customer or consumer prior to consumption
Mycotoxins due to improper storage prior to delivery	Producer education On-farm GPPs
Pesticide residues and liquid fertilizer residues in incoming commodity	Producer education On-farm GPPs
Heavy metals	Producer education Soil testing by producer

## Form #7: HACCP Matrix

**Guidance:** No CCP has been identified for this generic HACCP plan, therefore this form is blank. However, if you have identified a CCP for your facility's HACCP plan, the CCP must be identified on Form 3, and this form must be filled out. The monitoring, deviation, corrective action and verification procedures as described here must be followed for any identified CCPs.

ITEM	INSTRUCTION	COMPLETE FOR EACH CCP
<b>Process Step</b>	Number as indicated on Form #3.	N/A
<b>CCP Hazard Number</b>	Number sequentially.	
<b>Hazard Description</b>	Identify whether the hazard is biological, chemical or physical. Describe hazard.	
<b>Critical Limits</b>	Define the value(s) that are acceptable to maintain the CCP under control	
<b>Monitoring Procedures</b>	Identify the following: <ul style="list-style-type: none"> <li>Who is responsible for the task;</li> <li>What procedure is to be followed;</li> <li>What observation is to be made or what measurement is to be taken;</li> <li>How often the task is to be performed; and</li> <li>Where the observations are to be recorded.</li> </ul>	
<b>Deviation Procedures and Corrective Actions</b>	If monitoring indicates a deviation, describe: <ul style="list-style-type: none"> <li>Who takes the corrective actions;</li> <li>What procedures are to be followed;</li> <li>Where the actions are to be recorded.</li> </ul>	
<b>Verification Procedures</b>	Identify the following: <ul style="list-style-type: none"> <li>Who is responsible for the task;</li> <li>What procedure is to be followed;</li> <li>What observation is to be made or what measurement is to be taken;</li> <li>How often the task is to be performed;</li> <li>Where the observations are to be recorded.</li> </ul> If verification indicates a deviation, describe: <ul style="list-style-type: none"> <li>Who takes the corrective actions;</li> <li>What procedures are to be followed</li> <li>Where the actions are to be recorded.</li> </ul>	
<b>HACCP Records</b>	List records to be used.	