## GOOD AGRICULTURAL PRACTICES FOR MUSHROOM GROWERS

Mushroom Farm
Food Safety and
Security
Self-Assessment





### **Food Safety Concern**

Within the last several years, several highly publicized incidences of foodborne illness have been attributed to consumption of fresh produce. These events, combined with the recent recognition that our food supply may be vulnerable to criminal or terroristic acts, have fueled intense public interest in food safety and biosecurity. Wholesale buyers have responded to these concerns by requiring growers and packers of fresh produce, including mushrooms, to submit to food safety audits that verify compliance with established food safety and sanitation standards.

The standards that make up this self-assessment are presented as typical questions that a food safety auditor may ask about your facilities, your workers, your records, and your policies. Although food safety standards vary with each customer, this self-assessment is designed to help you know and understand your customers' expectations and to help you to prepare for a successful food safety audit.

### **Purpose of Self-Assessment**

This self-assessment can help you prepare for a food safety audit by identifying

- potential food safety and security hazards in your operation,
- actions you can take to reduce hazards, and
- the risk to your crop if action is not taken.

### **Completing This Worksheet**

Walk through your farm with this self-assessment in hand and answer the questions in each of the categories. There are no right or wrong answers at this time. Your replies only indicate those areas that are in need of attention. However, be aware of "no" or "some of the time" answers or when you are not sure of the answer. You will need to take a closer look at these areas later on. In the spaces provided, write down any comments or concerns you have, including problems you see in implementing the standards or training needs. After you have completed the questions, use the last page to begin setting priorities by compiling those standards where deficiencies occur within each of the Food Safety Risk Levels.

### **Food Safety Risk Levels**

Meeting each of the standards in the self-assessment is essential in order to have an effective food safety plan in place. However, "Food Safety Risk Levels" have been assigned to each standard to help you prioritize your efforts and to start to take action. Risk levels are based and prioritized on the estimated risk for product contamination to occur if there is a deficiency in complying with a standard. Each level is defined as follows:

- "Risk Level 1" questions refer to critical practices or policies that, if not followed, present a high risk for a food safety hazard to occur or will likely cause you to fail an audit. Direct contamination of mushrooms or food contact surfaces can occur if these standards are not followed, and immediate attention is required if a deficiency is found.
- **"Risk Level 2"** standards address conditions adjacent to, but not in direct contact with, areas where mushrooms are grown or situations where cross-contamination is a significant risk. These standards can be addressed after Risk Level 1 areas are under control.
- "Risk Level 3" standards represent the lowest level
  of risk for contamination if deficiencies occur.
  However, deficiencies will require correction in order
  to convince your customers that your mushrooms are
  grown under the safest possible conditions.

## MUSHROOM FARM FOOD SAFETY AND SECURITY SELF-ASSESSMENT

FOOD SAFETY PROGRAM DEVELOPMENT						
	Food Safety Risk		Not sure or some of the			
	Level	Yes	time	No		
Does your farm have a written food safety plan in place?	1					
Has your farm designated a food safety team and team leader with responsibility for development and implementation of the food safety plan?	1					
Is your food safety plan supported by the farm owner and/or management?	1					
Does your plan emphasize personal responsibility and accountability on the part of workers to ensure safe mushrooms?	1					
Are written records kept for all cleaning, sanitizing, maintenance, pest control, and other activities related to the food safety plan?	1					
Are records readily available for inspection?	1					
Notes						

## **SAFETY OF WATER** Food **Not sure Safety** or some of the Risk Level Yes time No Is potable water used for all operations where water may contact mushrooms or food contact surfaces? 1 $\Box$ Is water used in growing areas regularly tested for microbial and chemical contaminants? 1 Are antimicrobials added to water that contacts mushrooms? 1 Are wells regularly inspected and maintained to prevent contamination from occurring? 1 Are wells protected from surface runoff and flooding? 1 Has the plumbing system been inspected for the presence of cross-connections? 2 Are all faucets, fixtures, and hoses in production areas fitted with backflow-prevention devices? 2 **Notes**

### **WORKER HYGIENE AND PRACTICES TO PREVENT CONTAMINATION OF MUSHROOMS** Food **Not sure Safety** or some Risk of the Level Yes time No Are training schedules, sanitation policies, and personal hygiene policies documented and accessible to employees? 1 Are harvesters trained to wash their hands each time they use the toilet, after any absence from their workstation for breaks or lunch, or after handling soiled materials? 1 Are harvesters with diarrheal illness, open wounds, or skin infections prohibited from handling mushrooms? 1 Do harvesters who wear disposable plastic gloves change them when they become soiled? 1 Do harvesters wear appropriate hair restraints and clothing that prevents contamination of exposed mushrooms? 1 Are jewelry and other personal items that can fall into the product prohibited from production areas? 1 Are employees prohibited from eating food, chewing gum, drinking beverages, or using tobacco in production areas? 1 Are personal belongings and food items stored in designated areas away from production areas? 1 Are employees trained to dispose of any mushrooms that have been exposed to blood or other bodily fluids? 1 Is movement of workers between composting and growing areas controlled to prevent contamination? 1 Are hygiene standards in growing areas enforced for everyone including management, supervisors, visitors, and technicians? 1 **Notes**

#### **PRODUCT SECURITY** Food **Not sure Safety** or some Risk of the Level Yes time No Are only authorized individuals permitted on the premises? 2 Are the grounds reasonably secure from unauthorized entry through fencing, lighting, or regular monitoring? 2 Are doors and windows adequately secured when not in use to prevent unauthorized entry? 2 Are signs that require visitors to report to the office before entering farm areas posted at entrances? 2 2 Are water supplies secured so they are safe from tampering? Are background checks including immigration status made on all newly hired personnel? 2 Are employees issued identification badges that must be returned upon resignation or dismissal from the company? 2 Are activities of contractors, inspectors, auditors, and other visitors adequately monitored so that product security is maintained? 2 Are visitors (tours, contractors, regulators, auditors) issued identification badges that are returned upon leaving the 2 premises? Are employee activities adequately monitored so that product security is maintained? 2 Are supervisors alert to any suspicious activities, potential sabotage to equipment or products, or indications of tampering? 2 Are chemical storage areas secured so that they are accessible only to authorized individuals? 1 Are trucks loaded with mushrooms locked or otherwise fixed with tamper-evident seals to prevent or detect tampering by unauthorized individuals? 2 **Notes**

## **HAND WASHING AND TOILET FACILITIES** Food **Not sure Safety** or some of the Risk Level Yes time No Is there at least one toilet facility per 20 employees, each within 1/4 mile of the work site? 1 Are toilet facilities well ventilated, have self-closing doors, have clean, running warm water, and continuously stocked with toilet paper, hand soap, disposable paper towels, and trash receptacles? 1 Are toilets cleaned and sanitized each day? 1 Are toilets monitored daily to make sure that they function properly, are clean, and are properly supplied? 1 Does each toilet facility have a sign that reminds employees to wash their hands before returning to work? 1 **Notes**

#### **RECEIVING AND STORAGE OF RAW MATERIALS AND COMPOST** Food **Not sure Safety** or some Risk of the Level Yes time No Compost, casing, and other raw materials Do suppliers of composting materials provide documentation of the type of material purchased, its origin, and date of purchase? 3 Do suppliers of casing materials provide documentation that verifies each shipment is free of human pathogens? 3 Do suppliers of mushroom spawn provide documentation that their products are free of pathogens? 3 Are phase II, casing preparation, and storage areas adequately separated from phase I receiving, preparation, and storage areas so that cross-contamination cannot occur? 2 Are harvest containers, packaging materials, spawn, and other supplies adequately separated from phase I receiving, preparation, 2 and storage areas so that cross-contamination cannot occur? Are measures taken to collect or divert seepage and runoff from phase I compost areas so that cross-contamination cannot occur? 2 **Equipment and supplies** Are equipment and supplies that are used to grow mushrooms purchased from reliable suppliers with a record of producing high-quality products? 3 Are forklifts, cleaning equipment, tools, and other mechanical equipment used in composting areas stored in designated areas away from growing areas? 3 Are pesticides, disinfectants, and other potentially toxic compounds appropriate for use in a food-production environment? 2 Are toxic compounds stored in a clean, dry, organized, and secure area physically separate from production areas? 1 2 Are only non-mercury thermometers used?

RECEIVING AND STORAGE OF RAW MATERIALS AND COMPOST (continued)						
	Food Safety Risk Level Yes		Not sure or some of the time	No		
Harvesting containers and packaging materials						
Have suppliers of baskets, lugs, trays, tills, and boxes provided documentation that these materials are approved for food contact surfaces?	3					
Are food contact containers stored indoors on pallets and protected from condensate, floor splash, loose wall or ceiling materials, machinery and equipment parts, and other materials that may contaminate the product?	2					
Notes						

#### **FIELD SANITATION** Food **Not sure Safety** or some Risk of the Level Yes time No **Layout and maintenance of grounds and building exteriors** Have nearby farming or industrial activities been considered for their effect on the safety of mushrooms? 3 Are the grounds regularly cleaned and maintained so they are free of tall grass and weeds, litter, debris, and trash? 3 Are the grounds well drained so that standing water cannot accumulate? 3 3 Is litter and waste stored in covered containers and regularly removed? Are equipment and materials properly stored outdoors and sufficiently far away from entrances so that they do not become a source of pests? 3 Are building foundations, walls, and roofs in good repair with no sign of entry points for pests or water? 3 Are gutters in good repair and free of debris so that they adequately divert rainwater away from the building and do not attract pests? 3 Are outside entrances kept closed when not in use or have screens. plastic strip curtains, or air curtains installed? 3 Are outdoor lights placed so that they do not attract insects into buildings? 3 Is vehicular traffic restricted to prevent cross-contamination? 3 **Condition and cleanliness of breezeways and growing rooms** Are building interiors clean and uncluttered with adequate space for movement of employees and equipment? 2 Are floors, walls, and ceilings free from loose masonry or paint, corroded metal, loose insulation, or other foreign matter? 2 2 Are overhead fixtures free of dust, insects, and debris? 2 Are overhead water pipes insulated to prevent condensation? Is ventilation in breezeways sufficient to prevent condensation on ceilings and overhead fixtures? 2 Is there sufficient space between interior walls and stored materials to 2 allow for pest inspections? Are waste materials stored in labeled, covered containers and removed daily? 2 Are exterior doors and windows intact, in good repair, and sealed so that there are no gaps greater than 1/4 inch? 1

FIELD SANITATION (continue	Food Safety Risk		Not sure or some of the	
	Level	Yes	time	No
Are windows made of shatterproof materials?	1			
Are light fixtures and pest lights shielded to prevent glass contamination?	1			
Are lights and pest lights placed so they do not attract pests into the building?	2			
Do floor drains have removable grates or plugs and flow freely?	2			
Are there control measures to prevent foot-borne contamination of growing rooms?	2			
Are overhead walkways and ladders in growing rooms shielded to prevent contamination of mushrooms?	2			
Are light intensities adequate to permit inspection of the facility for pests and other contaminants?	2			
Equipment, tools, containers, and packaging materials				
Are harvest containers (baskets, lugs, trays, and boxes) only used to contain mushrooms and not for any other purpose such as holding trash or waste materials, or as a chair or stepping stool?	1			
Are harvest containers kept in good repair so that they are free of splinters or shards and discarded if they cannot be repaired?	1			
Are harvest containers cleaned and sanitized before each use?	1			
Are control measures in place that prevent tools and equipment used in composting areas from being used in mushroom growing and storage areas?	1			
Are cleaning tools regularly cleaned and sanitized?	1			
Are repairs to buildings and equipment made using appropriate and permanent materials?	1			
Notes				

## FIELD PACKING AND PROTECTION OF HARVESTED MUSHROOMS Food **Not sure Safety** or some Risk of the Level Yes time No Are harvest containers (baskets, lugs, trays, and boxes) prevented from contacting the floor during field packing? 1 Are filled harvest containers moved from growing rooms to staging areas so that they do not contact the floor? 1 Are containers of mushrooms protected from condensate, floor splash, loose wall or ceiling materials, machinery and equipment parts, and other materials that may fall into the product? 1 Are mushrooms moved to cooling facilities within 4 hours of harvesting? 2 Are trucks inspected for cleanliness, odors, and obvious dirt or debris before 2 loading? Are containers of mushrooms loaded carefully onto trucks to minimize bruising? 2 Are mushrooms that have spilled on the ground or that have come into contact with bodily fluids considered contaminated and discarded? 1 **Notes**

## **CLEANING AND SANITIZING OF FOOD CONTACT AND INDIRECT CONTACT SURFACES** Food **Not sure Safety** or some Risk of the Level Yes time No Is there a system in place that documents areas to be cleaned and/or sanitized, procedures and frequencies for cleaning, and responsible individuals? 2 Are cleaning and sanitizing activities documented including the date, time, 2 chemical used, and name of applicator? Are the exterior grounds regularly cleaned including trash, storage, and receiving and shipping areas? 2 Are building interiors regularly cleaned and/or sanitized as necessary including floors, walls, trash areas, fixtures, and equipment? 2 Are reusable food contact containers (baskets, lugs, trays, etc.) and knives cleaned and sanitized before each use? 1 Has the cleaning and sanitizing crew been trained to understand safe and effective methods for cleaning and sanitizing? 2 **Notes**

## PROPER LABELING, USE, AND STORAGE OF TOXIC CHEMICALS Food **Not sure Safety** or some Risk of the Level Yes time No Are original containers of toxic chemicals clearly labeled with the name of the compound, the manufacturer's name and address, and instructions for use? 2 Are working containers used to store or prepare chemicals or chemical solutions clearly marked with the common name of the chemical and instructions for proper use? 1 Are toxic compounds stored in clean, well-organized, secure, and dry areas away from production areas? 2 2 Are toxic compounds used according to label directions? Are MSDS sheets kept for all chemicals, and are they in a language that is readily understood by all employees who wish to read them? 2 **Notes**

PEST CONTROL						
	Food Safety Risk Level	Yes	Not sure or some of the time	No		
Is there a documented pest-control program in place that controls insects, rodents, birds, and other pests?	2					
Are pesticides applied only by licensed pest-control operators or someone under their direct supervision?	2					
Is a current map of all pest-control devices and spray schedules kept on file?	2					
Are insect electrocution devices installed so that dead insects and insect fragments cannot fall onto mushrooms or food contact surfaces?	2					
Are tamper-resistant and labeled bait stations placed along outside walls of growing and storage buildings?	2					
Are poison bait stations prohibited from use inside buildings?	2					
Are live traps, glue boards, or mechanical traps placed along the inside walls of buildings and at outside entrances?	2					
Are traps inside buildings placed sufficiently far away from exposed mushrooms so that they cannot become a source of contamination?	2					
Notes						

TRACE-BACK AND PRODUCT RECALL						
	Food Safety Risk Level Yes		Not sure or some of the time	No		
Is there a program in place for tracking and responding to customer complaints or product recalls?	3					
Is each lot of mushrooms leaving the farm tagged with the name of the farm, product, individual or department handling the product, and a lot number traceable to location and date of harvest?	3					
Notes						
EQUIPMENT MAINTENANCE AND CA	LIBRATIO	DN				
	Food Safety Risk Level	Yes	Not sure or some of the time	No		
Is an equipment-maintenance program in place that ensures that all equipment is in proper working order?	3					
Are food-grade lubricants used on equipment that may contact mushrooms?	1					
Are filters in air conditioning, ventilation, and air filtration units regularly cleaned and replaced when necessary?	3					
Do maintenance personnel remove equipment, tools, loose nuts, bolts, and old parts after servicing an area?	3					
Are temperature probes, supporting hardware, and software used to monitor phase I and II temperatures maintained and calibrated on a regular basis?	3					
Notes						

EMPLOYEE TRAINING					
	Food Safety Risk Level Yes		Not sure or some of the time		
Has a training program been developed that provides food training to all new employees and regular refresher sessions for all employees?	1				
Do supervisors regularly remind workers of the importance of good personal hygiene including the proper way to wash hands?	1				
Are training efforts supported by signs that instruct workers of their responsibility in producing safe mushrooms?	1				
Notes					

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FOOD SAFETY RI	ISK 2	
FOOD SAFETY RI	ISK 3	

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