

Gotham Farms SOP 2019-20

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Visitors

All visitors are instructed on 1) company health and hygiene policies, 2) bathroom locations, and 3) to not enter production areas unsupervised. All visitors and subcontractors will follow the health & hygiene guidelines in this manual. No pets are allowed on the property.

Traceability

Gotham Farms employs a traceability system allowing us to trace produce one step back (field) and one step forward (broker). Each field has a record of production inputs (chemicals, seeds, plants, etc) and a harvest log (field, date, and quantity of produce harvested). Each invoice identifies the lot code. To test our traceback a mock recall is conducted annually (November) with Wildcat Produce.

Our lot code system **F1A281C** identifies the farm, field, date, and commodity: **F1**(Farm 1)**A**(Field A)**281**(Julian Date)**C**(Cucumber). The produce codes for Gotham Farms are the following: **C**-Cucumber, **E**-Eggplant, **P**-Bell Pepper, and **S**-Summer Squash.

Product QA

Produce will not be harvested under the following circumstances: 1) produce has come into contact with the ground after harvest, 2) produce is damaged, decayed, or contaminated, and 3) a red flag.

Finished product that is opened, spilled, or comes into contact with the floor is placed into designated culls bins and not distributed.

Pest Control

Our postharvest areas are monitored and controlled to mitigate rodents and pests. A visual walk through is conducted daily before packing operations begin. All facilities, equipment, walls, doors, and windows are routinely inspected. Interior walls, floors, and ceilings are examined for major cracks and crevices. Only non toxic traps and pest control devices are used inside the packinghouse and storage areas. Bait or chemical traps that could introduce hazards to the packing operations are never allowed.

There is a pest control map identifying each trap location. Records pertaining to pest control are maintained. Activity associated with monitoring for signs of pest control and actions taken with traps is documented.

Glass & Brittle Plastic

Under no circumstances will glass or brittle plastic containers be allowed in the field or packinghouse. All light bulbs are shatter proof or are shielded with shatter proof sleeves or covers.

If broken glass or plastic is found in the packinghouse, all machinery is stopped. The area will be inspected and all shards disposed of (placed in a cardboard box, sealed, and placed in the enclosed trash can). All machinery surrounding the area is checked for additional shards. In the field (depending on the source of breakage, size of breakage) the area may be marked off-limits for harvest with tape in a circumference of 6' around the original breakage.

Policy on Taking Breaks

Breaks must be taken in the designated areas away from fresh produce and production areas. Eating, drinking (other than water), chewing gum, and tobacco are prohibited except in the designated break areas.

Equipment

Produce contact tools, utensils, and equipment are made of materials that can be cleaned and sanitized. Equipment utilized by Gotham Farms is given a unique ID (see *EquipmentID*). Field trucks and vehicles are visually inspected prior to use each day for cleanliness and good working order. Pallets used for hauling produce do not come into direct contact with produce. Any pallet that has off putting odors, is broken, or visually contaminated is removed from circulation.

Sewage

All septic systems are sufficient capacity. After any significant event (ie flooding) the sewage and septic systems are inspected to confirm they are in good working order and not a source of potential contamination. There is sufficient distance or barriers or drains to prevent possible wastewater spillage contamination. There is no cross-connection of plumbing.

Health and Hygiene Policy

Potable drinking water is provided and available for employees in the packinghouse and farm.

Clean and well-maintained toilet and handwashing facilities are provided for all employees and visitors. All restroom facilities are properly supplied with toilet paper, potable water, soap, and single-use towels. These facilities are serviced and cleaned daily.

At a minimum Gotham Farms has one toilet for every twenty employees. Field toilets are portable and kept within ¼ mile distance. Measures are taken to keep any possible contamination from the portable field toilets from the growing fields and water supplies. These portable toilets are maintained by Gotham Portables (123.456.7890).

Everyone must wash their hands before beginning work and returning to work after taking breaks. Signs are posted to instruct employees to wash their hands before beginning and returning to work. Proper handwashing techniques and instructions are located at the hand washing station.

Only wedding bands are allowed, no other jewelry is permitted in the field or around post-harvest areas. Workers are not permitted to wear gloves unless they are serving as a protective barrier over bandages or false nails. Gloves will be replaced anytime the worker leaves their station, goes to the bathroom, become worn/torn, and anytime they have become unsanitary. Hands must be washed prior to putting on gloves. Gloves must be stored in a sanitary condition.

Illness & Injury

If someone is injured first aid kits are available for use at the packinghouse and farm managers truck. Supplies are updated after each occurrence and the kits are replaced as needed. All workers are instructed during training to deal with injuries immediately and notify the farm manager. This includes any cuts, abrasions, or other injury that happens while working. Personnel with exposed cuts, sores, or lesions are restricted from handling produce or food contact surfaces. If minor, the wound will be covered with a bandage and glove and the employee may return to work.

Immediate action must be taken If blood or other bodily fluid comes in contact with produce and/or food contact surfaces, or in production fields. If there is blood in the field, all contaminated surfaces will be removed to a plastic bag with a shovel or gloved hands and placed in a trash can. All affected soil will be shoveled up around and under the area and will be removed. All affected produce, as well as any packing materials, will be discarded in the burn bin. If there is blood or bodily fluid found on the packing line it will be cleaned and sanitized before restarting. All affected produce, as well as any packaging materials, will be discarded in the burn bin.

An employee who is sick should notify the farm manager immediately, and must not handle fresh produce. The following symptoms prohibit any person from contact with produce or food contact surfaces:

- Diarrhea
- Fever
- Vomiting
- Jaundice (when the whites of the eyes are yellowish and the skin has a yellowish tinge)
- Sore throat with fever
- Lesions containing pus on the hand, wrist, or any exposed body part

Chemical Applications

Only Bruce Wayne and employees with specialized training will handle regulated and non-regulated chemical substances including plant protective sprays. Workers are trained to never handle, mix, or apply any chemicals without direct supervision.

Potable water is used for mixing chemicals from a dedicated well (*Farm Map*) that is maintained to not become a source of contamination to production areas or water sources. The use of any chemical (pesticide, fungicide, post-harvest waxes, detergents, etc) will be labeled for use and comply at all times with regulations and label requirements. Label and SDS materials are maintained for every chemical used at Gotham Farms.

Soil History & Adjacent Lands

Farm 1 crop production land has been farm land for over 15 years. There are no concerns about previous land use related to microbial contamination. Strict measures and monitoring policies are in place to avoid animal soil contamination. Utilizing an enclosed water system safeguards the crop land from being susceptible to flooding. Any crop production area subjected to flooding will be tested for potential microbial hazards. Technical assistance will be sought through K-State Research & Extension. If any area of soil is determined to be a health hazard it will be removed from crop production until it is treated and/or no longer presents microbial hazards.

North of Farm 1 is commercial and residential development that poses no risk. East of Farm 1 is zoned low density residential with one home per ten acres, posing no risk to Farm 1. South of Farm 1 is wetlands and preserved natural habitat, posing some risk from animal contamination. West of Farm 1 is owned by Conservation 20/20 and poses the largest risk of animal intrusion.

Soil Amendments

Biosolids and biological soil amendments of animal origin (manure) are not utilized at any time. Fertilizers are stored and applied following all label guidelines.

Untreated biological soil amendments of animal origin will not be utilized by Gotham Farms. Only treated soil amendments will be obtained from third parties. Any biological soil amendments of animal origin received from a third party must provide certain documentation. This documentation must show 1) the process used to treat the soil amendment is a scientifically valid process, 2) has been carried out with appropriate process monitoring, and 3) that it has been handled in a way that minimizes the risk of contamination. Documentation must be renewed annually.

Untreated soil amendments of animal origin adhere to NOP protocols for application to harvest intervals (90/120 days). Raw manure is not used on commodities that are harvested within 120 days of planting. Untreated amendments are stored outside of production and away from water sources and distribution (see Farm Map). Measures are in place to prevent runoff or contamination risks from untreated amendments (topography and buffers). Any equipment used for handling untreated

amendments are dedicated and clearly identified with red tape. At all times, untreated amendments are applied, handled, and stored in a manner to minimize contamination risks.

Biosolids must be used in accordance with the requirements of 40 CFR part 503, subpart D.

Wildlife, Livestock, & Domesticated Animals

Cattle are located throughout the outside perimeter of Farm 1. Any produce field that has the potential for cattle intrusion employ two protective measures: fencing and dykes. Barbed wire fencing is run on the outside of the dykes (5'H x 20'W) surrounding our produce areas. Cattle guards are located at gate entrances.

No pets are allowed in or near the packinghouse or farm. Animals are not permitted to ride through the farm. Gotham Farms does not use service animals.

Outside cattle our primary wildlife problem comes from hogs. Conservation 20/20 runs parallel to the west side of Farm I. This is a natural habitat area for hogs that extends the western side of Farm 1. The fields are run intermittently during days/nights to monitor and deter wildlife activity. If field intrusion activity becomes routine the wildlife is hunted. While there are not high concentrations of bird populations, during planting the fields are monitored (particularly for dove and quail) with measures taken to limit intrusion. Also, grass is mowed down to prevent any types of nesting around the ponds.

Farm Inspections

Crop production areas are monitored for physical hazards (glass/plastic breakages, metal, rocks, trash, etc) and animal intrusion (presence and signs of wild and domestic animals entering the production areas). This includes evaluating the fence lines and eliminating potential field weaknesses allowing animal entry and exit. A field perimeter check of the entire farm is completed over a two-week cycle. This is conducted to look for animal tracks and pathways, animal resting areas, or other signs of animals in the fields. Employees are instructed to notify the farm manager if they notice signs of animal intrusion.

Pre-Plant Assessments are completed annually. *Pre-Harvest Checklists* are completed prior to harvesting that examine the risks of potential contaminants from physical, chemical, or biological sources.

Field Sanitation and Hygiene

Gotham Farms employs a red flag to assist in identifying produce that is unsafe for harvest (high likelihood of contamination risks). Produce within a red flags 2ft diameter will not be harvested.

Field toilets are kept within walking distance but located away from production areas to avoid contamination. Field sanitation units are directly accessible for serving and serviced regularly. Service records are kept for field sanitation units.

Physical hazards are inspected for and removed during the harvesting process. At no point will clothes, towels, or other cleaning materials be used to wipe produce clean. Any object that comes into direct contact with produce must be 1) clean, 2) in good working condition, and 3) sanitized on a scheduled basis. This includes hands, harvesting equipment and bins, hauling vehicles, processing equipment, and storage equipment. Damaged containers that cannot be properly repaired are disposed of.

Harvesting bins will ONLY be used for transporting produce. If there is an excessive buildup of organic material (dirt) the container will be rinsed out. Produce that has excessive amounts of dirt will be rinsed on the washing table (see *Map*).

Facilities

Buildings and equipment structures are constructed in a manner that facilitates cleaning and does not serve as harborage for contaminants or pests. Storage facilities are inspected for foreign materials prior to use and logged when present. The chemical shed is located at the shop. All chemicals are stored away from harvested produce. Non-food grade substances are stored away from production and post-harvest areas (see *Map*). Sanitation chemicals have their own storage area separate from the processing line.

Trash receptacles are located away from produce and food contact surfaces. Garbage disposal bins are covered and located away from packinghouse entrances. Areas outside the packinghouse are free of debris that could harbor pests and free of standing water.

A coolbot (48-52°) and cooler (32-35°) are used for storing produce. Cold storage rooms have a temperature log posted at the entrance. Temperatures are maintained via a digital gauge and thermometer. Calibration steps are taken weekly to confirm temperature gauges are accurate.

Cold storage is maintained and kept clean. The units are inspected daily for functionality, debris, odors, and moisture (drip, condensate, or pooled water). Any observations and corrective actions are logged. Refrigeration equipment is cleaned at a minimum bi-annually and as necessary.

Chill and cold storage loading dock areas are appropriately sealed, drained, and graded. Water from refrigeration drip pans is drained and disposed of away from produce and food contact surfaces. Drip pans and drains are designed to assure condensate does not become a source of contamination. Air intakes are not located near potential sources of contamination.

Cleaning & Sanitization

Any object that comes into contact with produce (hands, harvesting equipment, hauling, processing equipment, storage equipment, etc) must be clean and in good working condition. All food contact

surfaces are made of materials that can be cleaned and sanitized. The cleaning and sanitation process consists of the following steps: 1) clean, 2) detergent, 3) rinse, and 4) sanitize. This applies to any aspect of the operation that is identified for cleaning. Only potable water is used for cleaning and sanitization.

- 1) dirt and debris is removed from the food contact surface with a brush and/or light rinse
- 2) detergent is applied and scrubbed
- 3) surface is rinsed to remove all detergent and soil
- 4) sanitizer applied and rinsed or allowed to air dry pending label requirements

Water - Farm

Water used in irrigation that comes into direct contact with produce will be potable. Water used for irrigation that does not come into direct contact with produce will be to recreational standards. Gotham Farms employs seepage irrigation for all produce fields. Barbed wire fencing is used as a protective barrier anywhere livestock could contaminate our water supply. Livestock animals are not allowed in or near sources of irrigation water.

Gotham Farms utilizes an enclosed water system. Dykes -approximately 5'H x 20'W- run the perimeter of every produce field to prevent outside flood water contamination. The water source for Farm 1 is groundwater wells (90-110ft). The water source for spray rigs is a shallow well (35ft) at F1A. The water map details the source & distribution methods for all agricultural water.

Water used during harvest is microbially safe. A recurring observational review of the entire water source areas and distribution systems is conducted. If there are any concerns of potential hazards or unsanitary water, immediate actions are taken to mitigate potential contaminants and the source is retested.

Water - Packinghouse

All post-harvest water is potable. At no point will surface water from ponds, lakes, streams, ditches, or canals be used in post-harvest operations. Water distribution systems are maintained and inspected daily to prevent contamination risks. Any unsanitary conditions must be addressed prior to running any produce and will be logged.

Produce Wash Lines - To minimize the risk of microbial contamination and biofilms, water used for washing produce is treated at 25 ppm chlorine with a pH range of 6.5-7.5. Water is tested before operations begin and hourly (*Hach Free & Total Chlorine Test Strips* and *digital pH meter**).

Wet Hoppers - Dump tank water is replaced at the beginning of each day and as needed (if contamination event occurs or abnormally high organic loads). Dump tank water is monitored hourly. Corrective actions are taken and documented when testing ranges are outside the optimal range. Optimal water ranges for the dump tank are the following:

- 1) 6.5-7.5 pH

- 2) 50-100 ppm Free Chlorine
- 3) Low turbidity

Free chlorine levels are tested using *Hach Free & Total Chlorine Test Strips*. Chlorine pH levels are tested using a *digital pH meter* (built in calibration and compared against city water weekly). The organic load is visually examined.

To minimize the risk of infiltration, dump tank water should not be colder than pulp temp. The temperature difference between produce and dump/flume tanks will be no greater than 10 degrees (tested with thermometer, calibrated weekly). Produce will not remain in tanks for longer than 5 minutes.

Water - Testing

Wells are tested annually and surface water three times per year. (Water sample collection is performed by Bruce Wayne. Samples are collected aseptically and immediately placed in a cooler with ice and delivered to XXX for testing) OR (by Gotham Laboratories 123-456-7890).

Produce Line

Food contact surfaces, dump tanks, flumes, and wash basins are kept in good condition and cleaned and sanitized before use as needed. All direct food contact areas (washing, grading, sorting, and packing lines) are cleaned as necessary with a minimum weekly clean every Wednesday. Product flow zones are monitored and protected from sources of contamination.

Only food-grade cleaners may be used in cleaning food contact surfaces. Only food grade lubricants (Vestan FM Grease) are used on packing and other equipment that comes into contact with produce.

Boxes, Bins, & Packaging Materials

Only new or sanitized containers are used for packing produce. All bins, buckets, and materials used for containing produce will be of impervious material. Packaging materials will be appropriate to their intended use. Produce containers will only be used for produce, unless clearly labeled for an alternate purpose. All product containers are visually inspected prior to use and must be free of foreign materials, clean and in good working condition.

Boxes are stored in a trailer that is connected to the packinghouse. Assembled boxes are stored on pallets and covered with a tarp in the loft. Cardboard boxes are not reused. Harvesting containers are stored inside the packhouse and off the ground.

Bins are cleaned at the beginning of the season and as needed. Harvesting containers are cleaned daily at the washing station (no sanitizer is used, only the first 3 steps of cleaning & sanitization process).

Produce Transportation

Any produce stored outside is covered to protect from possible contamination. All delivery trucks and vehicles used to transport produce are maintained to meet all food safety requirements. Prior to loading, trucks are inspected for cleanliness and odors that could indicate contamination risks. Transports are cleaned and sanitized as necessary. The trucks and equipment used to load them are not used for any other purposes. Special care is taken during loading to minimize product damage. At no point are livestock, animals, or chemicals allowed inside the transports.

For transportation to market, travel trailers are cooled to between 48-52° prior to loading of produce. They shall be properly maintained and functional. A log will be kept listing the date/time/temperature (thermometer utilized for measuring temperature) prior to each load.

Handling a Septic or Sanitation Hazard in the Field

All contaminated surfaces will be removed to a plastic bag with a shovel or gloved hands and placed in a trash can. All affected soil will be shoveled up around and under the area and will be removed. All affected produce, as well as any packing materials, will be discarded in the burn bin. Sanitation facilities that have been tipped will immediately be dealt with in a manner that minimizes the risk of contaminating the produce. The following cleanup steps will be performed for a contamination event in or near field boundaries (gas, sanitation unit, septic leakage, blood, bodily fluids, etc):

1. Any affected produce is immediately disposed of in a covered waste bin
2. The contaminated area will be marked off with caution tape or string
3. Signs in appropriate languages will be posted at the perimeter prohibiting entry to the contaminated area
4. People and animals will be kept out until the area is sufficiently decontaminated
5. Solid waste still resting on the surface will be collected and removed to the waste bin
6. Affected permanent structures will be hosed off and disinfected with a dilute bleach solution
7. The sanitation unit will be cleaned up and replaced by Gotham Portables
8. Spillage event and corrective actions will be recorded

Employee Training

All employees receive training upon hiring and annually in food safety. All worker training includes 1) watching the worker hygiene DVD, and 2) reviewing the worker training flyer.

Any reference to commercial products, trade names, or brand names is for example purposes only, and no endorsement or approval is intended.