Generally Accepted Fruit, Vegetables, Dairy, Meat, and Grain Processing Practices For Noise and Odor

Michigan Department of Agriculture & Rural Development

DRAFT 2023-2024
P.O. Box 30017
Lansing, MI 48909
Phone: (844) 424-7762
www.michigan.gov/gapps

TABLE OF CONTENTS

PREFACE **2**

I. INTRODUCTION **3**

About This Document 3

II. DEFINITIONS **4**

III. NOISE **6**

Exceptions 6

Documentation and Conformance 7

IV. ODOR **8**

Exceptions 9

Documentation and Conformance 10

V. APPENDIX A - GAPP Management Plan **11**

Description of Facility: 11

Noise Monitoring: 11

Odor Monitoring 11

VI. APPENDIX B - REVIEW COMMITTEE **12**

PREFACE

The Michigan legislature passed into law the Michigan Agricultural Processing Act, (1998 PA 381), which requires the establishment of Generally Accepted Fruit, Vegetable, Dairy, Meat and Grain Processing Practices. These Generally Accepted Processing Practices (GAPPs) are written to provide uniform, statewide standards and acceptable management practices based on standard industry practices. These practices can serve processors in the various sectors of the industry for comparison or improvement of their own managerial routines. New scientific discoveries and changing economic conditions may require necessary revision of the GAPPs.

These practices were developed with industry, university, and multi-governmental agency input. As agricultural processing operations continue to change, new practices or technologies may become available to address the concerns of the neighboring community. Agricultural processors who voluntarily follow these practices are provided protection from public or private nuisance litigation under the Michigan Agricultural Processing Act.

Adherence to these GAPPS does not affect the application of other state and federal statutes.

The Michigan Department of Agriculture and Rural Development (MDARD) website for GAPPs is http://www.michigan.gov/gapps.

I. INTRODUCTION

Like all other segments of our economy, agriculture has changed significantly during the past 50 years and will continue to change in the future. Agricultural processing has also experienced these same economic, technical, and competitive changes, as land use changes around these operations. As a result, processing facilities must have the flexibility and opportunity to change and adopt newer technology to remain economically viable and competitive in the marketplace while being protective of the environment. If a healthy, growing processing industry in Michigan is to be assured, efforts must continue to address concerns of processors and their neighbors, particularly in two areas: (1) processors who use GAPPs in their operations should be protected from harassment and nuisance complaints and (2) persons living near processing operations, who do not follow GAPPs, need to have concerns addressed when nuisance problems occur.

No two processing operations in Michigan can be expected to be the same, due to a large variety of variables, which together determine the nature of a particular operation. Record keeping is an important part of any processing operation. A GAPPs Management and Monitoring Plan is recommended for all processors. This plan will help the processor show conformance with the GAPPs. Processors may request a proactive inspection from MDARD for a GAPPs determination. Upon receipt of a nuisance complaint to MDARD, or as result of a proactive inspection, the processor may be required to develop a management and record keeping plan to verify conformance with the GAPPs. In addition to the information contained in this document, conformance with GAPPs requires that the management, storage, transport, utilization, and land application of fruit, vegetable, dairy product, meat, and grain processing by-products be in a manner consistent with Generally Accepted Agricultural and Management Practices as established under the Michigan Right to Farm Act, 1981 PA 93, MCL 286.471 to 286.474.

About This Document

For quick reference, management standards are first presented as a **bold text** statement. This list is not meant to convey all the information regarding GAPPs. Rather, it is intended to be a useful tool to assist individuals in determining what management practices exist and in what section of this document further information can be found. The remainder of the document provides additional information on each of these management practices. The un-bolded text provides supplemental information to help clarify the intent of the recommended management practices.

Appendix A provides an outline for development of a GAPPs Management Plan.

II. DEFINITIONS

(a) "Dairy product" means all of the following:

(i) Dairy product as that term is defined in section 12 of the manufacturing milk law of 2001, 2001 PA 267, MCL 288.572.

(ii) Milk product as that term is defined in section 4 of the grade A milk law of 2001, 2001 PA 266, MCL 288.474.

(b) "Fruit and vegetable product" means those plant items used by human beings for human food consumption including, but not limited to, field crops, root crops, berries, herbs, fruits, vegetables, flowers, seeds, grasses, tree products, mushrooms, and other similar products, or any other fruit and vegetable product processed for human consumption as determined by the Michigan Commission of Agriculture and Rural Development.

(c) "Generally accepted fruit, vegetable, dairy product, meat, and grain processing practices" means those practices as defined by the Michigan Commission of Agriculture and Rural Development. The Michigan Commission of Agriculture and Rural Development shall give due consideration to available Michigan Department of Agriculture and Rural Development information and written recommendations from the Michigan State University College of Agriculture and Natural Resources Extension and the Agricultural Experiment Station in cooperation with the United States Department of Agriculture, the United States Food and Drug Administration, the Michigan Department of Environment, Great Lakes and Energy, and other professional and industry organizations.

(d) "Grain" means dry edible beans, soy beans, small grains, cereal grains, corn, grass seeds, hay, and legume seeds in a raw or natural state.

(e) "Person" means an individual, corporation, partnership, association, limited liability company, or other legal entity.

(f) "Processing" means the commercial processing or handling of fruit, vegetable, dairy, meat, and grain products for human food consumption and animal feed, which includes but not limited to the following:

(i) The generation of noise, odors, waste water, dust, fumes, and other associated conditions.

(ii) The operation of machinery and equipment necessary for a processing operation including, but not limited to, irrigation and drainage systems and pumps and the movement of vehicles, machinery, equipment, and fruit and vegetable products, dairy products, meat, and grain products ***(cont'd page 5...)***

and associated inputs necessary for fruit and vegetable, dairy, and grain, food, meat, or feed processing operations on the roadway as authorized by the Michigan vehicle code, 1949 PA 300, MCL 257.1 to 257.923.

(iii) The management, storage, transport, utilization, and land application of fruit, vegetable, dairy product, meat, and grain processing by-products consistent with generally accepted agricultural and management practices as established under the Michigan Right to Farm Act, 1981 PA 93, MCL 286.471 to 286.474.

(iv) The conversion from one processing operation activity to another processing operation activity.

(v) The employment and use of labor engaged in a processing operation.

(g) "Processing operation" means the operation and management of a business engaged in processing.

(h) “State statutes” includes, but is not limited to, any of the following:

( ) The county zoning act, 1943 PA 183, MCL 125.201 to 125.240.

(ii) The township zoning act, 1943 PA 184, MCL 125.271 to 125.310.

(iii) The city and village zoning act, 1921 PA 207, MCL 125.581 to 125.600.

(iv) The Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, MCL 324.101 to 324.90106

(i) "Unverified nuisance complaint" means a nuisance complaint in which the director of the Department of Agriculture and Rural Development, or his or her designee, determines that the processing operation is using generally accepted fruit, vegetable, dairy product, meat, and grain processing.

III. NOISE

Noise that arises from the normal and necessary operation of an agricultural processing operation should be managed to the extent practical to avoid creating a nuisance condition for neighboring properties.

The goal with outdoor noise levels is to reduce the intensity, frequency and duration of the noise and to manage the operation in a way that tends to create a positive attitude towards the operation. Because of the subjective nature of human responses to noise levels, recommendations for appropriate technology and management practices are not an exact science. A variety of practices can be used based upon the type of noise, proximity of neighbors and populated areas, and the time of day the noise levels are at their greatest. Maintaining a noise level of no greater than 75 decibels (dB), based upon an eight-hour time weighted average, measured at the property line is below the established standard for workers inside a building and should prevent creating health concerns for neighbors. Standard operations should be at a minimum maintained below this level to avoid creating nuisance concerns. In addition, the following conditions should be considered:

1. Some common contributors of noise coming from a processing facility include fan motors, evaporators, heating and ventilation systems, and loading/unloading areas. Sound reduction barriers may be utilized to reduce noise from these areas. Sound reduction barriers can take on a variety of forms. They can include the installation of noise reducing materials around the system, earthen berms, or the planting of tree and hedge barriers. The practices installed at a particular facility will vary depending upon the equipment used and the site specific conditions.

2. Assuring source equipment is in good repair and management consistent with industry practices and manufacturers recommendations is essential to maintaining reasonable facility noise levels.

3. Conformance with this GAPP does not relieve the processor of the obligation to comply with lawful and regulatory limits.

Exceptions

Certain events at a processing facility will create noise levels distinct from normal operations. These events create acceptable exceptions to this GAPP. Three classes of such events are especially relevant.

1. Seasonal Variation. Most food processors use raw agriculture products that have well defined harvesting times which result in peak processing needs for in-plant operation and input logistics (trucks, storage equipment, etc.). During these peak seasonal events, noise levels may exceed those of more normal operations but remain necessary for the effective operation of the processor.

Noise levels exceeding the 75 dB, or normal operation levels, but necessary to temporary peak operations are considered to be in conformance with this GAPP.

2. Maintaining Worker Safety. Due to worker safety concerns and compliance with worker safety requirements, vehicles and equipment may be equipped with safety devices such as back-up beepers or audible warning alarms. This equipment is considered essential to protecting worker safety. Operation and use of these alarms shall be considered to be in conformance with these GAPPs.

3. Construction, Maintenance, and Site Modifications. There may also be unique temporary circumstances which will affect the noise level of a processing site. During time periods where there are temporary disruptions to normal operations, processors should be encouraged to alert neighboring property owners of the circumstances and the duration of the project. Standard practices shall be utilized and the noise associated with those practices should be considered to be in conformance with this GAPP.

Documentation and Conformance

Processing facilities should monitor noise levels outside of their buildings and at the property line. Records should be maintained to show the noise levels detected at various times throughout the operational day and year in order to determine seasonal variations. The records should be maintained on site to show conformance with this GAPP.

Depending on the perceived noise, it may be possible to estimate the noise level without instrumentation. There are various charts available of the noise levels at some distance of common noise generators. If various background noises such as insects, nearby highways, etc. can be used for comparison, be sure to include them in the documentation.

If a noise survey has been performed in the work spaces, it may be possible to conduct a comparison between the various determined zones of noise levels and those outside of the building for an estimate.

Instrument measurements are beneficial when the decibel level is questionable. When instrumentation is used, be aware that noise can originate from multiple sources. Measurements at different distances may be useful to determine if off-site sources are contributing. Building walls, hills, and other structures may reduce noise levels. The drop-in noise levels resulting from the implementation of these practices is highly variable and should be measured on-site to determine actual effectiveness. Alternatively, they can be left out of any measured values and referenced as an additional factor, not included in the measurement, rendering the result as a conservative estimate.

IV. ODOR

Odor that arises from the normal and necessary operation of an agricultural processing operation should be managed to the extent practical to avoid creating a nuisance condition for neighboring properties.

The goal for effective odor management is to reduce the frequency, intensity, duration, and offensiveness of odors, and to manage the operation in a way that tends to create a positive attitude toward the operation. Because of the range of human sensitivities to certain odors, odor management should consider that some people will be more adversely affected by a given odor than others. Selection of appropriate technologies and odor management practices must be determined on a case-by-case basis considering the source and nature of the odors as well as varying human sensitivity. The recommendations in this section are intended to provide a variety of responses that can be used to address odor concerns. The following management practices provide guidance on how to minimize potential odors from processing operations.

The principles upon which the most common and effective techniques for odor control are based include (1) reducing the formation of odor-causing gases and (2) reducing the release of odorous gases into the atmosphere. The degree to which these principles can be applied to the various odor sources depends on the level of technology and management that can be utilized.

One main source of odors are those associated with the anaerobic (in the absence of oxygen) decomposition of organic material by microorganisms. The intensity of odors depends upon the biological reactions that take place within the material, the nature of the material, and the surface area of the odor source. Sources of decomposition can include organic materials stored on-site prior to removal.

Processors should select and implement those practices which are applicable, appropriate, and practical for their operations. Odors may indicate an inefficient or improperly operated activity and opportunities may exist to increase operational efficiencies. The following are several practices that can be considered in reducing odor concerns:

- Avoid storage of materials which will create odor-forming gases to the extent possible. Alternatives should be considered for reducing storage of these materials or reusing them in a beneficial manner.
- Use available weather information to your best advantage. Temperature inversions and hot, humid weather tends to concentrate and intensify odors, particularly in the absence of breezes, while turbulent breezes will dissipate and dilute odors.
- Take advantage of natural vegetation barriers, such as woodlots or windbreaks, to help filter and dissipate odors.

Establish vegetated air filters by planting conifers and shrubs as windbreaks and visual screens between odor sources and residential area.

- The odor of fermented processing materials, such as waste products or products headed to a secondary market, can be minimized by storing them at the appropriate dry matter content (generally no greater than 33 percent moisture). Keeping excessive moisture out of the material will reduce the presence of anaerobic bacteria. Use covered storage if technically and economically feasible and evaluate ventilation systems to prevent buildup of gases, moisture, and heat that may intensify odors.
- Design operate and maintain by-product and waste handling and treatment systems per established good engineering practices and standards.
- Establish operating procedures for handling and treatment of by-products and wastes. Ensure employees are properly trained in these operational procedures.
- Frequent removal of spilled materials from outside spaces, coupled with appropriate storage will reduce odor potential.
- Avoid disturbing odor sources (such as dredging storage ponds) during times such as holidays and community events to the extent possible. Take advantage of cold weather seasons to complete these activities when feasible. Communicating with landowners as to when these events will occur and the duration of the event can help reduce odor concerns.
- Clean exhaust fans and shutters regularly of dust and debris to maximize warm season ventilation.
- Maintain equipment in good working order and in accordance with normal management practices.
- Maintaining positive community relations will also prevent the occurrence of nuisance complaints. Keeping the facility area esthetically pleasing and participation in community events helps to build positive community relations.

Exceptions

Due to the nature of processing, certain odors may increase in intensity for a limited period of time during process start-up, shut-down, or product changeover. Other activities integral to agricultural processing, such as agitation, cleaning, and maintenance of storage structures or ponds, can occur at various times of the year, depending upon the operational needs of the facility. These temporary changes are acceptable under this GAPP provided they are normal and necessary to the operation. These activities may increase the intensity of the odors but should be relatively short in duration. Some larger facilities, or those with unique circumstances, may require a greater period of time for completing these activities in an appropriate manner. When possible, proper planning should occur prior to the event. Processors should maintain records of when these events occur and evaluate improvements to reduce odors and incorporate those improvements into their Odor Management Plan. Care should be taken to minimize off-site odor impacts to avoid creating a violation under the Natural Resources and Environmental Protection Act, Public Act 451 of 1994.

Documentation and Conformance

Documenting conformance with odor reduction should include routine olfactory observations made around the facility. A processor should evaluate their facility for potential odor sources and determine what practices are appropriate for addressing the concerns. Keeping records of odor events noted by employees, service providers, and neighbors, and determining the source of the concern will help the processor in addressing future concerns and create awareness by the processor of the activities creating potential odor concerns.

The development of an Odor Management Plan can also assist the processor in identification of odor sources and implementation of odor reduction practices. The goal of an effective Odor Management Plan is to identify opportunities and propose practices and actions to reduce the frequency, intensity, duration, and offensiveness of odors that neighbors may experience in such a way that tends to minimize impact on neighbors and create a positive attitude toward the processor. A processor experiencing odor concerns from a neighboring property should develop an Odor Management Plan in order to attempt to avoid neighbor conflicts. Some aspects of an Odor Management Plan include working with employees or routine service providers and asking them to report noticeable offensive odor events as they come and go from the facility and travel the community. The intent is to establish and maintain an effective, open line of communication with immediate neighbors so that they too will be comfortable reporting odor events to the facility.

V. APPENDIX A - GAPP Management Plan

Description of Facility:

- Indicate facility type, location and operational times
- Identify times of year where increases in noise and odor levels are expected to be greatest due to operational changes
- Schedule for plan review and evaluation

Noise Monitoring:

- Identify any areas of noise generation that may create a concern for neighboring properties
- Determine what practices may be utilized to reduce or eliminate noise level concerns
- Determine frequency of noise to determine appropriate monitoring schedule
- Document schedule that will be followed
- Document methodology that will be used to determine noise levels (i.e. comparison to common noise generators, monitoring equipment)
- Keep records

Odor Monitoring

- Identify any areas of odor generation that may create a concern for neighboring properties
- Determine what practices may be utilized to reduce or eliminate odor concerns
- Determine frequency and quantify intensity of odor to determine appropriate monitoring schedule
- Document schedule that will be followed
- Document methodology that will be used to determine odor levels (i.e. complaints from neighbors, employees, or regular service providers)
- Keep records

VI. APPENDIX B - REVIEW COMMITTEE

Listed below are the Food Processing GAPP Committee members that developed these Generally Accepted Fruit, Vegetable, Dairy, Meat, and Grain Processing Practices for Noise and Odor for agricultural processing operations.

Dr. H. Christopher Peterson, Chair
Nowlin Chair of Consumer- Responsive Agriculture & Michigan State University – Product Center Food-Ag-Bio Justin S. Morrill Hall of Agriculture
446 W. Circle Drive, Room 83 Michigan State University East Lansing, MI 48824
(517) 355-1813
(517) 432-1800 - FAX
peters17@anr.msu.edu

Kim Baiers
Pinnacle Foods, Inc.
100 Sherman Street
P.O. Box 1050
Fennville, MI 49408
(269) 561- 8211 Ext. 229
kim.baiers@pinnaclefoods.com

Laura Doud
Michigan Dept. of Agriculture and Rural Development
P. O. Box 30017
Lansing, MI 48909
(517) 284-5626
(517) 335-3329 - FAX
doudl@michigan.gov

Tim Brian
Smeltzer Orchard Company
6032 Joyfield Road
Frankfort, MI 49635
(231) 882-4421 tim@smeltzerorchards.com

Matthew B. Eugster
Varnum Law
333 Bridge Street NW
Grand Rapids, MI 49504
(616) 336-6821
(616) 336-7000 – FAX
mbeugster@varnumlaw.com

Jim Johnson
Michigan Dept. of Agriculture and Rural Development
P. O. Box 30017
Lansing, MI 48909
(517) 284-5602
(517) 335-3329 – FAX
johnsonj9@michigan.gov

Kurt Koella
Lakeshore Environmental, Inc.
803 Verhoeks Street
Grand Haven, MI 49417
800-844-5050
kurtk@lakeshoreenvironmental.com

Terry Morrison
Michigan Food Processors Association
4747 S. Elm Valley Road
Suttons Bay, MI 49682
(231) 271-5752 mfpa@centurytel.net

Steve Smock
Michigan Sugar Company
2600 S. Euclid Avenue
Bay City, MI 48706
(989) 686-0161
Steven.Smock@Michigansugar.com