FARM CRISIS OPERATIONS PLANNING TOOL

Pig farmers are not immune to local, state, regional or national emergencies. Emergency events such as natural disasters, disease outbreaks, public health emergencies or market disruptions can lead to reduced or suspended access to resources needed to manage and care for pigs. This can force farmers to deviate from their daily standard operating procedures (SOPs).

In preparation for these emergency events, it is important for farmers to work with their production team, including their herd veterinarian, to establish site- or operation-specific crisis operating plans that help contribute to business continuity. This tool highlights key resources and supplies that may be affected during various states of emergency. It can also be used to facilitate discussion and planning for how to anticipate and implement emergency operation plans before the next state of emergency.

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NATIONAL PORK PRODUCERS COUNCIL

SHIC Swine Health Information Center

AMERICAN ASSOCIATION SWINE VETERINARIANS

Operational Modes

Throughout the course of an emergency, a farm may experience a continuum of 3 operational modes[1]:

- **Conventional** – The animal facilities, caretakers, or farm resources used are consistent with daily practices within the farm.
- **Contingency** – The animal facilities, caretakers, or farm resources used are not consistent with daily practices but are functionally equivalent to usual daily practices within the farm.

- **Crisis** – The animal facilities, caretakers, or farm resources used are not consistent with daily practices and require significant adjustment to daily SOPs to manage and care for pigs.

If human resources and material supplies grow scarce during an emergency, the farm's operational mode will shift away from conventional and move toward contingency or crisis mode. Trigger points for a farm implementing crisis mode can include[1]:

- **Animal space/facilities** – The facility where pigs are housed is damaged (e.g., tornado, hurricane, or fire) or space resources are overwhelmed (e.g., extended stop movement) and delay presents a significant risk of increased morbidity or mortality.
- **Animal caretakers** – Staff are unavailable in a timely manner to provide or adequately supervise pig care.
- **Farm resources/supplies** – Resources or supplies are unavailable or there is no suitable substitution, leading to risk of pig morbidity or mortality.

In an emergency, the goal of the farm is to manage the situation and return to conventional operations mode as quickly as possible by implementing strategies that substitute, conserve, adapt, and reuse critical resources, including the way staff deliver care.

Communication to staff, partners, and customers is essential during a crisis mode to minimize long term impacts of the emergency. Farms should clearly document the date and justification for implementing crisis operational mode and the date contingency or conventional operations are resumed. This will ensure all team members are aligned on expectations and customers understand the deviation in future on-farm audits or verification processes.

Using This Tool

A description of how each resource or supply may be affected during various states of emergency and specific factors to consider when developing a crisis operations plan are provided. The factors provided are meant to generate discussion and ideas but not intended to be prescriptive or exhaustive. Space is provided to document a site- or operation-specific plan for each resource during crisis operations. It is important to consider how long this plan can realistically be sustained.

Space is provided to document an alternate crisis operations plan, if needed. The need for an alternate crisis operations plan will depend on the availability of resources to execute the primary crisis operations plan, the length of time the primary crisis operations plan can be maintained, and the duration of the emergency. Finally, space is provided for producers to add resources that are unique to their farms that may not be included in the worksheet.

This tool can be used in partnership with the site or operation's Emergency Action Plan (https://lms.pork.org/Tools/View/emergency-action-plan) and the Pork Industry Farm-Level Crisis Plan (https://lms.pork.org/Tools/View/farm-level-crisis-plan).

Resources and Supplies

Feed Availability

Availability of feed ingredients, reduced feed mill capacity, and reduced capacity to deliver feed to the farm may become issues in an emergency.

Factors to consider when developing a crisis operations plan for feed availability include:

- Consider use of alternative feed ingredients.
  - A publication, "Alternative feed ingredients for pigs" can be viewed at https://uploads-ssl.webflow.com/5d93b00ac916fc5ea0c1750d/5de920372fba67b209fc829a_LSC2007_SteindeLange.pdf.
- Take steps to reduce feed wastage.
  - For feeder adjustment cards showing properly adjusted feeders for nursery, grow-finish, and lactation, go to https://www.asi.k-state.edu/research-and-extension/swine/feeder-adjustment-cards.html.
  - For a useful reference on how to prevent feed waste, go to https://thepigsite.com/articles/management-practices-to-reduce-expensive-feed-wastage.
- Consider alternative or restricted feeding strategies to conserve feed.
- Devise strategies for alternative feed delivery to the farm.
  - Road closures may require alternate routing to the farm.
  - Biosecurity restrictions may prevent the feed truck from accessing the feed bins or may require a decontamination process to enter and leave the farm.

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Duration of time this plan can be sustained: _____

Alternate crisis operations plan for feed availability:

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Duration of time this plan can be sustained: _____

Water Availability

Water is an essential nutrient for pigs. However, water availability and quality may be compromised during natural disasters.

Factors to consider when developing a crisis operations plan for water availability include:

- Consider the current water source for the farm and if access to public (e.g., rural water systems) or private (e.g., wells or cisterns) water sources is possible. If water must be trucked in, biosecurity restrictions may prevent the truck from accessing the barn or may require a decontamination process to enter and leave the farm.
- Consider what infrastructure (such as line and booster pumps) would be needed if an alternative water source is used.
- Consider if alternative water sources would need to be treated for bacteria, such as fecal coliform, prior to use.
- Consider auxiliary power sources during long power outages if the water source is reliant on power supply.
- Consider ways to reduce water use at the farm including dry cleanup, barn washing, and employee shower use.
- Take steps to reduce excessive water use at drinkers and during other tasks on the farm that require water usage.
- Monitor water usage and quality. An extension publication on suggested daily water intake and water quality guidelines is titled, "Water: the essential nutrient", and is available at https://thepigsite.com/articles/water-the-essential-nutrient. This information also is available in the Pork Quality Assurance® Plus program. Download the PQA Plus® manual at http://www.porkcdn.com/sites/all/files/documents/PQAPlus/V4.0/Forms/PQAv4e_Handbook.pdf.

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Alternate crisis operations plan for water availability:

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Duration of time this plan can be sustained: _____

Farm Supply Inventory

Availability and delivery capacity of supplies needed for daily farm operations may become issues in an emergency.

Factors to consider when developing a crisis operations plan for farm supply inventory include:

- Identify supplies that are non-essential and can be temporarily eliminated during crisis operations mode to minimize people coming to the farm.
- Develop and assess company policy for having a 1- to 2-month stockpile of critical supplies. Examples include diagnostic sample collection supplies, euthanasia supplies, artificial insemination supplies, personal protective equipment, disinfectants, detergent and toilet paper.
- Maintain an inventory of critical mechanical supplies and replacement parts, such as pump motors and ventilation control modules.
- For boar studs and sow farms, consider alternative logistics for semen supply and delivery.
- Reassess the herd health plan with the herd veterinarian. There may be a need to alter vaccination schedules to accommodate restricted access to animal health products.

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Alternate crisis operations plan for farm supply inventory:

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Duration of time this plan can be sustained: _____

Non-essential Personnel and Visitors

During a disease outbreak, pubic health emergency, or natural disaster, it may become necessary to limit farm access to essential personnel only. Individuals who are not involved in day-to-day operations, but whose activities may necessitate a farm visit inside or outside of animal housing may be considered non-essential in times of crisis operations. Limiting access by non-essential personnel and visitors may become necessary to protect human safety or prevent unwanted entry of pathogens onto the farm.

Factors to consider when developing a crisis operations plan for non-essential personnel and visitors include:

- Define who is, and who is not, considered essential staff and implement policies about their access to the farm.
  - General biosecurity practices for non-farm personnel can be found here https://library.pork.org/media/?mediaId=41A7CFB3-8856-4DE7-82216ADAF811B745.
- Consider the need and use for contract work crews (e.g., vaccination and load out) and whether these crews are available, if they should continue to be used, or if tasks could be performed by farm staff.
- Reschedule visits from non-farm personnel (e.g., auditors and farm tours) to a time when the farm has moved from crisis operations mode to contingency or conventional mode.

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Alternate crisis operations plan for non-essential personnel and visitors:

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Duration of time this plan can be sustained: _____

Caretaker Personnel Availability

Caretaker personnel may be unable to report to work due to natural disasters, public health or public safety emergencies, or zoonotic disease outbreaks. However, daily care must be provided to pigs on the farm.

Factors to consider when developing a crisis operations plan for caretaker personnel availability include:

- Define basic animal care tasks. At a minimum, these must include providing feed, providing water, assuring livable air quality and temperatures, and administering timely euthanasia to prevent animal suffering.
- Establish priority of completion for other daily tasks. Daily tasks to consider include internal cleaning tasks and documentation and recordkeeping. Some tasks may be performed using a modified SOP or schedule, while other tasks may be deemed non-essential during crisis operations mode.
- Reassess the herd health plan with the herd veterinarian. There may be a need to alter vaccination schedules or route of administration for medications to accommodate restricted caretaker availability or vaccination crew access to the farm.
- Consider that staff may need to be trained to perform tasks they don't normally do (e.g., load out, vaccination, euthanasia, and common maintenance tasks). The caretaker may not be efficient at the task but should have some basic knowledge and competency to perform the task.
  - Learning modules addressing euthanasia can be found here https://lms.pork.org/CommonIndustryAudit
  - Learning modules addressing various aspects of animal handling can be found here https://lms.pork.org/Tools/View/safe-pig-handling and here https://lms.pork.org/Tools/View/safe-pig-handling-2
- Consider protocols for personnel biosecurity. These include:
  - In a public health emergency, follow personal protection guidelines established by state or federal public health officials.
  - Protect healthy staff that come to work by requiring sick staff to stay away from work.
  - Establish protocols to limit person-to-person contact within the farm (e.g., assigning staff to specific rooms or locations and staggering start times and break times).
  - Establish movement restrictions for personnel that move from farm to farm.
  - Establish movement restrictions for personnel movement outside of work within the community.
  - Consider protocols for personnel who live with people who work at other farms.
- Create work/shift schedules that allow for some downtime to protect human well-being and safety.
- Make personnel aware of personal well-being resources that are available to them during crisis operations mode. Examples may include telemedicine or counseling.

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Space Availability

During regulatory disease outbreaks that result in stop movements or other market disruption events, space to house pigs can become limited.

Factors to consider when developing a crisis operations plan for space availability include:

- General
  - Apply logistics to be efficient with animal movements on and off the farm to help limit truck and people traffic.
  - Consider holding cull animals on-farm longer to limit truck entry to the farm.
  - Consider alternative temporary holding facilities to help alleviate crowding. This may include outside penning, county fairgrounds, sale barns, or other locations.
  - Consider adjusting sanitation requirements, pig flows, and downtime between restocking to create additional barn capacity.
  - If pigs cannot be moved from the farm, consider developing a protocol for welfare culling for strategic pig inventory control by defining which pigs should be euthanized and when.
    - When pigs are not allowed to move from the farm and depopulation is not deemed necessary, welfare culling may be a useful strategy to temporarily alleviate space or other resource or supply constraints. Note that welfare culling utilizes euthanasia methods. Refer to the National Pork Board/American Association of Swine Veterinarians publication, "On-Farm Euthanasia of Swine – Options for the Producer" available at http://www.porkcdn.com/sites/porkorg/library/2016/11/2016-On-Farm-Euthanasia-of-Swine.pdf.
    - An example of an aggressive euthanasia protocol for nursery pigs can be found here https://www.pork.org/wp-content/uploads/2017/12/euthanasia-fact-sheet.pdf.
    - In the event of a regulatory disease outbreak, farms in a control area that undertake welfare culling should first consult with their state or federal animal health official. Records on the number and size of pigs euthanized, method used, and reason for euthanasia may need to be referenced if there is a future opportunity for compensation.
  - The American Veterinary Medical Association defines depopulation as the rapid destruction of a population of animals in response to urgent circumstances with as much consideration given to the welfare of the animals as practicable. In the event depopulation is deemed necessary by regulatory authorities or the pig owner, follow the site's emergency depopulation and disposal plan.

- Sow farms
  - Consider strategies to reduce litter sizes and conception rates (e.g., stop breeding or alter breeding schedules, consult with a nutritionist about high-protein diets to reduce litter size, ask semen supplier about reducing semen concentrations for insemination)
  - Develop a plan for housing weaned pigs on the sow farm. During a stop movement, piglets may not be allowed to move from the farm.
  - Consider working with the herd veterinarian to develop a protocol for aborting litters to create a break in the pig supply.
- Weaned piglets
  - Consider diet reformulation to slow growth curves.
  - Consider double- or triple-stocking weaned pigs into nursery or wean-to-finish barns as a short-term strategy.
  - Work with farmers or other companies in a geographic region to identify alternate available facilities.
- Grow-finish pigs
  - Consider diet reformulation to slow growth curves.
  - Consider marketing the first cut of a barn before reaching normal marketing targets to create space for the remaining pigs.
  - During a regulatory disease outbreak, provide the information state or federal animal health officials require to accompany the pigs to the plant when pigs are permitted to move from the farm.
  - Assess use of load-out crews and decide if that practice can or should continue.
  - Consider working with other packing companies within a geographic region, even if a current marketing contract does not exist.

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Alternate crisis operations plan for space availability:

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Duration of time this plan can be sustained: _____

Mortality Management

Farms may experience increased mortalities or disruptions in their normal mortality management procedures during a natural disaster or disease outbreak.

Factors to consider when developing a crisis operations plan for mortality management include:

- Consider modified protocols for managing mortalities in the event the rendering truck schedule is altered or the truck has restricted access to the farm.
- Consider alternative mortality disposal options and the time of year they are practical. The USDA has resources for mortality disposal options on their Carcass Management Dashboard here https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/carcass-management/carcass.
- Consider odor and wildlife control measures for alternative disposal situations.
- For composting, consider what can be used as an alternative carbon source, how much is needed, where to obtain carbon source, and how it will be delivered to the farm.
- If there is no regulatory disease event or state of emergency declared within a state, state government regulations limit the number of animals that can be disposed of on a site. Contact the state governing body regarding these restrictions and what exemptions may exist if an emergency occurs on the farm. Develop an action plan for emergency mortality management to share with the governing agency ahead of time as they may not have enough personnel during an emergency to approve the plan.

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Manure Management

Additional restrictions may be put in place for manure management during a regulatory disease outbreak.

Factors to consider when developing a crisis operation plan for manure management include:

- Develop an action plan for emergency manure management and share with the governing agency ahead of time as they may not have enough personnel during an emergency to approve the plan.
- Consult with the local regulatory agency to understand potential exemptions/variances to resolve manure management issues (e.g., application on frozen ground and application on preventative plat acres)
- Identify possible alternative land application areas.
- Calculate the time the emergency storage space or freeboard in the manure containment will provide if manure cannot be moved.
- Consider holding manure on-farm longer to limit resource demands or constraints on the farm.
- Consider ways to minimize the addition of process wastewater into the manure storage area, including barn washing, dry cleaning, pit flush and recharge, and types of feeders and waterers.
- Consider temporary manure storage measures, such as above-ground tanks, temporary liquid storage containers and bags, or earthen storage.
- Consider how to manage manure if land application is not an option.
- Consider alternative manure management options and the time of year they are practical.
- If the farm uses recycled water, consider how to manage manure storage if a disease outbreak prevents the use of recycled water.
- During a regulatory disease outbreak, work with the state regulatory authority to understand when and how manure can be moved off the farm.

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Reference

1. Institute of Medicine of the National Academies. Guidance for establishing crisis standard of care for use in disaster situations. Published 2009. Accessed March 17, 2020. https://www.nap.edu/catalog/12749/guidance-for-establishing-crisis-standards-of-care-for-use-in-disaster-situations.