

National Agri-Marketing Association
at Iowa State University



BIO-DEFENSE

Introduction

In 2022, United States retail food prices rose an average of 11.4%, with categories like poultry and pork seeing higher increases of 14.6% and 14.2%, respectively⁽¹⁴⁾. One critical factor contributing to the rising costs, especially in pork and poultry production, is the looming concerns for and effects of novel disease outbreaks such as African swine fever (ASF) or highly pathogenic avian influenza (HPAI)^(14 & 17). Poultry flocks were hit heavily from 2014 to 2015 and again in 2022 with HPAI⁽⁴⁾. U.S. swine production has kept ASF at bay while many other countries battle it globally. However, it is an industry familiar with major diseases, like the 2013 to 2014 porcine epidemic diarrhea (PEDv) outbreak, and the most economically significant disease, porcine reproductive and respiratory syndrome (PRRS)^(9 & 13).

Today, developing and implementing biosecurity practices are crucial for preventing contamination of livestock production facilities. Such practices mitigate the risks of infectious diseases and organisms while preventing disease spread within livestock⁽²⁾. Cleaning and disinfecting barns, pens, and common areas are fundamental to a robust biosecurity program.

Priority Bio, a company based in Ames, Iowa, is creating the next generation of livestock biosecurity and sanitation products, with one already on the market. With years of experience in livestock production facilities, Priority Bio’s founders saw the dire need to address the daily risk of biosecurity hazards in confinement livestock operations.

Bio-Defense is a livestock disinfecting powder that enhances biosecurity in confinement settings, specifically hog farrowing and turkey production units. The fast-drying powder is efficient, safe, and easy to use because of its unique physical properties and distribution methods. Farm staff can quickly disinfect an entire barn unit by blowing the powder into the space or applying it to targeted areas using a hand applicator.

Market Analysis

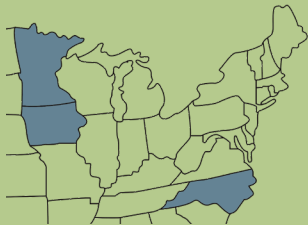
Industry Trends

The U.S. swine industry consists of many operations focused on a specific production segment, such as farrow-to-wean, farrow-to-feeder, finishing, breeding stock, and farrow-to-finish⁽⁶⁾. Operation size has increased in recent years while the number of farms decreases, leading growers to contract with large integrators for production efficiency and greater income⁽⁵⁾. Many times, contracts include services like veterinary care⁽¹⁵⁾. Similarly, the U.S. turkey industry has followed suit, with most turkeys raised on contract for a large integrator. However, contracts for turkey production tend to be more restrictive on the growers’ independent decisions as integrators control the quality and quantity of turkey produced for retail markets⁽¹²⁾. Today, the swine industry has over 6.1 million breeding sows used in farrowing-related operations, with Iowa, Minnesota, and North Carolina being the top three pork-producing states^(11 & 16). These states are also some of the largest producers of turkeys, with Minnesota ranking first, North Carolina second, and Iowa seventh⁽⁷⁾.

Due to confinement production and geographical concentration, many diseases threaten the swine and turkey populations⁽¹⁸⁾. For example, the turkey industry was affected considerably by HPAI in 2015 and again in 2022, with 5.4 million turkeys depopulated and a loss of over \$353 million^(3 & 18). The swine industry battles many diseases like PEDv and PRRS, which has a \$111 million impact on breeding herds annually⁽¹⁰⁾. Today, growers also fear ASF entering the U.S. as it has caused significant pig losses worldwide⁽¹⁾. Biosecurity is critical in mitigating disease risks and outbreaks⁽⁵⁾. Producers in both industries consider biosecurity to be a top concern⁽⁸⁾.

Market Potential

Bio-Defense’s market potential in the swine industry is most significant amongst large sow farrowing operations of 2,000 sows or more owned by integrators or contracted growers. There are 2,030 operations of this size in the U.S., while 46% of these operations reside in Iowa, Minnesota, and North Carolina. Bio-Defense will be marketed to integrators in the same three states in the turkey industry, producing roughly 37% of all U.S. turkeys annually. The total market potential, across industries, in these states is \$27 million in gross sales.



Target Market

Bio-Defense will target integrators and contracted growers with swine farrowing operations and integrators with turkey operations in Iowa, Minnesota, and North Carolina. Roll out will begin in Iowa and expand to Minnesota and North Carolina in years 2 and 3, respectively.

Year	Target States	Swine			Turkey			Total	
		Operations	No. of Barns	Market Share	Operations	No. of Barns	Market Share	Pallets Sold	Projected Gross Sales
1	Iowa	14	13	3%	2	11	2%	73	\$140,030.43
2	Iowa & Minnesota	50	45	7%	11	129	5%	430	\$824,617.99
3	Iowa, Minnesota, & North Carolina	123	116	13%	39	437	10%	1,301	\$2,497,590.72

Customer Profile

SWINE INDUSTRY



Integrator

Iowa Select Farms

- Vertically integrated farrow-to-finish operation
- Manages roughly 180,000 sows
- Employs 1,000 workers
- Biosecurity is a top priority, as all facilities start with a shower-in/shower-out process



Contracted Grower

Ben Wikner

- Minnesota grower with contracts for New Fashion Pork
- Runs a farrow-to-wean operation with 2,500 sows
- Employs 7 full-time workers
- Uses biosecurity practices like shower-in/shower-out, UV rays on incoming supplies, and fogging equipment

TURKEY INDUSTRY



Integrator

Jennie-O

- Produces 52 million turkeys at more than 300 farms, company owned and contracted, mainly in Minnesota
- Employs 7,000 workers
- In 2022, HPAI was detected in their supply chain and will continue to affect production into 2023

KEY INFLUENCER



Staff Veterinarian

Dr. Cara Haden

- Works for Pipestone Management Systems in Minnesota
- Plays critical role in biosecurity program design and disease prevention across all company production units
- Opinions are crucial to Pipestone's choices for practices and products used and allowed in their units, contracted or owned

VALUE TO CUSTOMER

By utilizing Bio-Defense, producers with swine farrowing and turkey production units will be able to proactively address biosecurity hazards known to have devastating effects on livestock.

Bio-Defense helps mitigate the presence and impact of PRRS, PEDv, ASF, HPAI, and more.

Should these and other bacteria or viruses become present in their operations, producers risk further contamination of their units (transferring from unit to unit) and losses associated with death or depopulation methods.

Competitor Profile

Today, liquid disinfectant, Synergize, is the most common disinfectant used in swine and turkey operations. However, liquid disinfectants present inefficiencies such as long drying times before restocking and being more hazardous to humans and livestock, causing injuries.

There are few dry, powdered competitors on the market; however, Bio-Defense differentiates itself with a unique product formulation, being safe to apply around or on livestock, and being sold directly to the customer rather than through a distributor like QC Supply.

		Dry Products			Liquid Product
		Bio-Defense	Drygiene	Stalosan F	Synergize
Active Ingredients		Chloramine T, Copper Sulfate	Zinc Sulfate	Copper Sulfate Pentahydrate	Quaternary Ammonium, Glutaraldehyde
Point of Sale		Direct	Direct; Distributor	Distributor	Direct; Distributor
Safe for Animals		X	X		
Price [Price/1,000 sq. ft]		\$40/bucket [\$10]	\$40/50 lb. bag [\$33.30]	\$40/33 lb. bag [\$10]	\$41.11/gallon [\$0.42]
Application Frequency	Swine	Weekly	Weekly	Twice a Week	Bi-weekly
	Turkey	Bi-monthly	As Needed	Quarterly	Quarterly

SWOT Analysis

S

- Product highly effective on pathogens of greatest concern
- Year-round use and dry application
- Safe application in the presence of both animals and people

O

- Highly concentrated production area for swine and turkeys
- Industries look to improve biosecurity plans
- Biosecurity and diseases, like ASF and HPAI, are major concerns

W

- Requires specialized application equipment
- Limited brand awareness in marketplace

T

- Liquid disinfectants are most common and a cheaper alternative
- Operators are used to purchasing from distributors

Business Proposition

Strategy Statement

Bio-Defense is a dry disinfectant powder to bolster biosecurity, reduce pathogens, and control disease risks impacting swine and turkey production.

Product Description

Bio-Defense consists of three primary components: a drying agent to reduce moisture, disinfectants to reduce bacteria and viruses present, and essential oils to aid in odor control. The disinfectant powder can be blown into a unit using an electric blower vac. Once applied, the product coats the facilities to reduce moisture and prevent the exposure of bacteria and viruses to livestock in the unit. Bio-Defense can also be used as a point-of-entry dry footbath, in hallways and load-out areas, and in livestock trailers.

Key Planning Assumptions

1. Biosecurity and disease outbreaks will remain a top concern for the swine and turkey industries.
2. Large-scale livestock operations will continue to invest in biosecurity products to help mitigate ongoing disease risks and losses.
3. Bio-Defense is registered and approved by the Environmental Protection Agency (EPA) as a livestock disinfectant.
4. Bio-Defense will produce enough to keep up with industry trends and demand.

Goals & Objectives

1. Gain 10% market share in both industries by year 3.
2. By year 3, reach \$2.5 million in gross sales.
3. Maintain 95% customer satisfaction while aiming for 100%.

Action Plan

Marketing Strategy

Bio-Defense will leverage traditional business-to-business strategies to build brand awareness, generate sales, and maintain customer satisfaction. Integrators will be targeted with account-based marketing tactics focused on nurturing relationships and sales. Lastly, staff veterinarians, key influencers in the decision-making process for integrators and their contracted growers will be engaged and educated.

Product & Positioning

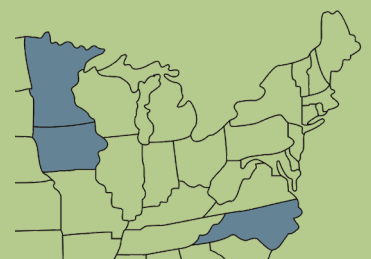
Bio-Defense is sold in a 5-gallon bucket containing 40 pounds of powder. Bulk orders can also be purchased by the pallet, which includes 48 buckets.

Price

A 40 pound bucket will sell for \$40, with a pallet costing \$1,920. Shipping will cost \$60 - \$90 per pallet.

Place

Bio-Defense will be sold directly to large integrators and contracted growers in Iowa, Minnesota, and North Carolina through Priority Bio's online store. The product will be shipped to customers from Priority Bio's headquarters in Ames, Iowa, by third-party shipping.



Promotions

Sales & Support Team*

**cost-shared with Priority Bio's current product*

Account Managers: Account managers will prospect and nurture new Bio-Defense customers while maintaining customer relationships for satisfaction and retention. In year 1, two account managers will cover Iowa to sell Bio-Defense. Two additional account managers will be on-boarded in years 2 and 3 to serve Minnesota and North Carolina, respectively.

Customer Success Specialists: Two customer success specialists will ensure adoption and satisfaction of Bio-Defense amongst customers. One will be hired in year 1 and another in year 2.

Marketing Manager: Priority Bio's marketing manager will be tasked with efficiently designing and executing marketing tactics for Bio-Defense.

Customer Relationship Management (CRM) System: All employees will utilize a customer relationship management (CRM) system to generate leads, nurture prospective customers, and cultivate high customer satisfaction.

Account-Based Marketing

Objective: Foster relationships with integrator decision-makers and influencers

Soft Launch Trials: In year 1, before the World Pork Expo and National Turkey Federation Annual Convention, targeted swine and turkey operations received complimentary product to test in their units for three months. During the conferences, Bio-Defense sponsored a panel discussion with producers about the efficiency, safety, and ease of use within their operations.

Continued Education Classes: Bio-Defense will sponsor biosecurity-related continuing education courses for veterinarians in all three years during the American Association of Swine Veterinarians (AASV) and American Association of Avian Pathologists (AAAP) annual conferences. To build brand awareness, direct mail will be sent to targeted staff veterinarians inviting them to participate and learn more about Bio-Defense.

Veterinary Conferences: Bio-Defense will strategically target staff veterinarians for swine and turkey integrators through an exhibit display at the AASV and AAAP annual conferences.



Traditional B2B Marketing

Objective: Boost brand awareness, lead generation, sales, and satisfaction

Sponsored Footbaths: In year 1, as part of the hard product launch, Bio-Defense will sponsor all newly implemented footbaths at the entries to World Pork Expo with signage promoting the product's launch campaign, "Leave Disease at the Door."

Conferences: In all three years, Bio-Defense will have a booth at the World Pork Expo and National Turkey Federation Annual Convention. The booth will allow visitors to learn about the product's versatility, see the product, and engage with account managers.



Print Advertising:

Bio-Defense will place print advertisements in *National Hog Farmer* and *WattPoultry USA*. In years 1 and 2, advertisements will run quarterly, and in year 3, bi-monthly.



Digital Advertising: Bio-Defense will run advertisements in the *National Hog Farmer Daily* e-newsletter quarterly in year 1 and bi-monthly in years 2 and 3. Bi-annually in years 2 and 3, Bio-Defense will sponsor content on the National Turkey Federation's *The Gobbler* blog. In all years, sponsored episodes of *Swine Health Black Belt* podcast and *The Poultry Podcast Show* will highlight a biosecurity expert and advertisement for Bio-Defense.



Direct Mail: Bio-Defense will send prospective and current customers direct mail ahead of the product launch, tradeshow, and to build awareness. Additionally, mailers will be sent quarterly to staff veterinarians to educate them on the product.

Social Media: Facebook and LinkedIn will be used to share product information, event announcements, customer testimonials, and demo teasers. YouTube will be leveraged to share longer product demonstrations and customer usage. LinkedIn's conversation ads will also generate leads with target customers.



Product Website: Priority Bio's website will have Bio-Defense-specific webpages allowing visitors to learn about the product, watch demo videos, review testimonials and usage by industry, sign up for the newsletter, and connect with an account manager.

Earned Media: Bio-Defense will issue press releases and seek out media interviews to educate on the product and biosecurity. Bio-Defense will also engage with client accounts and industry-related biosecurity content on social media.

Newsletter: A bi-monthly, industry-specific newsletter will be distributed to current customers showcasing product application and usage, upcoming events, and tips from biosecurity experts. Bio-Defense will send special newsletters to target customers before tradeshow inviting them to visit the Bio-Defense booth.

Industry Trainings: Bio-Defense will sponsor regional Pork Quality Assurance (PQA) trainings and partner with the National Institute of Antimicrobial Resistance Research and Education and Iowa State University, which oversees the One Health Certified turkey product standards for biosecurity audits, to provide trainings for targeted and current customers.



Food Pantry Donations: During November and December, 2% of sales will be donated to food pantries in turkeys and hams.

Financials

Income Statement	Year 1	Year 2	Year 3
Total Pallets Sold	73	430	1,301
Price Per Pallet	\$1,920.00	\$1,920.00	\$1,920.00
Shipping Per Pallet	\$80.00	\$80.00	\$80.00
Total Price	\$2,000.00	\$2,000.00	\$2,000.00
Gross Sales	\$146,000.00	\$860,000.00	\$2,602,000.00
Lost Product & Samples	\$1,553.60	\$8,683.50	\$26,090.70
Net Sales	\$144,446.40	\$851,316.50	\$2,575,909.30
Wholesale Cost/Bucket	\$19.00	\$19.00	\$19.00
Cost of Goods Sold	\$66,576.00	\$392,160.00	\$1,186,512.00
Operating Expenses	\$49,500.00	\$51,975.00	\$54,573.75
Gross Margin	\$77,870.40	\$459,156.50	\$1,389,397.30
Marketing Expenses	Year 1	Year 2	Year 3
Sales & Support Team	\$196,487.50	\$322,630.00	\$292,456.68
Soft Launch Trials	\$8,322.00	---	---
Continued Education Classes	\$5,720.00	\$6,080.00	\$7,160.00
Veterinary Conferences	\$4,000.00	\$4,000.00	\$4,000.00
Sponsored Footbaths	\$5,443.84	---	---
Conferences	\$64,500.00	\$4,500.00	\$4,500.00
Advertising	\$11,280.00	\$13,420.00	\$15,420.00
Direct Mail	\$1,804.80	\$4,589.55	\$9,764.25
Social Media	\$260.00	\$299.00	\$343.85
Product Website	\$10,000.00	\$5,000.00	\$5,000.00
Newsletter	\$840.00	\$882.00	\$926.10
Industry Trainings	\$1,826.50	\$4,291.28	\$7,622.75
Food Pantry Donations	\$722.23	\$4,256.58	\$12,879.55
Monitoring & Measuring	\$2,920.00	\$17,200.00	\$52,040.00
Total Marketing Expenses	\$314,136.87	\$387,148.41	\$412,113.18
Net Profit	\$(236,266.47)	\$72,008.09	\$977,284.12

Monitoring & Measuring

	10% Market Share by Year 3	\$2.5 Million in Gross Sales by Year 3	Maintain 95% Customer Satisfaction
Means of Analysis	<ul style="list-style-type: none"> Quarterly sales & industry reports 	<ul style="list-style-type: none"> Analyze monthly sales reports Monitor lead generation & sales conversion in CRM system 	<ul style="list-style-type: none"> Dialogue between account managers & customers Evaluate customer complaints
Exceeded	<ul style="list-style-type: none"> Speed up product roll out Consider expansion into new livestock species & systems 	<ul style="list-style-type: none"> Expand beyond the targeted states Re-invest in Priority-Bio for new product innovations 	<ul style="list-style-type: none"> Feature customer relationships in testimonials Continue leveraging influencers
Less than Exceeded	<ul style="list-style-type: none"> Evaluate market needs, weaknesses, and marketing strategy 	<ul style="list-style-type: none"> Evaluate pricing & distribution strategy Review low ROI marketing tactics 	<ul style="list-style-type: none"> Review customer feedback to determine areas of discontent

Conclusion

Bio-Defense will be pivotal in mitigating biosecurity risks within livestock production, specifically swine farrowing and turkey operations, as an efficient, safe, and easy to use product.

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