



CALIFORNIA DEPARTMENT OF
FOOD & AGRICULTURE

2026 NASCIO AWARD NOMINATION

A yellow measuring tape is coiled in a loose 'S' shape across the top right portion of the page. The tape has black markings for inches and centimeters.

State **California**
Agency **California Department of Food and Agriculture**
Award Category **Digital Services: Government to Business**
Project Title **Produce Safety Program Farm Inventory
Measured Improvements for Business Partners**
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Executive Summary

The California Department of Food and Agriculture (CDFA) administers the Produce Safety Program (PSP) in support of regulatory oversight for implementing the U.S. Food and Drug Administration's (FDA) Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR) in California.

The PSP, a unit operating under CDFA's ISD (Inspection Services Division), is the state program responsible for implementing the FSMA PSR in California. The program's goal is to ensure that California produce farmers understand how to comply with the requirements of the PSR. FDA mandates that the program include maintaining farm inventory, determining inspection priorities within California, and inspecting those farms produced under the PSR; conducting a jurisdictional self-assessment of the program; and providing extensive biannual reporting to the FDA. With more than 20,000 farms in California, maintaining a current and accurate farm inventory was critical to the program's success and a key federal mandate of the PSP to have a robust system to enhance operations. PSP, among many other programs within CDFA, provides professional services that support and contribute to a safe, abundant, quality food supply; environmentally sound agricultural practices; and an equitable marketplace for California agriculture. The benefits extend not only to California, but also to other states and countries consuming California food products.

FDA requested that PSP improve operations to create a more robust inspectional program, conduct inspections on farms covered under the PSR, provide improved education and outreach to California produce farmers, and provide assistance to FDA and the California Department of Public Health (CDPH) during foodborne outbreak crises. To accomplish this goal, the PSP required a robust Information Technology system with reliable capabilities to perform the following: managing and supporting more than 20,000 farm contacts, integrating farm contacts with inspection reports, prioritizing and scheduling produce inspections, allowing various reports and analytics, storing and allowing quick access to large amounts of data, eliminating duplication and providing easy maintenance of records, increasing productivity, providing information security and integrity, and providing a web-based interface.

FSMA enables the FDA to better protect public health by strengthening the food safety system. It allows the FDA to focus more on preventing food safety issues rather than relying primarily on reacting to problems after they occur. For the first time, FSMA established federal science-based minimum standards for the safe growing, harvesting, packing, and holding of fruits and vegetables grown for human consumption. More recently, the FDA announced "the New Era of Smarter Food Safety," which represents a new approach to food safety, leveraging technology and other tools to create a safer and more digital, traceable food system. Under this approach, the FDA would be able to enhance traceability, improve predictive analytics, respond more rapidly to outbreaks, address new business models, reduce contamination of food, and foster the development of stronger food safety cultures.

IDEA

The alarming number of foodborne illnesses during the first decade of the new millennium prompted the passing of FSMA. Considered as the first major piece of federal legislation addressing food safety since 1938, FSMA legislation affects every aspect of the U.S. food system, from farm to fork. It places a significant burden on farmers and food processors to proactively prevent foodborne illnesses and contamination. A departure

from tradition, FSMA looks to avoid reactionary measures that relied on government inspectors catching tainted food after outbreaks had already occurred and focuses on upstream preventive controls. In 2007, a spinach outbreak left the leafy green industry and affected consumers reeling from tragic losses. Outbreaks in 2011 caused the cantaloupe industry similar hardships and in serious need of food safety improvements. More recently, in 2018 and 2019, numerous outbreaks in the leafy green industry have created additional hardships on this industry and tapped many resources of the PSP. California has approximately 20,000 farms subject to the PSR and produces over 400 different commodities. Over a third of the country's vegetables and two-thirds of the country's fruits and nuts are grown in California. California is the leading US state for cash farm receipts, accounting for over 13 percent of the nation's total agricultural value. The top-producing commodities in California for 2018 include strawberries, tomatoes, oranges, pistachios, and leafy greens. Approximately 75 percent of the nation's lettuce and leafy greens are grown in California. CDFA established the PSP, a produce inspection program in 2015, and has worked to create an outstanding program dedicated to produce safety; however, it lacked the system to enhance the process; hence, the PSP system contributed to the valuable mission of the program and CDFA.

Before the electronic system was implemented, PSP was operating using a combination of Microsoft (MS) Access, Excel, MS Forms, Adobe PDFs, and manual paper documents to capture data from numerous sources. No web modules or mobile applications restrict the capabilities of virtual private networking to securely access locally hosted files. The farm inventory data was in the form of Excel workbooks imported to a local MS Access database as tables for minimal data analysis. Data collected by inspectors was obtained via mailed questionnaires and manually entered into MS Access or MS Forms. Consolidating and merging data was impossible to achieve successfully. Furthermore, the ability to quickly change, prioritize, or schedule inspections, complete analytics and reporting requirements, or prevent repeated contact of a single farmer by program staff was challenging or, in some cases, impossible.

Some ramifications resulted in not having an intelligent system to properly guide, consolidate, and automatically execute data analytics, which presented the following issues:

Inconsistent and Unreliable Information

The 2018 and 2019 foodborne outbreaks in the California leafy green industry highlighted the significance of accurate information to effectively plan and implement the PSR in California. Subsequently, a comparison of approximately 40 inspection reports (prioritized by FDA from traceback analysis from those outbreaks) had to be completed manually to analyze and compare the data, an insufficient and potentially error-prone method.

Much of the farm inventory data currently used by the PSP is furnished by CACASA and is based on pesticide application permit holders. None of the records provided by CACASA contained direct contact information, and many of the contacts are farms or other entities that are not covered by the PSR and therefore, not subject to inspections by the PSP. During outbreaks of foodborne illnesses and traceback efforts, PSP staff must have access to accurate and reliable farm contact information for scheduling and conducting inspections on impacted farms and facilities.

In coordination with the FDA, current plans demand that the PSP inspect 10% of the farm inventory annually. Based on the current farm inventory furnished by CACASA, there are approximately 22,500 farms. To verify the accuracy of these records, the PSP created questionnaires and conducted mass mailings requesting the listed entities to verify contact information, crops produced, and income categories, which will help the PSP determine if the farms are subject to the PSR. With a response rate of less than 30%, our inspectors have experienced great difficulty in organizing and coordinating inspection-related activities. To operate the program more efficiently, PSP needs ownership of accurate and reliable data.

Compliance-Enforcement and Case Management Features were Limited

The PSP found that 100 percent of the tables within the farm inventory do not have referential integrity defined or enforced and relationships have not been defined at the software application level. This assessment means that key program information for an activity such as identifying priority farms or scheduling inspections may not be linked to a compliance or enforcement action. For example, environmental scientists conduct inspections and collect samples at fertilizer/compost suppliers to ensure PSR compliance and to test for food safety and quality control standards. We have no means of storing data that would link this information to farm inventory data. The inspection and testing information may not be linked to a specific farm or to the specific inspection or compliance activity that collected the sample; if it is linked, the relationship was created at the software level and could easily be in error or altered without any impact on the database level. This is a major issue with compliance, case management, and any potential enforcement action that may result in data correctness and integrity could easily be called into question. PSP does not currently have any data auditing or changing logs to trace when, who, and what data may have changed.

The current system does not provide the capabilities or functions of a traditional case management system; an individual table is more a collection of independent activities where data is collected and stored for the specific activity but no workflow between activities is provided. Also, the lack of access to current and historical information for cases limits the ability of scientists to track a case from an inspection to an investigation or assess non-compliant activities that may have occurred that may provide pertinent background information. The current system also lacks the ability to set reminders for future inspections that need to be conducted based on non-compliance activities. The proposed solution needs to provide a case management solution that ensures individual business sub-processes are completed and integrated with other sub-processes and provides an overall intelligent process workflow. Further, within case management functionality, access to related historical and current data must be available to all staff within PSP.

Management Reporting and Trend Analysis Abilities were weak

PSP is currently using a variety of MS software, Adobe PDF forms, and ArcGIS to capture and analyze data and create reports for federally mandated requirements. This is prone error and the abilities to conduct trend analysis are weak. The software is not designed to provide trend analysis reports and summary reports across activities. Currently, most of the reporting is restricted to simple lists associated with only one business set of information. The PSP recently attempted to use demographic data to conduct analyses and write a report to compare results from three dozen Produce Farm Inspection Reports. Some of the data was entered into MS Forms and ArcGIS, which allowed some comparison, but it was insufficient for the needs of the program. The lack of integration severely impacted the ability of the program to leverage existing demographic information resulting in the need to manually examine the data from each report. Comparisons such as these need to be made on a far larger, regional scale, and the PSP currently does not have these capabilities. In addition, during a food safety emergency, we lack the ability to quickly provide FDA and CDPH with meaningful data about farms that may be implicated in a foodborne outbreak. This reduced information velocity could delay and compromise an effective response, potentially having serious negative impacts on human health and costing millions of dollars.

Program managers cannot use this data effectively to manage operations by gaining insight into the trends and take effective strategies to increase operational efficiencies and check for anomalies. What is lacking includes accurate reports for internal and external stakeholders that provide the ability to forecast resource needs, direct inspection and compliance activities utilizing cost effective lean risk-based analysis and examine trends and patterns to prevent animal disease introduction and mitigate food safety incidents.

Online Services to the Public were Inadequate

PSP currently does not have a web-based system. Using U.S. Postal Service, PSP mailed more than 28,000 survey questionnaires to produce farms in 2019. These survey forms were returned either through the Postal

Service or through the PSP email address. This required manual data entry once a questionnaire was received. Automating these processes or providing industry stakeholders with the ability to enter their own information on-line would have decreased return time, increased accuracy, and been more convenient to applicants. Additionally, PSP lacks a Web-based portal to allow farmers on-line, real-time access to inspection results or to make changes to their status. Currently, farmers are emailed or receive manually generated hard copies of reports, which can be a slow, time-consuming, resource-intensive process.

IMPLEMENTATION

CDFA implemented a modern online information system to improve program efficiency, enhance data quality, provide intelligent analytics, and increase access and transparency of PSP data for all stakeholders.

This solution involved re-engineering processes, automating key steps, and incorporating system intelligence to improve efficiency, accuracy, integrity, and transparency.

All implementation decisions focused on achieving the following primary goals:

Goal 1:	Promote and protect the diverse local and global marketability of the California agricultural branch which represents superior quality, value, and safety.	Development of a comprehensive information system for PSP data management and food safety inspections to be used for the management of produce farm inventory, produce inspections, and foodborne outbreaks. This project will allow PSP to more intelligently prioritize and schedule inspections; provide reliable and consistent demographic and geographic information needed to quickly respond to or even get ahead of food safety incidents and outbreaks; and analyze and prepare federally required aggregate data reporting with more efficiency and accuracy.
Goal 2:	Optimize resources through collaboration, innovation and process improvements.	Modernizing the information management system and the creation of data governance and standards will significantly improve the capabilities and effectiveness of the PSP by enhancing the usefulness of information retrieved for business and reporting requirements. The efficacy for business activities such as contact verification, inspections, investigations, and enforcement, will be enhanced by implementation of online tools for reporting, data analyses, and case

		record management for support staff in CDFA headquarters as well as inspectors who live and work throughout the state.
Goal 3:	Engagement and Education Connect rural and urban communities by supporting and participating in educational programs that emphasize a mutual appreciation of the value of diverse food and agricultural production systems.	The standardization of business processes, data collection, and reporting will significantly improve the overall efficiency of the PSP and will assist us in finding gaps within the education component we provide to produce farmers. We are committed to educating farmers on PSR compliance, and employing more robust tools will improve processes which will allow us to see deficiencies in reaching the diverse farming community.
Goal 4:	Improve regulatory efficiency through proactive coordination with stakeholders	Using a single standardized and integrated inspection and farm inventory system that does not rely on disparate data sources will enhance inspection scheduling, prioritizing, incident tracking and response, as well as reporting.

IMPACT

The California Department of Food and Agriculture (CDFA) completed the PSP System in late 2024 and achieved the measurable standards outlined below.

All **goals** associated with the proposed solution were met.

The **Transition** from legacy processes executed via spreadsheets and MS Access instances to the new enterprise electronic system for farmers, inspectors, and all stakeholders was successful.

Increase inspection efficiency by increasing the monthly inspections volume through the system's built-in process intelligence and automation, eliminating manual and error-prone activities.

Improve data quality by guiding and directing farmers and inspectors when entering data, ensuring the system has the intelligence to enforce proper data entry guidelines, facilitating quick, validated entries, providing acceptable data choices, and being flexible to accommodate exceptions in line with a process built specifically for the PSP program.

Accelerate communication with all stakeholders by equipping the system with intelligent routines and self-served functions available at their fingertips.

CDFA Stakeholders Impact

By combining centralized data, risk-based tools, and self-service access, the system improves the efficiency, accuracy, and consistency of the Produce Safety Program while providing farms with meaningful access to their own information and regulatory history.

Benefits to the Produce Safety Program (PSP)

Centralized Reporting and Data Management

- Consolidated aggregate data reporting to FDA.
- Unified repository for inspection reports, farm details, and historical records.
- Improved accuracy and consistency of program data.

Farm Inventory Management

- Comprehensive and continually updated inventory of California produce farms.
- Efficient tracking of farm coverage status, contacts, exemptions, and inspection history.
- Integrated farm relationship management system.

Inspection Repository and Analytics

- Access to a complete, searchable repository of all completed inspections.
- Ability to compare farms with similar operations, commodities, and inspection observations.
- Enhanced ability to identify trends, common violations, and training opportunities.

Program Efficiency and Process Improvements

- Integrated risk-based analysis tools to support data-driven inspection prioritization.
- Streamlined workflows for inspection assignment, tracking, documentation, and follow-up.



Benefits to California Produce Farms

24/7 Access to Farm Information

- Secure online access to the farm's profile, commodities, acreage, contacts, and compliance status.
- Transparency into program-held information for accuracy and verification.

Access to Past Inspections

- Online view of previous inspection reports and observations.
- Improved preparation for future inspections.

Uploading Documentation

- Farms can electronically upload supporting documents for corrective actions or compliance responses.
- Ability to submit documentation for qualified exemptions or coverage reviews.

Increased Clarity and Engagement

- Better understanding of regulatory expectations.
- Enhanced trust through transparency and consistent information access.

