

# **NASCIO Award Category Improving State Operations**

## **Eggs Live Inspection System**

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# Executive Summary

The Illinois Department of Agriculture is charged with many regulatory functions and Egg Safety is one of these responsibilities. In order to protect public health and ensure consumer confidence in Illinois eggs and egg products, the IDOA conducts regulatory inspections of each entity involved in the distribution and sale of eggs. The distribution channel for eggs is quite involved including packing plants, distribution centers, delivery and transport companies, retail grocery stores, schools, hospitals, nursing homes, restaurants, bakeries and others.

IDOA's egg inspectors are located geographically all over the State and they are responsible for inspecting each component of the egg distribution process. Throughout the inspection process the inspector examines such factors as interior and exterior quality of the shell, proper weight, sanitation, labeling, rotation, storage, temperature, as well as advertising. IDOA inspectors use the USDA grade standards and they are a part of the IL Egg and Egg Products Act.

The IDOA has tried many different approaches in the past to promote some of these processes to a technology solution but none have been successful until now. IDOA has developed a new web based solution that handles the entire inspection process and nearly all the administrative functions of managing the Egg program. This new system was built to incorporate all the inspectors' duties and virtually all of the back office administrative functions into one comprehensive solution.

# Concept

## System Assets

The Egg Inspection system is a dynamic web application hosted by the datacenter at the Illinois Department of Innovation and Technology. The application solution stack is based on the LAMP archetypal model and includes a SUSE Linux server with Apache HTTP Server, MySQL relational database management system and PHP programming language. While no specific Php framework was used, an MVC style design pattern was used to create a consistent architecture which, in turn, enables easier code maintenance. Twitter Bootstrap 3 framework and the jQuery library were employed to allow small screen devices to efficiently and effectively use the application, allow for faster development and to promote cross-browser compatibility. The administrative staff uses desktop computers with HTML5/CSS3 compliant web browsers to interact with the system. Field inspectors use laptop-tablet hybrid computers running Windows 10, also with HTML5/CSS3 compliant browsers. Verizon MiFi Jetpack 4G LTE Mobile Hotspots are utilized to give fast, secure access to the Internet in nearly all parts of the state. The tablet capabilities (touch screen, audio, video, photos, Bluetooth) allow the inspectors to complete many of their tasks efficiently and enable more direct customer interaction during inspections. The inspectors also carry portable Bluetooth enable printer/scanners. This allows the inspectors to upload invoices and other paperwork directly into the inspection and to print inspection reports if needed.

## Features and Management Areas

The application itself functions as a comprehensive solution for the administrative and field inspection components of the Illinois Egg Inspection program. Top level management areas include user admin/privileges, locations, licensing, accounting, inspections, itineraries, letters and violation templates and a dashboard to give an executive summary view of the current state of program operations. Once an authorized user logs in to the system, they are greeted with a dynamic dashboard that provides a summary of critical statistics and recent license and inspection activity as well as current itineraries.

Administrative staff, with the proper privileges, can access the user administrative features. There is a module available for adding new users, setting privilege levels and page access, unlocking accounts, resetting passwords and enabling and disabling user accounts.

Since almost every function pertains to a geographic location, we have dedicated an area specifically to leveraging location based attributes. Payments, inspections, itineraries, licenses,

IDOA - Eggs   Dashboard   **Locations**   Inspections   Admin   Reports   Forms

[Add New Location](#)

**Locations**

pear   Search    County    Zip Code    City    State  
 Disabled    Off-Site    Unlicensed

| Location_ID<br>License #<br>Type | Primary Info  | Phone<br>County<br>Map  | Primary Contact  | Last Inspection         |
|----------------------------------|---|---|--|-------------------------|
| 13<br>#13<br>Bus-Sup             | Pearl Valley Farms, Inc<br>968 South Kent Rd.<br>Pearl City, IL 61062 ★ | (815)443-2170 phone<br>Stephenson County<br><a href="#">view google map</a> | Deb Griffin, Accounts Payable<br>DGriffin@pearlvalleyfarms.com<br>phone: (815)443-2170 | Loc:<br>Sup: 03/14/2016 |
| 3862<br>n/a<br>Business          | China Pearl<br>1150 12th St<br>Carlyle, IL 62231 ★                      | (618)594-3688 phone<br>Clinton County<br><a href="#">view google map</a>    | , Manager  | Loc: 08/07/2007         |
| 1835<br>n/a<br>Business          | Pearl City High School<br>100 S Summit<br>Pearl City, IL 61062 ★        | (815)443-2715 phone<br>Stephenson County<br><a href="#">view google map</a> | Beulah Earnest   | Loc:                    |
| 7252<br>n/a<br>Business          | Pearsons Bakery<br>1 W 16th<br>Chicago Heights, IL 60411 ★              | (708)754-1523 phone<br>Cook County<br><a href="#">view google map</a>       | Lee Radtke   | Loc: 01/23/2007         |

violations and letters are all associated with a specific location. There are currently over 32,000 locations tracked in the system doing some type of business involving eggs. Many are added weekly as new businesses begin to farm, process, deliver, serve or sell eggs. The locations area includes a fast AJAX powered search

page which displays basic location information including address, map link using Google Maps, license type and past inspection outcomes. Following available links from the Locations listings will lead to more location details, such as current and past licenses, past inspections and all associated payments.

Licensing functions are coordinated completely in an area we have developed and titled "Licensing." The Licensing area processes and collects detailed information about egg suppliers, flock size, type of eggs and even specific species of birds. This information is added and tracked by license type and State Fiscal Year to provide historic reference. The system can begin the license process and hold it in pending status until payments are cleared and any necessary inspections are completed. We developed the system to intuitively know and use the inspector's

territories to send them email notices directly to the proper inspector(s) notifying them of the pending license registration. Before issuing a license, office staff can refer to fiscal payments to assure compliance and full payment in the amount required. Once a license is complete the license document can be sent by USPS or instantly as a PDF attachment to an email (all generated in the system). The amount of time saved by incorporating some of these autos generated notifications has increased significantly along with tangible cost

savings.

The Accounting management area includes the ability to receive payments and associate them with the respective license and any fees. We have built in the ability to view payments entered based on a variety of search criteria and create several reports for internal validation, deposits and other reports for the accounting office.

The inspections area contains an inspector itinerary builder, inspection execution and reporting as well as administrative functions to process completed inspections.

The itinerary system allows inspectors to create itineraries based on city, county, zip code and last inspected date. This replaced a burdensome process and allows the inspectors and administrative staff to know where inspectors should be on any given day as well as work product expectations.

The inspection area houses two types of inspections, Location and Supplier inspections. The location inspection tests for required criteria and allows inspectors to add notes to each inspection point as well as add violations. The inspection is completed on a laptop-tablet hybrid running Windows 10. The touchscreen capability, with specific programming, facilitates the process to capture a signature on the tablet screen and, with portable printer, print the inspection report or email directly to the signee or corporate office. The inspectors also can add photos of location issues, scan invoices or other documents directly into the inspection. This feature allows for quick identification of issues and/or documentation to administrative staff and for future reference, follow-up inspections if required. The supplier inspection is the inspection of actual shell eggs. It collects data about the egg lots and samples and uses the USDA

United States Standards, Grades, and Weight Classes for Shell Eggs as its business rules for identifying variances and issuing violations. Inspectors are also able to leave notes for each tested area

The screenshot displays the 'Inspections' page for a specific location. At the top, there are navigation tabs: IDOA - Eggs, Dashboard, Locations, Inspections (selected), Admin, Reports, and Forms. On the right, there are links for Account Admin and Logout. Below the navigation, the 'Inspections' section shows details for a location with ID 14121 and license number n/a. The 'Location Information' section includes fields for Name (Sullivan Foods), Physical Address (320 Eagle Dr), City (Rochelle), State (IL), and Zip Code (61068). There is a checkbox for 'Is this a Personal Residence?' and a button to 'Add Location Inspection'. Below this is a table of inspections:

| Inspections |            |  | Type                                 | [ Location   Supplier   Date   Me ] |
|-------------|------------|--|--------------------------------------|-------------------------------------|
| ✘           | 01/28/2016 |  | Location Inspection                  | + supplier   + follow-up            |
|             |            |  | ↔ supplier - Pearl Valley Farms, Inc | + follow-up                         |
| ✘           | 01/13/2015 |  | Location Inspection                  | + supplier   + follow-up            |
|             |            |  | ↔ supplier - Pearl Valley Farms, Inc | + follow-up                         |

to further explain findings as it corresponds to the Illinois Egg Act requirements. This system is the first in the United States to check the inspection data against the USDA rules and standards.

License renewal, inspection fee notices and violation letters are all handled by administrative staff. The creation of the system allowed these time-consuming tasks to be completed internally. The system can create notices and letters and send to print or mass email. Also,

individual emails can be created and sent outlining violations through an automated templating system. A catch-all egg program email account acts as a return address. Using the automated email system shows any rejected emails which allows for staff to update contact's email addresses.

The dashboard provides a summary of statistics and recent license and inspection activity and current itineraries.

## Significance and Impact

By creating the Egg Inspection System as a web application users of the system will benefit from the ability to retrieve program data instantly. This will eliminate the need for many "Freedom of Information Act" requests and provide increased accuracy and

transparency to the public. Another benefit of the system is the availability for the public and businesses to retrieve real-time responses to questions about current registered business and licenses.

The egg inspection tool applies the USDA egg rules to collected egg sample data. When training a new inspector, the inspection tool will give pass/fail and reasoning based on those USDA rules thus allowing for an immediate and exact result. Book learning the egg rules can be an intimidating experience but with the ability to enter egg sample data, hand calculate results and finally test them against the actual business rules instantly our egg inspectors will be training with more accurate results and with increased efficiency.

As a regulatory agency charged with public safety, one of the prerequisites of this new egg inspection computer system was to increase safety to the public. The new web application allows for increased accuracy and a comprehensive data source concerning eggs for human consumption in Illinois. The new system has provided the ability to identify issues with a supplier and even pinpoint specific farms that may be having issues with quality assurance. This intelligence allows the State of Illinois to help the farmers and suppliers enhance the safety of their products and hence, increasing public safety. The system is also able to identify issues at the retail locations. Many chain food outlets have corporate required processes to control the handling of incoming foods and products. High or similar instances of damage to eggs across a corporation can be identified and grouped to show issues in the employed egg handling processes allowing for changes to help the businesses reduce internal damage and to provide a safer product to consumers.

The screenshot shows the 'Egg Inspection Dashboard' for IDOA - Eggs. The user is logged in as 'chris.oliver - [Global Admin]'. The dashboard is divided into several sections:

- Business Report:** A summary of business statistics including Active Locations (10288), Inactive Locations (2691), Active Business-Suppliers (1001), Active Suppliers (outside IL) (320), Current Location Type 'Unlicensed' (9), Total Current Licenses (SFY2016) (1277), and Un-accounted Bus-Sup / Suppliers (no license) (44).
- Outstanding Licenses:** A table listing licenses with columns for Lic Num, Date, Name, and Create ID.
- Recent Inspections:** A table listing recent inspections with columns for Insp. ID, Date, Name, Inspected By, and Created By.

|   |       |
|---|-------|
| Active Locations                              | 10288 |
| Inactive Locations                            | 2691  |
| Active Business-Suppliers                     | 1001  |
| Active Suppliers (outside IL)                 | 320   |
| Current Location Type 'Unlicensed'            | 9     |
| Total Current Licenses (SFY2016)              | 1277  |
| Limited Egg Breaker                           | 334   |
| Producer/Dealer                               | 2     |
| Grading Station                               | 90    |
| Jobber  | 23    |
| Broker  | 63    |
| Distributor                                   | 14    |
| Distributor                                   | 751   |
| Un-accounted Bus-Sup / Suppliers (no license) | 44    |

| Lic Num | Date       | Name                           | Create ID      |
|---------|------------|--------------------------------|----------------|
| 19905   | 04/11/2016 | Hi-Lite Farms                  | angelica.estes |
| 19907   | 04/12/2016 | Walmart Store #1497            | angelica.estes |
| 19912   | 04/22/2016 | Sparboe Farms, Inc.            | angelica.estes |
| 19913   | 04/25/2016 | Eagle Food Service, LLC        | angelica.estes |
| 18153   | 04/26/2016 | Dairy Fresh Foods              | angelica.estes |
| 19915   | 04/27/2016 | Clay Acre Farm                 | angelica.estes |
| 19916   | 04/29/2016 | Walmart Store #1531            | angelica.estes |
| 19917   | 05/02/2016 | Cott Oakes Farm                | angelica.estes |
| 19918   | 05/02/2016 | Prairie College Cattle Company | angelica.estes |

| Insp. ID | Date       | Name                                 | Inspected By     | Created By       |
|----------|------------|--------------------------------------|------------------|------------------|
| 7681 -S  | 05/06/2016 | Fresh And Pure Distributors          | ky.wagenecht     | ky.wagenecht     |
| 8889 -L  | 05/06/2016 | Phillips 66                          | ky.wagenecht     | ky.wagenecht     |
| 8872 -L  | 05/05/2016 | Alis Coal City Restaurant            | james.chronister | james.chronister |
| 8878 -L  | 05/05/2016 | Berkot Foods                         | james.chronister | james.chronister |
| 7667 -S  | 05/05/2016 | Blank Record                         | dennis.koelling  | dennis.koelling  |
| 7669 -S  | 05/05/2016 | Carmi Wholesale Distributors, LLC    | dennis.koelling  | dennis.koelling  |
| 8870 -L  | 05/05/2016 | Casey's                              | james.chronister | james.chronister |
| 7671 -S  | 05/05/2016 | Central Grocers, Inc.                | james.chronister | james.chronister |
| 7672 -S  | 05/05/2016 | Country Delight Dairy, Inc.          | david.stlaske    | david.stlaske    |
| 8885 -L  | 05/05/2016 | County Market                        | steve.stachurski | steve.stachurski |
| 8880 -L  | 05/05/2016 | Dollar General                       | dennis.koelling  | dennis.koelling  |
| 8886 -L  | 05/05/2016 | Dollar General                       | steve.stachurski | steve.stachurski |
| 8887 -L  | 05/05/2016 | Fiesta Cancun                        | ky.wagenecht     | ky.wagenecht     |
| 7675 -S  | 05/05/2016 | Four Corners Oriental Wholesale, Inc | david.stlaske    | david.stlaske    |
| 8874 -L  | 05/05/2016 | Heritage                             | dennis.koelling  | dennis.koelling  |