

Prevalence of *Salmonella* on commercial layer farms in Barbados, 2009 – 2010

Aimey, V¹., Hernandez, J. ^{2*}, Hunte, K¹., Whitehall, P¹., Sanford, B.¹, St John, V. ¹, Delgado, A. ³, Shaw, J⁴, Lefrançois, T⁵. and Trotman, M.¹

1 Ministry of Agriculture, Food, Fisheries, and Water Resource Management (MAFFW), Veterinary Services, The Pine, St. Michael, Barbados BB 11091; 2. University of Florida, College of Veterinary Medicine, Department of Large Animal Clinical Sciences. Gainesville, FL, USA 32608; 3 IICA. P.O. Box 55-2200. San Jose, Vasquez de Coronado, San Isidro, Costa Rica 11101; 4 USDA/APHIS/US Embassy, Santo Domingo, Dominican Republic; 5 CIRAD UMR CMAEE, Prise d'eau, 97170 Petit Bourg, Guadeloupe, French West Indies;

* E-mail for correspondence: hernandezja@ufl.edu



Justification

During January – March 2009 an outbreak of *Salmonella* was detected in four commercial layer farms in Barbados; 511 layers died and 3,257 layers were voluntarily culled. *Salmonella* Enteritidis (SE) was identified in avian tissues (ovaries, liver, uterus), and egg samples submitted to the Ministry of Agriculture, Food, Fisheries, and Water Resource Management (MAFFW) Veterinary Services (VS) Laboratory. MAFFW VS conducted a survey to investigate the prevalence of *Salmonella* on commercial layer farms in Barbados. The relationships between farm-level exposure factors and diagnosis of *Salmonella* were also examined.

BACKGROUND

OBJECTIVES

- To estimate the prevalence of *Salmonella* in egg-laying farms in Barbados
- To examine the relationship between farm-level factors and diagnosis of *Salmonella* in study farms

MATERIALS & METHODS

Study Population

- 26 commercial layer farms

Sampling

- Samples of eggs (30 from each pen)
- Environmental samples of dust, bedding, droppings, feed, and swabs of wood, pen wire, nesting boxes, drinkers, and feeders

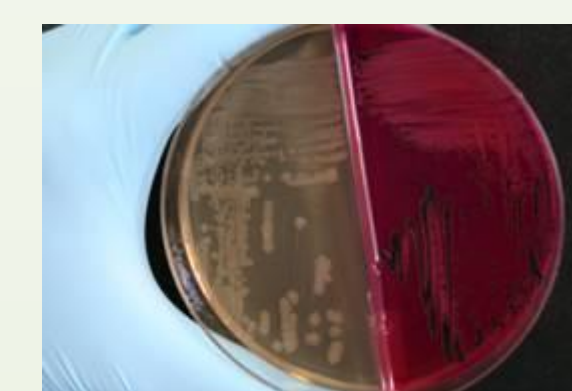
Questionnaire (exposure factors measured)

- number of employees
- holding size
- biosecurity
- general farm management
- cleaning and disinfection

Data Analysis

Logistic regression was used to compare the frequency of exposure factors between farms classified as positive or negative to *Salmonella*.

Laboratory Analysis



- Bacteriology for culture and identification of *Salmonella* isolates

RESULTS

Prevalence of *Salmonella* on layer farms in Barbados estimated to be 69% (95% CI = 51, 86).

Serotype	No. of farms
Enteritidis	9
Kentucky	5
Rubislaw	3
Typhimurium	2
Weltevreden	2
Mbandaka	2
Isangi	1
Idikan	1
Ohio	1
Alachua	1
Seftenberg	1

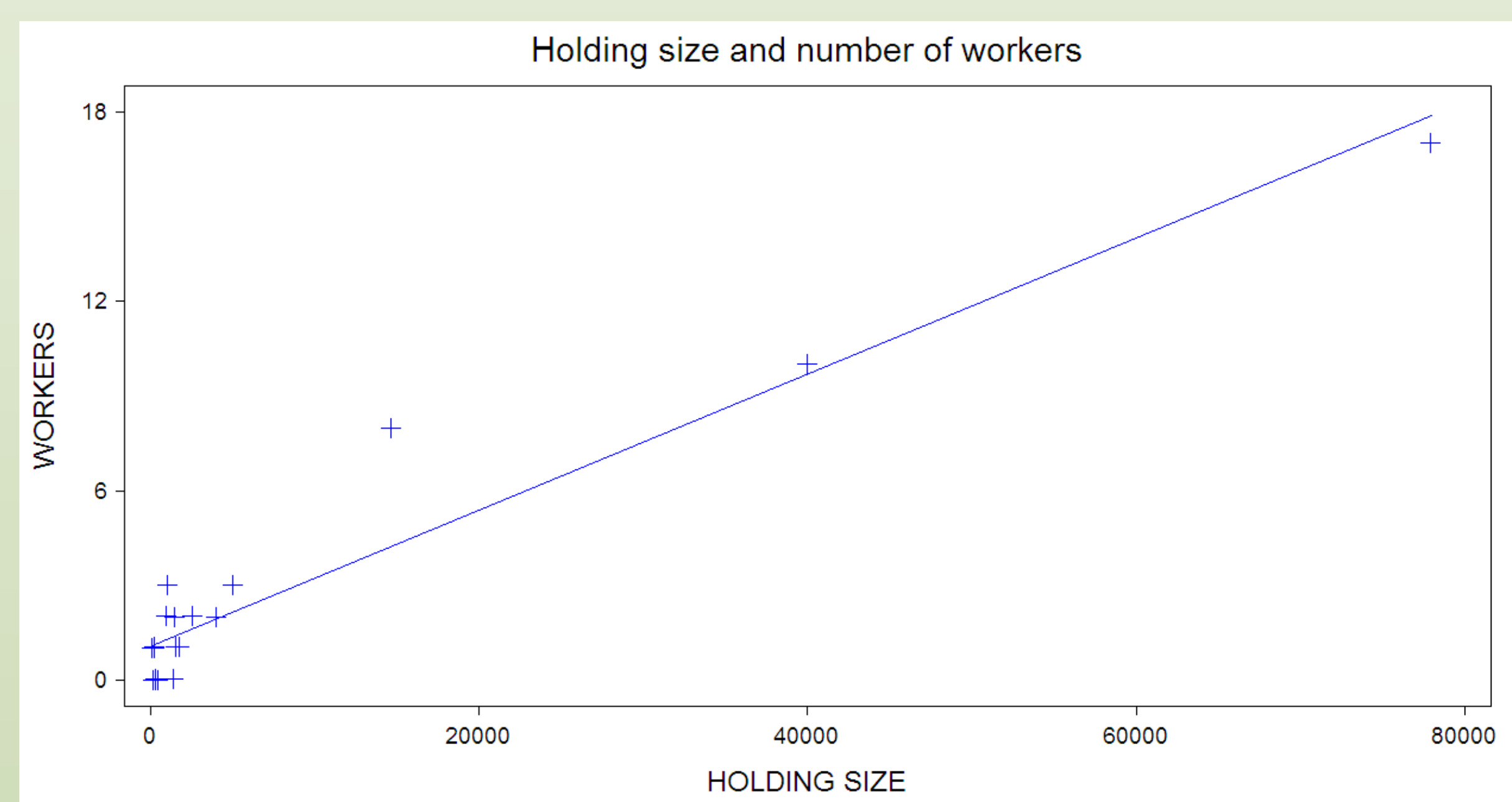
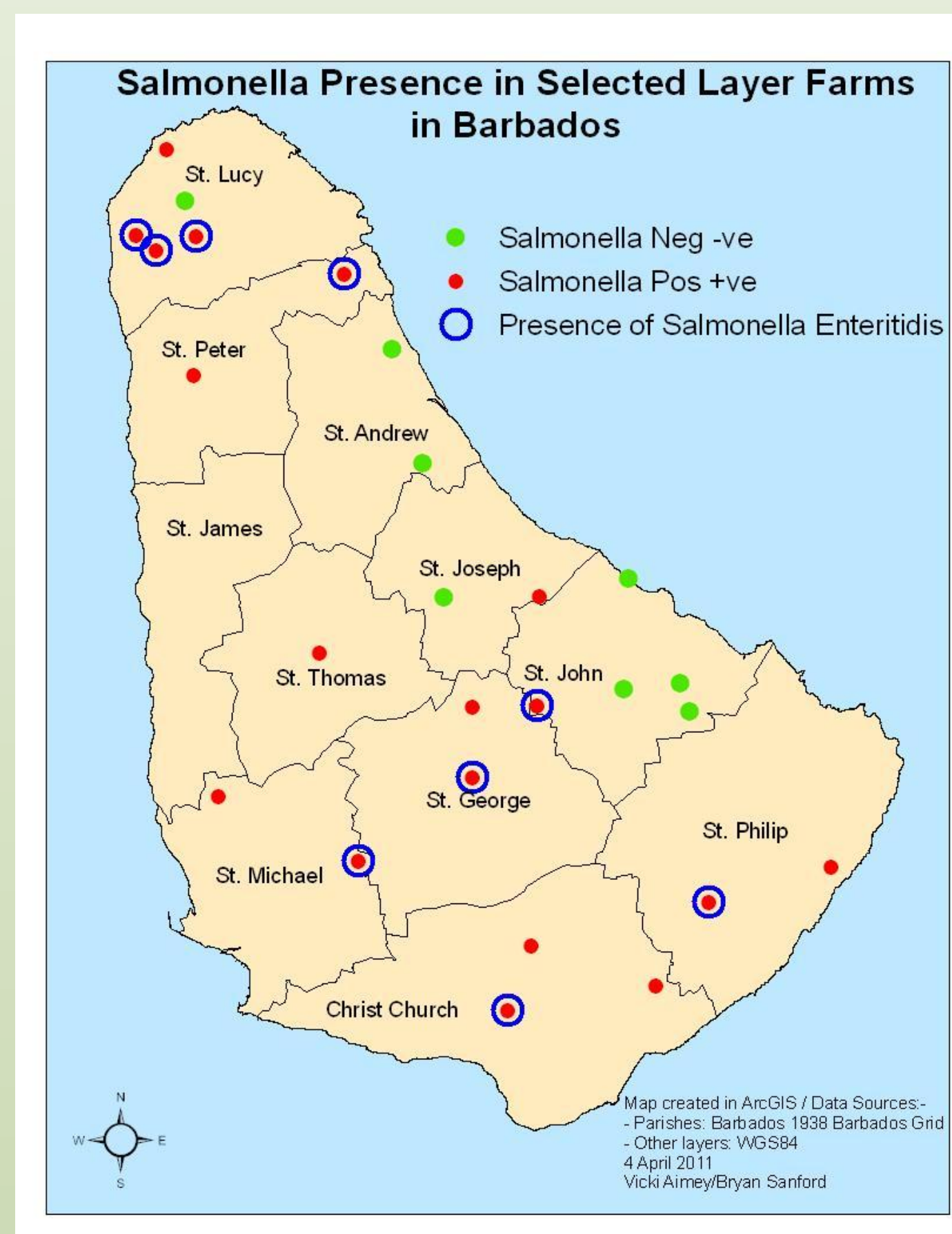


Table 1: Serotypes identified on layer farms in Barbados

Map 1: Distribution of *Salmonella* on layer farms in Barbados

Chart 1: Correlation between number of workers and holding size

CONCLUSION & DISCUSSION

- Prevalence of *Salmonella* on commercial layer farms in Barbados is high
- *Salmonella* Enteritidis is the most common serotype found
- *Salmonella* is more likely to be found on large farms than on small farms
- A task force composed of public health officials, animal health officials, and industry representatives should be created to formulate, implement, and evaluate a voluntary surveillance program to reduce the risk of *Salmonella* infection and contamination on commercial layer farms.

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