Virginia

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Virginia Department of Health
And
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Foodborne and Advanced Pathogen Characterization Lead Scientist
Division of Consolidated Laboratory Services
Department of General Services
## Virginia’s Top 20 Agricultural Commodities

<table>
<thead>
<tr>
<th>Crop/Livestock</th>
<th>Farm Cash Receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Broilers</td>
<td>$733,000,000</td>
</tr>
<tr>
<td>2. Cattle/Calves</td>
<td>$416,000,000</td>
</tr>
<tr>
<td>3. Turkeys</td>
<td>$386,000,000</td>
</tr>
<tr>
<td>4. Milk</td>
<td>$308,000,000</td>
</tr>
<tr>
<td>5. Greenhouse/Nursery (Misc. Crops*)</td>
<td>$294,000,000</td>
</tr>
<tr>
<td>6. All Other Animals+</td>
<td>$209,000,000</td>
</tr>
<tr>
<td>7. Soybeans</td>
<td>$200,000,000</td>
</tr>
<tr>
<td>8. Corn, Grain</td>
<td>$173,000,000</td>
</tr>
<tr>
<td>9. Hay</td>
<td>$119,000,000</td>
</tr>
<tr>
<td>10. Tobacco (Unprocessed Leaf)</td>
<td>$110,000,000</td>
</tr>
<tr>
<td>11. Eggs</td>
<td>$97,000,000</td>
</tr>
<tr>
<td>12. Wheat (Winter)</td>
<td>$54,000,000</td>
</tr>
<tr>
<td>13. Hogs</td>
<td>$45,000,000</td>
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<tr>
<td>14. Cotton Lint</td>
<td>$36,000,000</td>
</tr>
<tr>
<td>15. Apples</td>
<td>$36,000,000</td>
</tr>
<tr>
<td>16. Tomatoes (Fresh Market)</td>
<td>$23,000,000</td>
</tr>
<tr>
<td>17. Grapes</td>
<td>$17,000,000</td>
</tr>
<tr>
<td>18. Potatoes (Summer)</td>
<td>$16,000,000</td>
</tr>
<tr>
<td>19. Peanuts</td>
<td>$15,000,000</td>
</tr>
<tr>
<td>20. Pumpkins</td>
<td>$11,000,000</td>
</tr>
</tbody>
</table>

Source: 2016 USDA NASS and ERS data figures rounded to the nearest million dollars.

*Misc. Crops includes Greenhouse/Nursery, roughly 90 percent of the total, plus mushrooms, sunflowers, rye, sorghum, seed crops and other field crops.

*All Other Animals includes horses, aquaculture and all other livestock.

In 2017, the Virginia Tech Pamplin College of Business found that Virginia’s agritourism industry accounts for $2.2 billion in economic activity and supports 22,000 jobs.
Country Ham vs. Deli Ham vs. Country Ham Sliced
Reported Listeriosis Cases by Year
Virginia, 2008-2018
Patient Information

Patient 1 (2017)
• Onset 7/8/2017
• 70 years of age
• underlying illnesses
• hospitalized for illness
• survived illness
• died in July 2018

Patient 2 (2018)
• Onset 6/14/2018
• 81 years of age
• underlying illnesses
• living in an ALF
• Died in June 2018 from the illness

Patient 3 (2018)
• Onset 6/19/2018
• 70 years of age
• underlying illness and dementia
• survived
• died in August 2018
Timeline of Listeriosis Investigation, Virginia

7/7/17:
P1 Onset
Timeline of Listeriosis Investigation, Virginia

7/7/17:
P1 Onset

4/28/18:
P2 to ALF
Timeline of Listeriosis Investigation, Virginia

7/7/17: P1 Onset

4/28/18: P2 to ALF

6/14: P2 Illness Onset
Timeline of Listeriosis Investigation, Virginia

- 7/7/17: P1 Onset
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- 4/28/18: P2 to ALF
- 6/18: P2 Dies
Timeline of Listeriosis Investigation, Virginia

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6/19: P3 Illness Onset

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6/18: P2 Dies
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- **7/7/17:** P1 Onset
- **6/14:** P2 Illness Onset
- **6/18:** P2 Dies
- **6/19:** P3 Illness Onset
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- **6/18:** P2 Dies
- **6/22:** Interview at ALF for P2
Timeline of Listeriosis Investigation, Virginia

7/7/17: P1 Onset

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6/29-7/3: Interviews with family of P2

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4/28/18: P2 to ALF

6/18: P2 Dies

6/22: Interview at ALF for P2

7/2: DCLS informs of cluster
VIRGINIA REPORTABLE DISEASE LIST

Reporting of the following diseases is required by state law (Sections 32.1-36 and 32.1-37 of the Code of Virginia and 12 VAC 5-60-60 of the Board of Health Regulations for Disease Reporting and Control – [http://www.vdh.virginia.gov/surveillance-and-investigation/disease-dl/]). Report all conditions when suspected or confirmed to your local health department (LHD). Reports may be submitted by computer-generated printout. Ep-1 form, CDC or VDH surveillance form, or upon agreement with VDH, by means of secure electronic submission.

BOLD = Laboratories must submit initial isolate or other initial specimen to the Division of Consolidated Laboratory Services (DCLS) within 7 days of identification. All specimens must be identified with patient and physician information, and the LHD must be notified within the timeframe specified below.

\[\text{BOLD} = \text{Laboratories must submit initial isolate or other initial specimen to the Division of Consolidated Laboratory Services (DCLS) within 7 days of identification. All specimens must be identified with patient and physician information, and the LHD must be notified within the timeframe specified below.}\]

**Listeriosis (Listeria monocytogenes)**

[a] Reportable by directors of laboratories. These and all other conditions listed must be reported by physicians and directors of medical care facilities.

Effective November 2013
## DCLS’ Laboratory Testing Algorithm for *Listeria monocytogenes*

<table>
<thead>
<tr>
<th>Lab Team</th>
<th>Day 0</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7/8</th>
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</thead>
<tbody>
<tr>
<td>Micro Test</td>
<td>Isolate Receipt and subculture</td>
<td>Purity check</td>
<td>Confirmatory Identification</td>
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<td></td>
<td><img src="image" alt="Micro Test" /></td>
<td><img src="image" alt="Micro Test" /></td>
<td><img src="image" alt="Micro Test" /></td>
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<tr>
<td>PFGE Test</td>
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<td></td>
<td>Plug Preparation</td>
<td>Restriction Digestion</td>
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<tr>
<td>WGS Test</td>
<td></td>
<td>DNA extraction</td>
<td>Library Preparation/MiSeq Run</td>
<td>Data Review and Analysis:</td>
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<tr>
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<td>Run Metrics</td>
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<td>BioNumerics</td>
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<tr>
<td></td>
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<td></td>
<td>Reporting to VDH/CDC</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
1807VAGX6-1: Virginia Testing Timeline

2017

- 7/8: Pt1 specimen collection
- 7/13: Pt1 isolate received at DCLS
- 7/21: Pt1 PFGE complete
- 7/25: Pt1 WGS complete

July

2018

- 6/15: Pt2 specimen collection
- 6/19: Pt2 isolate received at DCLS
- 6/2: Pt2 WGS complete
- 6/25: Pt1 and Pt2 WGS cluster reported
- 6/29: Pt3 WGS complete
- 7/3: Pt1, Pt2, Pt3 WGS cluster reported

VDH Epidemiologist Notification Format

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>VA cluster of <em>Listeria</em> monocytogenes; all 3 isolates are within 4 alleles of each other please let us know of epi link</td>
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<td></td>
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<tr>
<td>2</td>
<td>WGS_id</td>
<td>SourceType</td>
<td>IsolatDate</td>
<td>Outbreak</td>
<td>SourceSite</td>
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<tr>
<td>3</td>
<td>PNUSAL003187</td>
<td>Human</td>
<td>7/8/2017</td>
<td>BLOOD</td>
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<tr>
<td>4</td>
<td>PNUSAL004045</td>
<td>Human</td>
<td>6/15/2018</td>
<td>VA cluster</td>
<td>Blood</td>
</tr>
<tr>
<td>5</td>
<td>PNUSAL004057</td>
<td>Human</td>
<td>6/19/2018</td>
<td>VA cluster</td>
<td>BLOOD</td>
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- Incoming
- Processed
- VDH4Fix Transfer
1807VAGX6-1: August 13, 2018

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<th>WGS_id</th>
<th>WGST</th>
<th>Outbreak</th>
<th>SourceSite</th>
<th>IsolatDate</th>
<th>SourceState</th>
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<td>LMO1.0 - 106.1.1.1.20</td>
<td>1807VAGX6-1</td>
<td>Pork</td>
<td>2018-03-08</td>
<td>NC</td>
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<td>1807VAGX6-1</td>
<td>Blood</td>
<td>2018-06-19</td>
<td>VA</td>
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<td>1807VAGX6-1</td>
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<td>FSIS1606762</td>
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<td>VA</td>
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<tr>
<td>FSIS11809104</td>
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<td>1807VAGX6-1</td>
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Updated: 2018-08-13
## 1807VAGX6-1: August 30, 2018

**wgMLST Analysis**

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<th>WGS_id</th>
<th>WGST</th>
<th>SourceSite</th>
<th>IsolatDate</th>
<th>SourceState</th>
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</thead>
<tbody>
<tr>
<td>PNUSAL004247</td>
<td>LMO1.0 - 106.1.1.1.20. Blood</td>
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<td>2018-08-11</td>
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<td>PNUSAL004057</td>
<td>LMO1.0 - 106.1.1.1.20. Blood</td>
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<td>FSIS31800263</td>
<td>LMO1.0 - 106.1.1.1.20. Pork</td>
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<td>2018-03-08</td>
<td>NC</td>
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<td>PNUSAL004045</td>
<td>LMO1.0 - 106.1.1.1.20. Blood</td>
<td></td>
<td>2018-06-15</td>
<td>VA</td>
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<td>2016-05-12</td>
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<td>LMO1.0 - 106.1.1.1.20. Blood</td>
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<td>2017-07-08</td>
<td>VA</td>
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<td></td>
<td>2018-03-28</td>
<td>NC</td>
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</tbody>
</table>

**Updated: 2018-08-30**
Timeline of Listeriosis Investigation, Virginia

7/7/17:
P1 Onset

6/14:
P2 Illness Onset

6/19:
P3 Illness Onset

6/29-7/3:
Interviews with family of P2

7/3:
Pork products match

4/28/18:
P2 to ALF

6/18:
P2 Dies

6/22:
Interview at ALF for P2

7/2:
DCLS informs of cluster
Timeline of Listeriosis Investigation, Virginia

- **7/7/1**: P1 Onset
- **6/14**: P2 Illness Onset
- **6/19**: P3 Illness Onset
- **6/29-7/3**: Interviews with family of P2
- **7/3**: Pork products match
- **4/28/18**: P2 to ALF
- **6/18**: P2 Dies
- **6/22**: Interview at ALF for P2
- **7/2**: DCLS informs of cluster
- **7/6**: Pork product list received
List of Ham Products, USDA (July 6)

- Country Ham
- Whole Ham - Bone-In
- Whole Boneless Ham
- Honey Cured Spiral Sliced Ham
- Dry Cured Bacon, in slices or slabs
- Mangalista Bacon
- Thick Cut Hickory Smoked Dry Cured Bacon
- Fatback, cubed, sliced, or slab
- Ham Chips (Small pieces for mini biscuits)
- Large or Split Ham Hocks
- Centers and Ends (Country Ham)
- Trimmings (Country Ham)
- End Slices (from butt of ham)
- Chunk Side Meat
- Country Ham Aitch Bones
- Iberico Ham
Timeline of Listeriosis Investigation, Virginia

7/7/17: P1 Onset

6/14: P2 Illness Onset

6/18: P2 Dies

6/19: P3 Illness Onset


7/2: DCLS informs of cluster

7/3: Pork products match

7/6: Pork product list received

7/23: ALF Menus and supplier list

7/26: P1 dies
Timeline of Listeriosis Investigation, Virginia

7/7/17: P1 Onset

6/14: P2 Illness Onset

6/19: P3 Illness Onset

6/29-7/3: Interviews with family of P2

7/3: Pork products match

7/23: ALF Menus and supplier list

7/6: Pork product list received

7/26: P1 dies

8/24: P3 dies

4/28/18: P2 to ALF

6/18: P2 Dies

6/22: Interview at ALF for P2

7/2: DCLS informs of cluster

7/26: P1 dies
## List of Product Samples From FSIS With Name Brands

<table>
<thead>
<tr>
<th>Isolate Key</th>
<th>Collection Date</th>
<th>Sample</th>
<th>Product</th>
<th>Establishment Name</th>
<th>Establishment Number</th>
<th>Establishment Location</th>
<th>Brands</th>
</tr>
</thead>
</table>
Recalled Products
Acknowledgments

VDH
• Kelsey Holloman, MPH
• Lisa Sollot, MPH
• Okey Utah, MPH
• Angie Myrick-West, MPH, CIC
• Lori Dixon, RN, BSN
• Seth Levine, MPH
• Christy Brennan, VDACS

DCLS
• DCLS Microbial Reference Lab
• Epidemiologic Support and Molecular Detection and Characterization Group
• DCLS Molecular Subtyping Lab

VDACS
• Christy Brennan