Regional Six-monthly Report of Descriptive Bovine TB Epidemiology for the Low Risk (Four Yearly Testing) Areas of England

Regional Office:
SE Region

Year-end report for 2017

1. Cattle Industry in the Region
For the purposes of this report, the South East Region of the Animal and Plant Health Agency (APHA) in England has been split into practical working areas (groups of counties) that are overseen on a regional basis–

- Zone 1 – Norfolk (28) and Suffolk (38).
- Zone 2 – Cambridgeshire (05), Bedfordshire (01), Hertfordshire (18), Essex (13), Greater London North (26) and Greater London South (27).
- Zone 3 – Surrey (40), Kent (20) and West Sussex (42).
- Zone 4 – Isle of Wight (16).

Note: the remaining counties to the west of the Southeast region (Hampshire, Berkshire, Buckinghamshire, Oxfordshire and East Sussex, shown with no background colour) are part of the Edge Area, where herds are routinely tested annually or every six months.

The majority of the cattle farmed in the east of the Region (Zones 1 and 2) are in the north of the area i.e. Norfolk. The herd types are predominantly fattening, with a reasonable number of suckler herds, and fewer and fewer dairy herds. Cattle for finishing, or stores, are traditionally bought in from other areas of the country...
for finishing on areas of grazing that are unsuitable for arable production, or on grain/by-products from that arable production. The areas that cattle are purchased from are often the higher risk areas of the Midlands and South West of England.

In the southern counties (Zone 3), the highest densities of cattle are in southern Surrey, and Sussex including the South Downs. All of East Sussex is now on annual testing county due to the endemic low incidence of badger TB in the southern part of the county. Farm types are similar to the East with finishing, store and suckler herds predominating, with fewer and generally larger dairy herds. Surrey, particularly to the north, has many smaller herds. Kent has a generally low density of cattle, but a mix of herd types similar to the rest of the zone. It is more and more common that a cattle herd has no contiguous cattle neighbours in these areas.

Dairying used to predominate on the Isle of Wight, but there are now less than 20 herds remaining, dropping from around 150 herds in the 1980s. There are some cattle breeders on the Island that are taking advantage of their disease free (including bTB) status to enhance the values of their sales to farms on the mainland.

The South East Region is a net importer of cattle and the main risk of TB introduction is due to the many cattle movements into this area. There are only a few relatively low volume cattle markets remaining in the Region. The majority of the larger finishers in South East have to source their cattle from the higher bTB risk areas due to the numbers required at one time to maintain the size of production groups.

There is currently no evidence of infection in the wildlife in any of the counties in the Low Risk Area (LRA) of the SE Region. Culled deer are routinely inspected by hunters and on occasion suspicious lesions are reported to APHA, but no *M. bovis* infection has been identified to date.

There are four Licensed Finishing Units (LFUs) operating in the LRA counties of the SE Region for the indoor fattening of cattle destined for slaughter. These units are kept under movement restrictions (OTF status suspended) and can only accept, as a rule, cattle from OTF herds that have been subject to statutory pre-movement TB testing with negative results, where required.

Number of cattle premises by size band in the division at 31st December of the reporting year.

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>0</th>
<th>1-50</th>
<th>51-100</th>
<th>101-200</th>
<th>201-350</th>
<th>351-500</th>
<th>501+</th>
<th>All</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEDFORDSHIRE</td>
<td>2</td>
<td>102</td>
<td>33</td>
<td>19</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td>169</td>
<td>73</td>
<td>32</td>
</tr>
<tr>
<td>CAMBRIDGESHIRE</td>
<td>0</td>
<td>199</td>
<td>51</td>
<td>42</td>
<td>15</td>
<td>5</td>
<td>9</td>
<td>321</td>
<td>87</td>
<td>29</td>
</tr>
<tr>
<td>ESSEX</td>
<td>3</td>
<td>278</td>
<td>49</td>
<td>40</td>
<td>21</td>
<td>4</td>
<td>10</td>
<td>405</td>
<td>72</td>
<td>20</td>
</tr>
<tr>
<td>ISLE OF WIGHT</td>
<td>0</td>
<td>74</td>
<td>22</td>
<td>27</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>138</td>
<td>87</td>
<td>45</td>
</tr>
<tr>
<td>HERFORDSHIRE</td>
<td>1</td>
<td>146</td>
<td>32</td>
<td>26</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>217</td>
<td>58</td>
<td>21</td>
</tr>
<tr>
<td>KENT</td>
<td>13</td>
<td>407</td>
<td>98</td>
<td>67</td>
<td>41</td>
<td>25</td>
<td>18</td>
<td>669</td>
<td>88</td>
<td>28</td>
</tr>
<tr>
<td>GREATER LONDON</td>
<td>5</td>
<td>21</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>GREATER LONDON</td>
<td>0</td>
<td>29</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>35</td>
<td>34</td>
<td>9</td>
</tr>
<tr>
<td>NORFOLK</td>
<td>8</td>
<td>501</td>
<td>132</td>
<td>105</td>
<td>53</td>
<td>17</td>
<td>24</td>
<td>840</td>
<td>90</td>
<td>32</td>
</tr>
<tr>
<td>SUFFOLK</td>
<td>6</td>
<td>303</td>
<td>69</td>
<td>58</td>
<td>23</td>
<td>9</td>
<td>10</td>
<td>478</td>
<td>72</td>
<td>24</td>
</tr>
<tr>
<td>SURREY</td>
<td>1</td>
<td>197</td>
<td>40</td>
<td>29</td>
<td>17</td>
<td>13</td>
<td>10</td>
<td>307</td>
<td>91</td>
<td>23</td>
</tr>
<tr>
<td>WEST SUSSEX</td>
<td>10</td>
<td>235</td>
<td>63</td>
<td>67</td>
<td>39</td>
<td>16</td>
<td>15</td>
<td>445</td>
<td>108</td>
<td>38</td>
</tr>
</tbody>
</table>

Cattle breed purpose - numbers and percentages at 31st December of the reporting year.
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>Beef</th>
<th>Dairy</th>
<th>Dual Breed</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEDFORDSHIRE</td>
<td>9667</td>
<td>2327</td>
<td>393</td>
<td>2</td>
<td>12389</td>
</tr>
<tr>
<td>CAMBRIDGESHIRE</td>
<td>20354</td>
<td>6390</td>
<td>1076</td>
<td>0</td>
<td>27820</td>
</tr>
<tr>
<td>ESSEX</td>
<td>21759</td>
<td>6159</td>
<td>1421</td>
<td>4</td>
<td>29343</td>
</tr>
<tr>
<td>ISLE OF WIGHT</td>
<td>8517</td>
<td>3192</td>
<td>270</td>
<td>2</td>
<td>11981</td>
</tr>
<tr>
<td>HERTFORDSHIRE</td>
<td>10168</td>
<td>1883</td>
<td>425</td>
<td>8</td>
<td>12484</td>
</tr>
<tr>
<td>KENT</td>
<td>36367</td>
<td>21483</td>
<td>1093</td>
<td>9</td>
<td>58952</td>
</tr>
<tr>
<td>GREATER LONDON</td>
<td>437</td>
<td>10</td>
<td>55</td>
<td>0</td>
<td>502</td>
</tr>
<tr>
<td>GREATER LONDON</td>
<td>731</td>
<td>426</td>
<td>44</td>
<td>2</td>
<td>1201</td>
</tr>
<tr>
<td>NORFOLK</td>
<td>58730</td>
<td>13033</td>
<td>3497</td>
<td>26</td>
<td>75286</td>
</tr>
<tr>
<td>SUFFOLK</td>
<td>23311</td>
<td>7376</td>
<td>3877</td>
<td>11</td>
<td>34575</td>
</tr>
<tr>
<td>SURREY</td>
<td>16296</td>
<td>10381</td>
<td>1310</td>
<td>0</td>
<td>27987</td>
</tr>
<tr>
<td>WEST SUSSEX</td>
<td>24014</td>
<td>21815</td>
<td>2203</td>
<td>11</td>
<td>48043</td>
</tr>
</tbody>
</table>
Density of cattle and cattle premises at 31st December of the reporting year.

ZONE 1

<table>
<thead>
<tr>
<th>Map - Cattle per square km</th>
<th>Map - Number of premises per 100 square km</th>
</tr>
</thead>
</table>

**CREATOR: DSG GIS**
Source: RADAR
Cattle/Premises Density
© Crown Copyright and database rights 2010.
Ordnance Survey Licence number: 100051110

© Crown Copyright and database rights 2010.
Ordnance Survey Licence number: 100051110
ZONE 4

Map - Cattle per square km

Map - Number of premises per 100 square km
2. Geographical Distribution of Bovine TB Breakdowns in the Region

ZONE 1

ZONE 2

* Introduced incidents are isolated cases definitely caused by introductions of infected cattle.

There were 20 new OTFW breakdowns in the LRA of the South East region in 2017, eight in the first half and twelve in the second half of the year.

There was one OTFW breakdown in West Sussex from 2016 still opened at the end of 2017. The counties of East Sussex, Hampshire, Berkshire, Buckinghamshire and Oxfordshire are not included in this report as they are now annual or six-monthly TB testing counties and not part of the LRA in the Southeast Region.

The 2017 OTFW breakdowns are briefly summarised in Section 8 in this report. The testing results of herds within a 3km radius of all the new OTFW breakdowns (radial testing) have also been included in the individual OTFW breakdowns summaries.

<table>
<thead>
<tr>
<th>Herd-level statistics</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
<th>Total SE Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Total number of cattle herds live on Sam at the end of the reporting period</td>
<td>1,546</td>
<td>1,360</td>
<td>1,576</td>
<td>157</td>
<td>4,639</td>
</tr>
<tr>
<td>(b) Total number of cattle herds subject to annual TB testing at the end of the reporting period (any reason)</td>
<td>74</td>
<td>96</td>
<td>188</td>
<td>30</td>
<td>388</td>
</tr>
<tr>
<td>(c) Total number of herd tests carried out in the period</td>
<td>554</td>
<td>488</td>
<td>603</td>
<td>112</td>
<td>1,757</td>
</tr>
<tr>
<td>(d) Total number of OTF cattle herds TB tested during the period for any reason</td>
<td>342</td>
<td>304</td>
<td>329</td>
<td>46</td>
<td>1,021</td>
</tr>
<tr>
<td>(e) Total number of OTF cattle herds at the end of the report period (i.e. herds not under any type of TB2 restrictions)</td>
<td>1,506</td>
<td>1,329</td>
<td>1,517</td>
<td>155</td>
<td>4,507</td>
</tr>
<tr>
<td>(f) Total number of cattle herds that were not under restrictions due to an ongoing TB breakdown at the end of the report period</td>
<td>1,516</td>
<td>1,340</td>
<td>1,543</td>
<td>155</td>
<td>4,554</td>
</tr>
<tr>
<td>(g) Total number of new TB breakdowns detected in cattle herds during the report period</td>
<td>11</td>
<td>10</td>
<td>19</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>• OTF status suspended (OTFS)</td>
<td>4</td>
<td>3</td>
<td>13</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>• OTF status withdrawn (OTFW)</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>(h) Of the new OTFW herd breakdowns, how many:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• occurred in a holding affected by another OTFW breakdown in the previous three years?</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>• could be considered secondary to a primary breakdown based on current evidence?</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>• were triggered by skin test reactors or 2xIRs at routine herd tests?</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>• were triggered by skin test reactors or 2xIRs at other TB test types (forward and back-tracings, contiguous, check tests, post-movement, etc.)?</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>• were first detected through routine slaughterhouse TB surveillance?</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>(i) Number of new breakdowns revealed by enhanced TB surveillance (radial testing) conducted around those OTFW herds</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>• OTFS</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>• OTFW</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(j) Number of OTFW herds still open at the end of the period (including any ongoing OTFW breakdowns that began in a previous reporting period)</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>(k) New confirmed (positive <em>Mycobacterium bovis</em> culture) incidents in non-bovine species detected during the report period (indicate host species involved)</td>
<td>0</td>
<td>0</td>
<td>1 (Alpaca)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Animal-level statistics (cattle)

<table>
<thead>
<tr>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
<th>Total SE Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) <strong>Total number of cattle tested in the period (animal tests)</strong></td>
<td>28,315</td>
<td>24,107</td>
<td>54,735</td>
<td>6,447</td>
</tr>
<tr>
<td>(b) Reactors detected:</td>
<td>49</td>
<td>84</td>
<td>196</td>
<td>78</td>
</tr>
<tr>
<td>• <strong>tuberculin skin test</strong></td>
<td>16</td>
<td>9</td>
<td>58</td>
<td>8</td>
</tr>
<tr>
<td>• <strong>additional IFN-gamma blood test reactors (skin-test negative or IR animals)</strong></td>
<td>33</td>
<td>75</td>
<td>138</td>
<td>70</td>
</tr>
<tr>
<td>(c) <strong>Reactors per breakdown</strong></td>
<td>4.45</td>
<td>8.4</td>
<td>6.26</td>
<td>78</td>
</tr>
<tr>
<td>(d) <strong>Reactors per 1000 animal tests</strong></td>
<td>1.73</td>
<td>3.48</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>(e) <strong>Additional animals identified for slaughter for TB control reasons (DCs, including any first-time IRs)</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(f) <strong>SLH cases (tuberculous carcasses) reported by FSA</strong></td>
<td>1</td>
<td>4</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>(g) <strong>SLH cases confirmed by culture of M. bovis</strong></td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

### 2016 (for comparison purposes)

<table>
<thead>
<tr>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
<th>Total SE Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) <strong>Total number of cattle herds live on Sam at the end of the reporting period</strong></td>
<td>1,492</td>
<td>1,326</td>
<td>1,549</td>
<td>160</td>
</tr>
<tr>
<td>(b) <strong>Total number of cattle herds subject to annual TB testing at the end of the reporting period (any reason)</strong></td>
<td>120</td>
<td>135</td>
<td>184</td>
<td>4</td>
</tr>
<tr>
<td>(c) <strong>Total number of herd tests carried out in the period</strong></td>
<td>659</td>
<td>581</td>
<td>662</td>
<td>106</td>
</tr>
<tr>
<td>(d) <strong>Total number of OTF cattle herds TB tested during the period for any reason</strong></td>
<td>328</td>
<td>312</td>
<td>381</td>
<td>38</td>
</tr>
<tr>
<td>(e) <strong>Total number of OTF cattle herds at the end of the report period (i.e. herds not under any type of TB2 restrictions)</strong></td>
<td>1,475</td>
<td>1,298</td>
<td>1,521</td>
<td>156</td>
</tr>
<tr>
<td>(f) <strong>Total number of cattle herds that were not under restrictions due to an ongoing TB breakdown at the end of the report period.</strong></td>
<td>1,484</td>
<td>1,318</td>
<td>1,541</td>
<td>158</td>
</tr>
<tr>
<td>(g) <strong>Total number of new TB breakdowns detected in cattle herds during the report period</strong></td>
<td>7</td>
<td>13</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>• <strong>OTF status suspended (OTFS)</strong></td>
<td>5</td>
<td>8</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>• <strong>OTF status withdrawn (OTFW)</strong></td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

<h>Of the new OTFW herd breakdowns, how many: </h>
- occurred in a holding affected by another OTFW breakdown in the previous three years? | 0 | 1 | 1 | 0 | 0
- could be considered secondary to a primary breakdown based on current evidence? | 0 | 0 | 1 | 0 | 1
- were triggered by skin test reactors or 2xIRs at routine herd tests? | 0 | 0 | 1 | 0 | 1
- were triggered by skin test reactors or 2xIRs at other TB test types (forward and back-tracings, contiguous, check tests, etc.)? | 1 | 2 | 3 | 0 | 6
- were first detected through routine slaughterhouse TB surveillance? | 1 | 3 | 2 | 1 | 7

(i) Number of new breakdowns revealed by enhanced TB surveillance (radial testing) conducted around those OTFW herds:
- OTFS | 1 | 1 | 2 | 0 | 4
- OTFW | 0 | 0 | 0 | 0 | 0

(j) Number of OTFW herds still open at the end of the period (including any ongoing OTFW breakdowns that began in a previous reporting period):
- 1 | 4 | 3 | 1 | 9

(k) New confirmed (positive Mycobacterium bovis culture) incidents in non-bovine species detected during the report period (indicate host species involved):
- 0 | 2 | 1 | 0 | 1

Animal-level statistics (cattle) | Zone 1 | Zone 2 | Zone 3 | Zone 4 | Total SE Region
--- | --- | --- | --- | --- | ---
(a) Total number of cattle tested in the period (animal tests) | 30,715 | 26,813 | 58,602 | 2,479 | 118,609
(b) Reactors detected:
- tuberculin skin test | 12 | 72 | 43 | 2 | 129
- additional IFN-gamma blood test reactors (skin-test negative or IR animals) | 9 | 62 | 31 | 0 | 102
(c) Reactors per breakdown | 3 | 10.231 | 3.083 | 0.67 | 4.8
(d) Reactors per 1000 animal tests | 0.683 | 4.960 | 1.262 | 0.806 | 1.939
(e) Additional animals identified for slaughter for TB control reasons (DCs, including any first-time IRs) | 0 | 3 | 2 | 0 | 5
(f) SLH cases (tuberculous carcasses) reported by FSA | 5 | 11 | 10 | 2 | 28
(g) SLH cases confirmed by culture of M. bovis | 1 | 3 | 2 | 1 | 7
Density of skin test reactors, IFN-gamma test reactors and slaughterhouse cases in Officially TB Free Status Withdrawn (OTFW) breakdowns per km² taken in the reporting period.

Density of skin test reactors, IFN-gamma test reactors and slaughterhouse cases in OTFW and Officially TB Free Suspended (OTFS) breakdowns per km² taken in the reporting period.
4. Suspected Sources of *M. bovis* Infection for all the New OTFW Breakdowns Identified in the Report Period

<table>
<thead>
<tr>
<th>Most likely origin</th>
<th>Provisional</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction (e.g. purchase) of infected animal(s)</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Local - lateral spread from neighbouring holdings:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• exposure to infected wildlife e.g. badgers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• other farmed species</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• recrudescence of residual infection from a previous TB breakdown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• infected human source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undetermined/obscure</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Other (explain)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Probability of isolated, sporadic ('one-off') breakdown, without secondary local spread from the index case |
|-------------------------------------------------|------------------|------------------|
| Probability of introduced *M. bovis* infection introduced via cattle movements | Likely (no secondary breakdowns detected) | Possible (no secondary breakdowns detected, but dataset incomplete) | Not likely (secondary spread from the index case, or exposure to a common wildlife source has occurred) |
| Definite                                        | 13*              | 1***             |                   |
| Likely                                          | 2**              |                   |                   |
| Possible                                        | 3                | 1                |                   |
| Not likely (indigenous infection in the locality) |                   |                   |                   |

5. Overview of the bTB Eradication Programme in the Region

- There have been no changes in routine skin testing surveillance policy. The mandatory post-movement testing policy introduced in April 2016 for cattle imported from higher risk areas of GB is now well embedded in the region and identified several infected cattle missed by pre-movement testing shortly after their arrival on farms in this part of the LRA (see below).
- No known cases of human *M. bovis* infection in the Region attributable to recent contact with infected animals.
- There were no known non-specific or suspected fraudulent skin test reactors.
- No breakdowns involving producer-retailers of unpasteurised cows’ milk or on open farms.
- During this reporting period there has been one formal meeting with the Resilient Forum to discuss TB matters.
- Overall results of radial bTB surveillance have been detailed in individual case summaries in section 8 of this report. There have been four exemptions from radial testing granted during this reporting period.
• Of all new OTFW breakdowns occurring in 2017, 35% were disclosed at post-movement test, followed by 25% of slaughterhouse cases, 15% of routine herd test surveillance, 5% at post import test and 5% disclosed at radial test.

6. Wildlife
There have been no reports of *M. bovis*-infected wildlife from the South East Low Risk Area

7. Other Susceptible Species
In the South East Low Risk Area there was one culture-confirmed incident of *M. bovis* infection in an alpaca herd (West Sussex).

8. Individual summaries of new OTFW breakdowns detected in the region during the report period and ongoing breakdowns from previous years still open at the end of the report period, grouped by county

**Norfolk**

Kings Lynn, Norfolk.

This holding is a small fattening herd with approximately 70 cattle. The farmer buys in 12 month of age cattle and fattens up to 25 to 30 months old and sends them directly to slaughter. Cattle are out wintered on a low stocking density of 1 animal per 2 acres. All the cattle is purchased in batches, usually in November, finished in two straw yards close to farm and are sent directly to slaughter to Blakes of Norwich and Howards at Gayton. There is also a total of five hundred sheep. Sheep graze at along river Great Ouse. Sheep are slaughtered in line with cattle to supply local butchers.

On 24/2/17 an inconclusive reactor was disclosed at a post movement test. The inconclusive reactor became a reactor at re-test on 8/5/17 (with visible lesions at post mortem, isolating genotype 9:a). This animal was born in a holding in Cornwall (genotype 9:a isolated in 2011 and 2012), moved to Norfolk in December 2016 and taken as a skin reactor in May 2017.

The first short interval (SI) and IFN-γ parallel tests carried out on 8/8/17 disclosed one IFN-γ test positive animal with no visible lesions at post-mortem (NVL). The second short interval completed on 2/11/17 had negative results. Restrictions were lifted on 13/11/17.

This holding had a previous confirmed breakdown in 2014 (OTFW isolating genotype 15:a). The origin of this incident is purchase of infected cattle from high risk areas (Cornwall) since all the animals are bought in. Furthermore, the reactor was on the holding for a short period of time before being disclosed as reactor (five months), strongly suggesting that it could be already infected when it arrived on the destination farm in Norfolk.

A RAD zone has been established around this farm that includes twelve holdings. To date, the radial tests carried out in that zone have not revealed reactors.

**Wisbech, Cambridgeshire.**

A fattening enterprise with cattle purchased at 12 months of age from the West Country through Sedgemoor Market in Taunton and sold between twenty four to thirty months of age. Cattle are bought in to fat and are sent directly to slaughter.

On 10/1/2017 test three skin reactors and five inconclusive reactors were disclosed at post movement. Only one reactor that came originally from Devon had visible lesions at post mortem. *M. bovis* was isolated on 31/3/17, isolating genotype 11:x. The other two skin reactors showed no visible lesions at post-mortem.
The check test was carried out on 17/2/17 had negative results. The first short interval (SI) and IFN-γ parallel test were completed on 24/4/17 and 15/5/17 respectively disclosing seven IFN-γ positives— all with no visible lesions at post-mortem. The second short interval test (SI) carried out in August had negative results. Restrictions were lifted on 29/8/17.

This holding had a confirmed breakdown in the previous three year (OTFW in 2015, isolating genotype 17:a). The origin of this incident is purchased infected cattle from high risk areas since all the reactors are purchased and the genotype 11:x has been previously isolated in the parish of the holding of birth of the reactor from Devon.

A RAD zone has been established around this farm that includes five holdings. To date, the radial tests carried out in the zone have not revealed reactors.

**Whittington, Kings Lynn**

Small-sized suckler herd with approximately 96 animals on holding.

On 19/9/16 an inconclusive reactor was disclosed at routine herd test. This in calf cow became a reactor at re-test on 5/12/17, but was left in isolation as it was close to calving until 15/2/18 revealing visible lesions at post-mortem (genotype information is pending). The reactor was born in a holding in Shropshire. This holding has several confirmed breakdowns 2013, 2015, and 17/10/17, isolating genotype 35:a. Reactor moved off the Shropshire holding on 17/4/14 to a holding in Essex where it was resident from 17/4/14 until 7/1/15 before moving to this farm. The reactor was purchased with a group of another fourteen animals from the holding in Essex. The other cattle in this group has tested negative at the routine herd test in December (RHT) and at the check test (CT) in January 2018.

The reactor was previously tested with negative results at the holding in Shropshire in November 2013, but it was not eligible at the short interval test carried out on 27/1/14. However, it was tested clear at pre-movement test on 8/4/14 before moving to Essex. Previous testing history of Reactor:

The check test carried out in January 2018 and decoupled IFN-γ parallel test completed in February 2018 gave negative results. The next short interval test has been scheduled end of April, sixty days from the removal of the reactor.

The origin of this breakdown has been assessed as likely to be purchased infected cattle from Shropshire, as there has not been any other high risk movements onto this holding, but genotype data is incomplete at present.

RAD zone has been established around this farm that includes 19 holdings. To date radial tests carried out in the zone have not revealed reactors.

**Suffolk**

**Halesworth, Suffolk**

Medium-sized fattening business comprising two enterprises, one for fattening cattle and in the other side of the road finishing veal (rose). The farmer buys calves from high risk areas and finishes to slaughter weight. Occasionally sells store cattle.

This holding had a previous OTFW breakdown disclosed at post-movement test in January 2017 (spoligotype 9 was isolated). Restrictions were lifted in July 2017. Just only a few months later on 24/10/17 four reactors were disclosed at trace test (three reactors had visible lesions at post-mortem, isolating genotype 21:a). The farm of origin in Somerset had genotype 21:a isolated.

The check test carried out in November had negative results. The first short interval test completed on 26/1/18 had also negative results. This holding had an exemption granted from IFN-γ parallel test. The short interval test carried out in April had negative results. Restrictions were lifted on 20/4/18.
The origin of this incident is purchased infected cattle from higher risk areas.

RAD zone has been established around this farm that includes ten holdings. To date radial tests carried out in the radial zone have not revealed reactors.

**Sotherton, Suffolk**

Small-sized farm rearing young calves for veal production. The calves, mainly males, are brought in at the age of two weeks old and kept on milk supplements and wheat until the age of six months, then they are sent directly to slaughter.

The calf moved on to this farm on 6/6/2017 and it was disclosed as skin reactor at post movement test on 07/08/17. The reactor was sent to slaughter on 17/08/201, revealing visible lesions at post mortem. *M.bovis* was isolated on 9/10/17 isolating genotype 21:a. This animal was born at in Somerset on 17/5/17. This farm of origin has several OTFW breakdowns since 2011, isolating genotype 21:a.

The check test that was carried out on 11/9/17 had negative results. The first short interval test IFN-γ parallel test due on 27th November had no eligible animals left on holding. Restrictions were lifted on 11/1/18 after holding was left depopulated for over 60 days and cleanse and disinfection visit was completed satisfactorily.

This holding had an exemption granted from RAD testing, so radial testing zone has not been established within 3 km of this breakdown.

**Halesworth, Suffolk.**

Small-sized contract veal production farm that buys in calves in batches- all in-all out system, between 2-6 weeks old from a collection centre in high risk area and transports them direct to single premises accommodation (covered yards). The calves are direct to slaughter in Pontefract at around six months old.

The reactors were disclosed as skin reactors at trace test on 2/10/17, both revealing visible lesions at post-mortem, isolating genotype 21:a. The farm of origin of these trace animals in Somerset had a confirmed breakdown in 2017 isolating genotype 21:a.

The check test carried out on 7/11/7 had negative results. All the stock was sent to slaughter before the first short interval (SI) and IFN-γ parallel test were completed. Restrictions were lifted on 13/4/18 after holding was left depopulated for over 60 days and cleanse and disinfection visit was satisfactory.

This holding had an exemption granted so no RAD zone has been established within 3 km of this breakdown.

**Cambridgeshire**

Wisbech.

This is an approved Licensed Finishing Unit with no grazing. This holding had two slaughterhouse cases on 7/8/17 and 17/9/17 respectively. Both slaughterhouse cases had genotype 11:a isolated.

One of the cases moved on to this holding on 13/8/16 from a farm in Devon. This holding of origin has numerous confirmed breakdowns where genotype 11:a has been isolated. was born in Carmarthenshire (genotype 9:b isolated in 2014) and moved onto two different holdings in Devon prior to moving to this Licenced Finishing Unit (LFU) on 10/1/17. The last holding of residence in Devon had a confirmed breakdown in April 2017, isolating genotype 11:a. Both slaughterhouse cases were housed in two different yards on arrival to this unit supporting the hypothesis that both animals arrived already infected.
Somerset Farm had a previous OTFW breakdown in 2009, 2010, 2015 and 2016 where the genotypes isolated has been linked to the farms of origin.

The origin of this breakdown has been assessed as purchased origin from Devon.

No RAD zone has been established within 3 km of this breakdown in light of the biosecurity conditions and the fact that the genotype of the slaughterhouse case matches the farm of origin in Devon (High Risk Area).

**Essex**

**Great Oakley, Essex**

The farmer rears bought-in store heifers (70%) and steers (30%). The animals are bought aged between 8-15 months usually during the months from September to November each year. Animals are mainly purchased from either Sedgemoor Livestock Market or Frome Livestock Market (both in Somerset) meaning that most of the animals are purchased from the high risk South West area.

The cattle are wintered on the farm in close contact sheds and graze the land during the summer months. The farm then sells the animals to a finishing farm from July onwards. In recent years, most of these animals have gone to Norfolk, and very occasionally directly to slaughter. Stores do not remain on the farm for longer than 15 months as a general rule. There are no linked premises to this location and the animals remain as one epidemiological group.

On 9/1/17 a reactor was disclosed at post movement test (with no visible lesions at post-mortem but *M. bovis* was subsequently isolated, genotype 21:a. This reactor was born in a holding in Somerset, moved to a holding in Avon prior to getting sold through Sedgemoor to the holding.

Check test carried out on 7/2/17 had negative results. The first short interval (SI) and IFN-γ parallel test were completed on 10/4/17 disclosing two gamma test positive animals (both with no visible lesions at post-mortem). The second short interval test carried out in June had negative results. Restrictions were lifted on 20/6/17.

The origin of this incident is purchased infected cattle from high risk areas since all the reactors are purchased from high risk areas where genotype 21:a is endemic.

This holding has been granted an exemption from radial testing surveillance endorsed by policy, so no RAD zone has been established within 3 km of this breakdown.

**Halstead, Essex.**

This business belongs to a hobby farmer who keeps a small-sized suckler herd consisting of mainly traditional cattle breeds such as Long Horn, Lincoln Red, Welsh Black and Aberdeen Angus to use the surplus of hay and straw from his main business (thoroughbred breeding). The farmer sells store cattle at 6-8 months of age.

On 22/8/17 a reactor and an inconclusive reactor were disclosed at the routine herd test (RHT). Both animals came from the same premises in Warwickshire although they were originally born in Leicestershire. The reactor had visible lesions at post-mortem, isolating genotype 25:a.

There are indirect links with the correct homeraange via the holding in Warwickshire. This holding has recorded twenty seven movements on in the past seven years. There is one particular bull that was born in a farm in Staffordshire, currently OTFW with genotype 25:a isolated. This bull coincided in time and location with the reactor and inconclusive reactor in this holding in Warwickshire, from June 2012 to November 2013. This potential route could explain the origin of this breakdown although the bull has tested clear at the whole herd tests (WHT) carried out since 2015.

The check test (CT) and IFN-γ parallel test were completed at the end of September had negative results. The first short interval (SI) and IFN-γ parallel tests carried out in early November disclosed two gamma
positives (both with no visible lesions at post-mortem). The second short interval test (SI) carried out on 22/1/18 had negative results. Restrictions were lifted on 23/2/18.

The origin of this incident is likely to be purchased infected cattle from high risk areas.

A RAD zone has been established around this farm that includes nine holdings. To date radial tests carried out in the zone have not revealed reactors.

**Saffron Walden, Essex.**

Dairy herd of approximately 523 cattle on holding. The Jersey heifer calves are moved within the onto different farms under the same holding number.

On 27/11/17 at routine herd test (RHT) a homebred animal was disclosed as reactor. The first short interval (SI) and IFN-γ parallel tests carried out in February and March 2018 disclosed thirty one homebred gamma test positive animals (two of which had visible lesions at post-mortem, both samples have been re-cultured, genotyping is pending). The second short interval test has been scheduled at the end April early May.

There are no contiguous herds with TB susceptible species. This holding could be considered almost a closed herd. According to Cattle Trace System (CTS) there have been no movements onto this holding in the last eight years excepted from a pedigree bull. This animal moved onto this holding on 12/10/13 from its holding of origin in Norfolk which has a clear TB history since 1988.

Further investigations about the movements onto the holding in Norfolk has revealed a couple of interesting movements. The first one is a movement in the last six months of a particular animal that moved to the holding in Norfolk from a holding in Gloucestershire (OTFW on 20/12/16, isolating genotype 17:b). The other link to home range is the movement of a calf onto the Norfolk holding from a dam also originating from the same holding in Gloucestershire (OTFW in 2012, 2014 and 2017, genotypes 17:b and 17:x were isolated). The calf from this dam moved to Norfolk holding on 1/2/14, two months after the bull moved off from Norfolk to Essex.

This provides supportive evidence that there are links with the correct home range, but they are more indicative of the potential movement networks rather than a clear explanation for this breakdown due to timing issues.

The origin of this breakdown is obscure at present and it has been submitted for approval for hotspot procedures.

A RAD testing zone has been established around this farm that includes four holdings. To date radial tests carried out in the zone have not revealed reactors.

**Bedfordshire**

**Colmworth, Bedfordshire**

Small-sized fattener herd with approximately 110 animals on holding. Farmer buys in cattle for fattening from Bishops Castle Market and other markets.

On 30/5/17 an animal was disclosed as reactor at post movement test (spoligotype 35:a). The check test (CT) carried out on 12/6/17 disclosed one inconclusive reactor (IR).

The first short interval (SI) and IFN-γ parallel test were completed on 21/8/17 with negative results. The second short interval test carried out in November had negative results. The reactor came originally from a holding in Shropshire on 23/2/17. This holding has had numerous culture positives in recent years isolating genotype 35:a. Restrictions were lifted on 22/12/17.

The origin of this incident is purchased infected cattle from Shropshire.
RAD zone has been established around this farm that includes seven holdings. To date there has been one OTFS breakdown revealed by radial tests in the area.

**Silsoe, Bedfordshire**

Medium-sized dairy herd with one animal moved off since 2011.

On 2/8/17 this holding had a homebred slaughterhouse case. Disease was confirmed on 19/9/17 isolating genotype 10:a. The check test (CT) was completed at the end of August with negative results. The first short interval (SI) and IFN-γ parallel test completed in October disclosed 45 gamma positives (all had no visible lesions at post-mortem). The second short interval test completed in January 2018 had negative results. Restrictions were lifted on 10 26/1/18.

According to CTS this holding has moved only six animals since 2010. Four of these six animals came from the same holding in Northamptonshire (clear TB history). These animals moved on to this holding in Bedfordshire in different years from 2010 to 2017. There is one particular animal that moved onto this holding on 15/4/15 from its holding of birth whilst this herd was contiguous to another breakdown herd (29/002/0009, OTFW on 11/12/14, isolating genotype 10:a). This animal in question was in the Northamptonshire holding of birth from 21/1/14 to 15/4/15, whilst the contiguous OTFW in Banbury was taken place. This animal was resident in this farm for two years before moving off to another herd in the low risk area where it was tested clear at trace test on 23/10/17.

The origin of this breakdown is likely to be purchased origin.

RAD zone has been established around this farm that includes nine holdings. To date radial tests carried out in the zone have not revealed reactors.

**Hertfordshire**

**Radlett Hertfordshire**

Small-sized suckler herd with approximately 99 cattle. On 4/7/17 at a post import test, an animal originating in the Republic of Ireland was disclosed as reactor with visible lesions at post-mortem, isolating genotype 51:a of *M. bovis*. The reactor heifer was born in the RoI, then moved through Northern Ireland before being bought by the owner.

The first short interval (SI) and IFN-γ parallel tests carried out in October 2017 disclosed 16 gamma positive animals, all with no visible lesions at post-mortem (NVL). The second short interval test on 16/1/18 had negative results. Restrictions were lifted at the end of January 2018.

The origin of this OTFW breakdown has been assessed as purchased infected cattle from Northern Ireland.

Radial testing zone has been established within 3km of this breakdown that includes seven holdings. To date radial tests carried out in the zone have not revealed reactors.

**West Sussex**

**Petworth, West Sussex**

The owner runs a dairy herd of approximately 270 dairy and a small suckler herd with approximately 55 animals. Calving is usually in August time. Calves are reared in a building located a few miles away from main holding.

This holding had a homebred slaughterhouse case on 12/4/17 *M. bovis* was confirmed isolating genotype 11:a. The check test (CT) was carried out on 9/5/17 disclosing 13 homebred reactors (eight with visible lesions at post-mortem). The first short interval (SI) and IFN-γ parallel test carried out in July 2017 disclosed five skin reactors (four were homebred, one with visible lesions and four with no visible lesions at post mortem and one purchased with no visible lesions at post-mortem originally from a holding in West Sussex (clear TB.
The second short interval (SI) and IFN-γ parallel test were completed on 2/10/17 disclosing one skin reactor (with no visible lesions at postmortem), one inconclusive reactor and 18 homebred gamma positive (one with visible lesions and 12 with no visible lesions at post-mortem). The third short interval (SI) and IFN-γ parallel test completed in January 2018 disclosed five homebred gamma positives only (one with visible lesions, 4 with no visible lesions at postmortem). The fourth short interval (SI) and IFN-γ parallel test completed in April 2018 disclosed twenty three homebred gamma reactors only, all of which none had visible lesions at post-mortem (all reactors are pending to be removed from holding).

Movement checks confirmed that no animals on the affected holding had been living in homergane areas of genotype 11:a. Only five animals moved on from three different holdings in West Sussex all of which have a clear TB history.

This holding is under radial test triggered by another OTFW breakdown in the area (M. bovis genotype 13:a). This holding is also nearby the alpaca breakdown (genotype 10:u).

The RAD testing zone established around this farm includes twenty holdings. To date there have been two OTFS and three OTFW breakdowns revealed by radial tests in the area. The genotypes of M. bovis isolated for these three OTFW breakdowns are 9:f for the first breakdown; the second OTFW breakdown was confirmed in a skin reactor (two times inconclusive reactor) that had visible lesions at post-mortem but no M. bovis was isolated. Finally, the third OTFW breakdown had seven reactors disclosed at radial test. Four skin reactors had visible lesions at post-mortem and all four have been recultured at present. The remaining three reactors had no visible lesions at post-mortem and had a negative culture result.

The origin of this breakdown is obscure at present and it has been assessed against the potential TB hotspot criteria for recommendation for hotspot procedures. In any case, the genotyping data available so far strongly suggests that the cattle and alpaca TB incidents confirmed in the area were not epidemiologically related.

**Thakeham, West Sussex.**

Main business is a medium-sized dairy herd with approximately 300 cattle plus a small suckler herd with fifty animals. Calving is done in blocks in July and August for the dairy and October-November for beef unit. Cattle are grazing from spring until October on fields around the farm and housed in buildings during the winter months. There are a few cattle farmers in the vicinity but there are not contiguous and there is not possibility of direct contact with the farmer’s cattle.

This holding had a homebred slaughterhouse case on 20/4/17. Visible lesions of TB were identified on 10/6/17 isolating genotype 9:x.

On 8/5/17 the check test had negative results. The first short interval (SI) and IFN-γ parallel test were completed on 10/7/17 disclosing 7 inconclusive reactors (one purchased from a holding in Kent, six homebred) and 10 gamma positives, one purchased from a holding in Berkshire and nine homebred (all with non-visible lesions at post-mortem). The second short interval test disclosed two inconclusive reactors that tested negative at the retest test in December. Restrictions were lifted on 12/12/17.

One particular bull originally from a farm in Kent was sold through Ashford Cattle Market to another farmer in Kent that became OTFW on 16/9/15 (reactor had visible lesions at post-mortem but culture was negative for M.bovis). This bull then moved locations during its life to several holdings in the LRA and Edge where it was tested negative at pre-movement test on 15/7/14 and on 22/9/14 at whole herd test (WHT). However, on 30/8/16 the OTF status of this latest herd in the Edge became suspended, disclosing six skin reactors (all with non-visible lesions at post-mortem). The bull moved to another location where it stayed for a short period of time (from 28/2/15 to 25/4/15).

There have been movements of a few heifers to a show in the Edge Area of Oxfordshire from 03/08/16 to 07/08/16. This movement could expose them to contract infection from undisclosed infected animals in a higher risk area.
The origin of this incident has not been clearly established, it could be linked to cattle movements of a hire bull from farms in the Edge Area of East Sussex or cattle movements off to show in Oxfordshire.

RAD zone has been established around this farm that includes thirty two holdings. To date radial tests carried out in the radial zone have not revealed reactors.

**Compton, West Sussex.**

Medium-sized fattening herd with approximately 700 animals on holding. The business model is to buy in calves on to finish them to slaughter weight. The calves are bought in at 2-4 weeks old in batches of approximately 15 animals. They are bought from a variety of sources, most within West Sussex but also occasionally from elsewhere.

There was also a dairy herd until April 2016. There are some remnants of this dairy herd and the farmer is planning to put them with the bull that they kept and sell them as ‘in calf’ animals.

On 18/7/17 a reactor was disclosed at trace test. This animal had visible lesions at post-mortem and genotype 11:a was isolated. The confirmed reactor was purchased from a OTFW farm in West Sussex with the same genotype 11:a isolated.

The check test carried out in August had negative results. The first short interval (SI) and IFN-γ parallel test were completed in October disclosing 50 gamma test positives (all with non-visible lesions at post-mortem). The second short interval test carried out in January 2018 had negative results. Restrictions were lifted on 10/2/18.

The origin of this breakdown has been assessed as purchased infected cattle.

RAD zone has been established around this farm that includes nineteen holdings. To date radial tests carried out in the zone have not revealed reactors.

**Sutton, West Sussex**

This farm is an organic beef suckler with 168 animals on holding.

On 29/8/17 an inconclusive reactor was disclosed at radial test. At retest on 20/11/17 this animal became an inconclusive reactor again and was taken as a reactor (with visible lesions at post-mortem, *M. bovis* was not isolated). This cow has been on holding since 14/7/12 showing some skin reactivity since 2015 at comparative cervical tuberculin test (SICCT). The reactor was bought from a farm located in West Sussex that had inconclusive reactors in 2011 but had no previous confirmed or unconfirmed breakdowns.

The first short interval (SI) and IFN-γ parallel test were completed in February early March disclosing one inconclusive reactor and eleven homebred gamma positive animals (all with non-visible lesions at post-mortem). The second short interval test has been scheduled in May 2018.

The origin of this incident is obscure and still under investigation pending further results from the second short interval test. This holding has been caught in two radial zones triggered by previous OTFW breakdowns detected in the area, therefore wildlife in the area cannot be excluded as a possible risk pathway.

RAD zone has been established around this farm that includes only two holdings with eligible stock. To date radial tests carried out in the zone have not revealed reactors.

**Lyminster, West Sussex**

This holding is a beef finisher with approximately 482 animals on holding. The farmer buys in cattle all year round from a variety of sources, fattens them to slaughter weight and sells them directly to slaughter.

This holding has its OTF status suspended on a number of occasions due to slaughterhouse cases disclosed in previous years (2014 and 2015) that have been cultured negative. This holding is currently caught in three different radial zones triggered by OTFW breakdowns.

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This farmer has several holdings in the area and a check test (exposure mitigation check test) was requested and completed between June and July disclosing three reactors and two inconclusive reactors (all with non-visible lesions at post-mortem). The first short interval test completed in October had negative results however on 13/10/17 a slaughterhouse case was disclosed (genotype isolated 9:f). The second short interval test completed in January 2018 had negative results. The second short interval (SI) and IFN-γ parallel test completed in April disclosed three skin reactors and five IFN-γ reactors (all with no visible lesions at post-mortem).

The slaughterhouse case was born in a farm in Devon, where genotype 9:f has been isolated in 2013, 2016 and 2017.

The origin of this breakdown has been assessed as purchased infected cattle.

RAD zone has been established around this farm that includes twenty holdings. To date radial tests carried out in that zone have not revealed reactors.

Surrey

Cranleigh, Surrey.

Large size suckler herd with approximately 473 cattle on holding. Beef cattle herd with cows producing own calves for rearing. Calves are weaned at 8 months, then finished and sold directly to slaughter. Stock replacements are purchased from markets, then finished and send directly to slaughter. Herd is grazing in fields around the farm during the summer and housed during winter months except from the young stock that is permanently kept in barns.

On 28/3/17 two reactors were disclosed at post-movement test (with visible lesions at post-mortem). The first reactor (genotype 10:a) was resident at a holding in Staffordshire. The second reactor (genotype 17:b) was born in Warwickshire and was resident in this holding of birth until 18/3/16. This holding in Warwickshire lost its OTF status in 2015 and 2017 isolating genotype 10:a and 17:c. This reactor was tested negative at two short interval tests in Warwickshire. Both reactors moved off from their respective holdings of birth directly to a holding in Oxfordshire where both stayed from March 2016 to 13/1/17 before moving to another farm. These two reactors that were purchased together in a group of fourteen replacement heifers, tested negative at the pre-movement test on 23/8/16. This holding has purchased animals in the last few years that have been resident in Gloucestershire, homarange of genotype 17:c.

The check test (CT) carried out on 24/4/17 was clear. The first short interval (SI) and IFN-γ parallel test were completed on 26/6/17 disclosing one skin test reactor, one inconclusive reactor and twelve gamma test positive animals (all with no visible lesions at post-mortem). A further negative slaughterhouse case was also disclosed on 14/7/17. The second short interval (SI) and IFN-γ parallel test completed in October had negative results. Restrictions were lifted on 19/3/18.

Previous breakdown in 2016 that concluded on 9/2/17 was linked to movements on holding of infected cattle from the High Risk Area of East Sussex (genotype 13:a).

The origin of this incident has been assessed as purchased infected cattle from high risk areas.

Radial testing zone has been established within 3km of this breakdown that includes forty two holdings. To date radial tests carried out in the zone have not revealed reactors.

8.1. Individual summary of ongoing breakdowns from previous years still open at the end of the report period, grouped by county

West Sussex

Arundel, West Sussex.

At Bromhurst Farm, Mr Harriot is running a large-size fattening herd, buying cattle from markets mostly and very rare directly from other farms. Purchased cattle is grouped on arrival and kept outdoors until the last two
months when they are brought indoors for finishing. There is also a suckler herd of sixty cattle that was recently purchased in July 2016 from Wallington Farm. This herd was included in the breakdown testing.

On 22/9/16 this holding lost its OTF status due to a slaughterhouse case (DOB 10/02/2015). Disease was confirmed isolating genotype 11:a. This animal was previously tested clear at routine herd test (WHT) in March 2015 and 2016 at its farm of origin in Devon. This animal arrived on farm on 07/05/2016.

The check test carried out from October to December 2016 had negative results. On 8/12/16 a second slaughterhouse case was identified (DOB 18/09/2014). The farm of origin was in Hampshire. This animal had a clear skin test at severe with negative gamma results at the herd of origin before moving to Mr Harriot's. It was also tested clear at check test (CT) on another farm in November 2016. However, this slaughterhouse case was culture negative.

The first short interval test (SI) and IFN-γ parallel test completed on 27/2/17 disclosed four skin reactors, three inconclusive reactors and 13 gamma positives (all with no visible lesions at post-mortem). The second short interval test (SI) and IFN-γ parallel test completed in June disclosed three skin reactors (all with visible lesions at post-mortem) plus 19 IFN-γ positives (one with visible lesions and 12 with no visible lesions at post-mortem). The third short interval test (SI) and IFN-γ parallel test completed in September revealed six IFN-γ positives (all with no visible lesions at post-mortem) and eight skin reactors (all with no visible lesions at post-mortem). The short interval test carried out in November 2017 and January 2018 had negative results. Restrictions were lifted on 14/2/18.

The holding of origin of the first reactor has a confirmed breakdown in June 2016 (genotype isolated 11:a). The origin of this breakdown has been assessed as purchased infected cattle.

Radial testing zone has been established within 3km of this breakdown that includes fourteen holdings. To date there has been two OTFS breakdowns revealed by radial tests in the area.

Radial testing overview in the Region: 2012 onwards
Glossary

- **bTB** – (bovine) Tuberculosis (infection of cattle with *M. bovis*)
- **Edge Area (EA)** – the annual TB testing area of England situated between the High and Low Risk Areas
- **Epidemiology** – the science that studies the patterns, causes, and effects of health and disease conditions in defined populations
- **Genotype** – the genetic makeup of a cell, an organism, or an individual usually with reference to a specific characteristic under consideration
- **High Risk Area (HRA)** – the annual testing area of England comprising the South West, West Midlands and part of East Sussex, in which *M. bovis* infection is endemic in cattle herds and in badgers
- **IFN-γ** – interferon-gamma test. A supplementary in vitro blood test for TB used by APHA in conjunction with the tuberculin skin test in some situations, usually to improve the overall diagnostic sensitivity in infected herds with OTF status withdrawn
- **Low Risk Area (LRA)** – the four-yearly TB testing area of the North and East of England in which *M. bovis* infection occurs only sporadically in cattle and is not considered endemic in wildlife. Although the default testing interval for routine TB surveillance is four years, some higher risk herds in the LRA are subjected to annual testing. There is also more intensive surveillance testing (radial testing) around any herds in the LRA (and parts of the Edge Area) that have their officially TB free status withdrawn due to a TB breakdown
- **OTF** – Officially Tuberculosis Free status. Herds that are not subjected to TB movement restrictions of any type are classified as OTF
- **OTF-S** – Officially Tuberculosis Free Suspended status. In England, an OTFS breakdown is a herd in which all the reactors removed had no visible lesions (NVL) on post-mortem examination and had negative culture results for *M. bovis*
- **OTF-W** – Officially Tuberculosis Free Withdrawn status. In England, an OTFW breakdown is a herd in which at least one test reactor with visible lesions (VL) and/or an animal with *M. bovis*-positive culture result have been disclosed
- **Persistent herd breakdown** – a herd that has been under TB movement restrictions for 18 months or longer due to infection with *M. bovis*
- **Potential 'Hotspots'** – a temporary area of enhanced TB cattle and wildlife surveillance that may be declared around some OTFW TB breakdowns of uncertain origin detected in a Region of historically low TB incidence
- **SIT** – short-interval test. A tuberculin skin test of all bovines in a TB breakdown herd, carried out 60 days after the removal of the last test reactor (or laboratory confirmation of a TB slaughterhouse case) in order to restore the OTF herd status. In the majority of cases, two successive SITs with negative results are necessary. The results can be read using standard or severe interpretation of the skin test. Calves under 42 days old are usually exempted.
- **VRA** – Veterinary Risk Assessment.