



Final Report

ASSESSING THE EFFECTIVENESS OF BIOSECURITY TRAINING (S14055)

by

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Contents

| | | |
|-----|---|----|
| 1.0 | Summary | 3 |
| 2.0 | Introduction | 4 |
| 2.1 | Background | 4 |
| 2.2 | Format of interview sessions..... | 5 |
| 2.3 | The catchers..... | 5 |
| 3.0 | Key Issues arising..... | 6 |
| 3.1 | General..... | 6 |
| 3.2 | Arrival at the farm – disinfecting vehicles | 6 |
| 3.3 | Arrival at the farm - teams..... | 7 |
| 3.4 | Arrival at the poultry house | 8 |
| 3.5 | Rest break at the poultry house | 9 |
| 3.6 | Departing the farm | 10 |
| 3.7 | Procedures for depopulation and thinning..... | 11 |
| 3.8 | How do the catchers view compliance with biosecurity? | 11 |
| 4.0 | Impact of the 2008 course | 12 |
| 5.0 | Conclusions | 14 |
| 6.0 | Acknowledgements..... | 16 |
| 6.0 | Appendix 1 Questionnaire..... | 17 |
| 7.0 | Appendix 2 Red Tractor Standards - 1 April 2011 (selected extracts) | 26 |

1.0 Summary

- This report describes a survey of catchers working for the chicken sector in Northern Ireland and Scotland that was designed to determine the impact of biosecurity training delivered to the catchers in 2008. The impact survey was undertaken in the period November 2010 to March 2011.
- Nineteen catching teams (consisting of approx five persons per team) from the four integrated chicken companies operating in Northern Ireland (nine teams) and Scotland (ten teams) were interviewed.
- It was found that at least 30% of the catchers did not understand the term *biosecurity* although we estimated that 78% of the catchers had a good understanding of the principles of biosecurity. Most catchers (>90%) had heard of *Salmonella*, compared with 43% that had heard of *Campylobacter* - an improvement on the level of understanding in 2008 when it was estimated that <25% had of *Campylobacter*.
- 47% of teams said that they routinely disinfected their transport when they arrived on-farm.
- Of the 19 teams only 4 said that they would disinfect the forklift used to remove modules of birds from the poultry house before use (on the basis that the forklift was washed after use so was expected to be clean).
- The personal protective equipment (PPE) of the previously (2008) most poorly equipped catchers has improved and generally there was an increased awareness of the importance of wearing clean PPE for each farm, with less than half of the catchers wearing previously used PPE onto a farm (compared with most in 2008) although it should be noted that only 32% of catchers changed at the farm gate (the remainder changing outside the poultry house).
- There was greater awareness of the importance of disinfecting footwear when entering the poultry house than in 2008, with a modest improvement (approx 10%) in the number of catchers (37%) who reportedly always disinfected their footwear before entering and re-entering the poultry house.
- In contrast to the preceding point some 54% of teams reported that they disinfected their footwear on leaving the poultry building for a break compared with less than 20% in 2008 – the apparent inconsistency perhaps highlighting the variable approach to this activity.
- Access to, and use of, on-farm toilets and hand washing/sanitising facilities has improved with only two crews reporting that they would not normally wash and/or sanitise their hands before taking a break. Only two crews reported washing or sanitising their hands after taking a break and before re-entering the poultry house.
- As in 2008 practically all rest breaks are taken in the vehicle and this procedure continues to represent a major weakness in biosecurity, undermining good work done in other areas such as the wearing of clean PPE.
- Suggestions as to how the revised (2011) Red Tractor assurance scheme that addresses catching could be further improved are made.

2.0 Introduction

2.1 Background

Contamination of foodstuffs with the organism campylobacter is the primary cause of food poisoning in the UK and beyond (ACMFS, 2005). The level of concern about the impact that Campylobacter has on the health of consumers is such that there have been a number of initiatives at European Community and member state level. So for example, the European Food Safety Authority (2010) reported on a survey undertaken in 2008 designed to provide a baseline level of the numbers of *Salmonella* and *Campylobacter* on broiler carcasses in the EU. It was reported that the prevalence of *Campylobacter* on carcasses across the member states that participated averaged 75.8%, with the relevant value for individual states ranging from 4.9 to 100% and the UK returning a value of 65% (EFSA, 2010). In the UK the risk presented by poultry meat is recognised by the Food Standards Agency (FSA) strategy for the period 2010 – 2015, which identifies tackling Campylobacter in chicken as a priority.

It is likely that the most successful approaches to reducing the numbers of Campylobacter on chicken carcasses will consist of two elements; interventions designed to reduce the number of Campylobacter on birds arriving at the slaughter plant, complemented by interventions that reduce the number of organisms on the carcasses post-slaughter. At farm-level biosecurity is still considered to have a, if not the, most significant role to play in reducing contamination of birds with *Campylobacter* (FSA, 2010). It has been reported (ACMFS, 2005) that thinning (the partial depletion of a flock) presents a relatively high risk to the biosecure status of a farm. Thinning involves the use of so-called catching teams, so the status of catchers as a major risk factor is likely to have been one of the reasons that the UK's FSA funded biosecurity training programmes for catchers in, among other countries, Northern Ireland and Scotland. This training/awareness raising took place in 2008, at around the time that the EFSA (2010) survey was in progress. It is notable therefore that in the analysis of the EFSA survey it was reported that thinning was one of three factors significantly associated with an increase in the prevalence of *Campylobacter*-colonised batches of chicken.

The biosecurity training programmes for catchers funded by the Agencies of the FSA responsible for Scotland and Northern Ireland was delivered by staff from the Scottish Agricultural College, supported by specialist poultry veterinarians. We estimate that this resulted in >90 % of catchers working for integrated chicken companies in Northern Ireland and Scotland attending a course designed to raise awareness of biosecurity generally and more specifically of *Campylobacter*. Part of the training course covered the basic elements of health and safety that related to zoonoses (eg hand washing) and the importance of appropriate PPE (eg dust masks).

Elements of biosecurity that were covered in the training course included the:

- disinfection of vehicles (eg team transport and forklift) on to and off the farm;
- importance of putting on clean PPE when arriving on farm including disinfecting footwear;
- risks associated with wearing used PPE in vehicles and not disinfecting the interior of the vehicle;
- importance of hand washing/sanitizing as a way of protecting the individual and stopping cross-contamination.

This report describes a survey undertaken of 101 catchers working for the chicken sector in Northern Ireland and Scotland between November 2010 and March 2011. The purpose of the survey was to gain an understanding of current working practices for chicken catchers

and, where possible, to relate any changes to the training delivered in 2008.

ACMSF (2005) Advisory Committee on the *Microbiological Safety on Food*, Second Report on *Campylobacter*, [online], Available: <http://www.food.gov.uk/multimedia/pdfs/acmsfcampylobacter.pdf>

EFSA (2010) Analysis of the baseline survey on the prevalence of *Campylobacter* in broiler batches and of *Campylobacter* and *Salmonella* on broiler carcasses in the EU, 2008 - Part A: *Campylobacter* and *Salmonella* prevalence estimates. EFSA Journal 2010; 8(03):1503

FSA (2010) ACMSF Information Paper. *Campylobacter* Strategy Workshop 12-14 October 2009. Available: <http://www.food.gov.uk/multimedia/pdfs/committee/acm977workshop.pdf>

2.2 Format of interview sessions

Catching teams were interviewed from the four companies representing the main producers of chicken in Scotland and Northern Ireland. It is estimated that these companies account for the production of over 80% of the chicken grown in Scotland and Northern Ireland (however this is not the same as the number of chickens grown and then retailed in the same country). The project team spoke to a total of 20 teams but, when approached, one company team declined to participate – saying that, for reasons that were never clarified, they did not want to discuss biosecurity with the members of the project team conducting the interview. Interviews were conducted either on-farm (N = 10), often while the catchers were on a rest break between loads, or on company premises (eg depot prior to the team departing for work).

The interviews were conducted at times convenient to the company and teams so the majority of interviews took place at night. The interviews were normally conducted by two members of the project team (two SAC staff or an SAC member of staff and a member of St David's Poultry Team (a private veterinary practice)). A member of the project team would normally lead with the questions, using a structured questionnaire as a guide to the questions to be asked (Appendix 1), while the second member of the team, out of line of sight of the interviewees, recorded the answers on a response sheet.

The catchers were given the background to the contract and told that there was no right or wrong answer, that what was being looked for was a snap-shot in time of how they did their jobs. With one notable exception all of the teams were willing participants and were often keen to discuss the issues raised.

Of the 19 teams interviewed a company representative (normally a senior manager) was present for 8 of the interviews. It is not possible to be certain but it was the impression of the project team that, while the presence of a senior manager may have constrained discussion in the early stages of the interview, by the end of the interview the catchers were discussing the various topics in a reasonably open manner (as evidenced by the various comments on the lack of power washers for example).

2.3 The catchers

With one exception the teams consisted entirely of males (typically five to six per team but ranging from three to seven per team). Of the 101 catchers interviewed 50 could remember attending the FSA-funded training course run in 2008 (referred to hereafter as the *2008 course*). We say 'remember' because some members of teams said initially that they had not attended the original training course only to be corrected by their colleagues who said that they had. Seven teams were recorded as having no current members that had attended the 2008 training course.

3.0 Key Issues arising

3.1 General

It was notable that at least 30% of the catchers did not understand the term *biosecurity* although we estimated that 78% of the catchers had a good understanding of the principles of biosecurity. While almost all (>90%) had heard of *Salmonella*, only 43% had heard of *Campylobacter*. When reporting on the 2008 course we noted that

‘...the majority of catchers were not familiar with the terms *Campylobacter* or *biosecurity*. In contrast, *Salmonella* was a term that was known to most if not all.’

There was no correlation between attendance on the 2008 course and increased awareness of biosecurity and *Campylobacter*. It is possible that the relatively good awareness of *Salmonella* results from news coverage of outbreaks of food poisoning associated with *Salmonella* (especially in the past when outbreaks linked to eggs were newsworthy) and, in the past, companies told catchers when the flock they were catching was *Salmonella*-positive, for purposes of scheduling and enhanced biosecurity.

What has changed since 2008?

There has been a modest improvement in catchers’ awareness of *Campylobacter*.

3.2 Arrival at the farm – disinfecting vehicles

Most broiler farms have a well defined perimeter fence and an entrance at which there is a visitors/delivery driver book and a vehicle washing/disinfection point. Visitors would be expected to stop at the perimeter fence, leave their vehicle (if not required on site), change into appropriate PPE and sign in the visitors’ book. However only 47% of teams said that they routinely signed the visitors’ book, presumably because they are scheduled to be at a certain farm at a set time on a specific day and so a record of their visit existed, albeit not on the farm.

Catchers would almost always take their team vehicle on site but tended not to disinfect their vehicles on arrival (only 47% of teams said that they routinely disinfect or were observed to disinfect their vehicle). There was a positive correlation between teams that signed the visitors’ book and teams that disinfect their vehicle however it needs to be noted that in the main these data refer to one company and a manager from that company was present throughout the interviews. In terms of vehicles being disinfect then this data may reflect what the company intended to happen as opposed to what may always happen in practice.

While only one farm was observed not to have any form of vehicle washing/disinfection equipment it became obvious during the interviews that some of what was provided may not be optimal. So for example catchers said that *some* farms would only have a garden hose and that *some* power washers did not always work. Quantifying *some* was not possible as catchers either could not, or were reluctant to, quantify the number of farms that this applied to.

The forklift may arrive on-site on the catchers’ vehicle, on the lorry that takes the birds away or it may be on site when the catchers arrive. Irrespective of the method used to get the forklift to the site it was normal practice for the forklift not to be cleaned prior to use. Not washing prior to use was justified on the basis that the forklift been washed and disinfected after use. Only 4 of the 19 teams said that they would disinfect the forklift before use.

What has changed since 2008?

When we reported on the training provided in 2008 we noted that the disinfection of vehicles on arrival and departure from the site, and in particular the team vehicle, was something that in practice was often omitted. The evidence from this survey is that little has changed in this respect.

3.3 Arrival at the farm - teams

Teams reported that they would arrive at the farm and would either continue wearing clothing that could have been worn on a previous farm (47%) or would be carrying clean clothing (reusable or disposable) in the vehicle to change into (53%). Of those in the latter group only one of the companies provided disposable boiler suits to be worn by catchers on each farm (accounting for 6 of the 19 teams interviewed). Teams carrying clean clothing could either get dressed at the entrance to the farm (maximum of 32%) or get dressed at the poultry house (21%).

Catchers that change their clothing every shift could work on up to three farms in a shift but more typically one or two farms. All companies said that they tried to schedule catching so that farms on which flocks were to be thinned were visited before farms that were to be depopulated.

The threat to biosecurity that clothing worn on other farms presents is significantly greater than the risk presented by clothing that is put on clean on arrival at a farm. That nearly 50% of the teams could be arriving at a farm in clothing that is contaminated from having been worn on a previous farm might seem to be indicative of a lapse in biosecurity however it could be argued that if each farm is being cleared (rather than thinned) then, even if the catchers are carrying organisms such as *Campylobacter*, the opportunities for the contaminants to establish themselves in the birds is minimal and as such the risk posed is negligible. Setting aside how much time it takes for pathogens to establish themselves in a significant number of birds – a moot point - this argument fails to take account of the risk that wearing dirty clothing in vehicles presents in terms of creating a reservoir of infection within the vehicle. This point is picked up in Sections 3.5 and 5.0.

Gloves were worn by approximately 58% of the teams.

In our report on the 2008 course we noted that:

‘Most companies provided clothing for catchers to wear when catching, and many laundered the clothing for the teams. It was notable that some catchers were not provided with clothing and that even when clothing was provided some catchers were required to wash their own clothing.

and

‘The majority of catchers wore one set of clothing per shift, with relatively few changing clothing between farms. ...Some clothing, such as reflective jackets, tended not to be washed daily and represent a potential source of contamination.’

Since we reported these observations there has been a significant improvement in the quality and quantity of clothing provided to those catchers that were previously poorly equipped, although there remains scope for improvement. All of the teams that were direct employees of a production company were provided with some form of PPE (eg disposable boiler suits, vests/T-shirts, trousers, footwear, high-visibility clothing or strips added to trousers etc). Some agency catchers that were employed by production companies would be expected to provide their own PPE. While not something that could be easily quantified

the project team were of the opinion that there was greater awareness of the importance of changing clothing - as a minimum for each shift and for many for each farm. Importantly those companies that required a change of clothing on each farm provided the PPE necessary.

However, as reported before, the management of PPE (in terms of biosecurity) was found to vary according to the item of PPE. So, dust masks were provided to all and, unless reusable (eg air flow helmets), were almost always disposed of on-farm. High-visibility jackets (often worn by the forklift driver) tended to be washed infrequently (washed being done by either the individual or the company, as per other PPE). Vests, T-shirts, trousers and similar tended to be washed on a daily basis whereas gloves were invariably the property of the wearer and could be washed on a frequency that ranged from daily to intermittently. Footwear, predominantly rigger or rubber boots, were reportedly sanitised on farm.

No difficulties were identified in obtaining replacement PPE, albeit two teams, for reasons that seemed to relate to historic terms of employment, were responsible for providing their own equipment.

What has changed since 2008?

In 2008 some catchers were providing their own PPE and wearing footwear that could not be dipped and it was reported that most catchers might wear previously used clothing onto the farm. When responding to this survey it became apparent that the PPE of the previously most poorly equipped catchers had been improved. There was also an increased awareness of the importance of wearing clean PPE for each farm with 32% of the catchers changing into clean clothing at the entrance to the farm and a further 21% changing into clean clothing at the poultry house.

Protocols for some items of PPE appeared to remain uncertain, much as in 2008, for example the washing, and in many instances the frequency of washing, of gloves and high-visibility jackets was often left to the individual.

All catchers reported wearing dust masks with some using air flow helmets whereas previously some 25% of crews had said they wore the masks but complained that the masks were a hindrance. No similar comments were reported during this survey.

Replacement PPE was more readily available than was reported to be the case in 2008.

3.4 Arrival at the poultry house

Normally the team vehicle would be parked in close proximity to the poultry house that was to be worked in. The teams would then either enter the poultry house through a pedestrian door or, more commonly, through large doors designed to allow access of machinery and equipment. Of the 19 teams interviewed 7 teams (6 from one company), or 37%, said that they disinfected their feet before entering the bird area, with a further 4 teams (21%) saying that they sometimes disinfected their footwear. It is considered that these figures represent the 'best case' scenario as it was also mentioned by these teams that on some occasions boot dips were not available.

Only one team reported disinfectant dips being provided at the larger doors, the teams that dipped their feet typically doing so at the pedestrian entrance. There was a small improvement (approx 10%) in the number of catchers reportedly disinfecting their footwear however there was a greater awareness of the need to disinfect footwear, even though this

did not always translate into action. Placing disinfectant boot dips and brushes to clean the cleats in the soles, at the vehicle doors would make it more likely that catchers, who tend to use this entrance in preference to the pedestrian door, would disinfect their footwear.

The forklift would typically (84%) enter the building without being disinfected immediately prior to use. The rationale for this may at first seem flawed but, even if disinfected immediately prior to use, the forklift will be spending its time being driven from the poultry house to the lorry, possibly crossing tarmac and concrete but invariably crossing surfaces that are not sealed and which may contain puddles of rain water. Environmental *Campylobacter* contamination in the vicinity of the loading area is likely therefore to be transferred back into the poultry building as the forklift returns to collect modules of birds. This may not matter if the house is being cleared of birds but if the house is being thinned then the forklift may present a significant risk of infection irrespective of whether or not it was disinfected immediately prior to use.

What has changed since 2008?

There was a greater awareness of the importance of disinfecting footwear when entering the poultry house than had been apparent in 2008. However, this wasn't always translated into practice as there was only a small improvement (approx 10%) in the number of catchers reportedly disinfecting their footwear before entering the poultry house.

3.5 Rest break at the poultry house

Catchers would normally work without a break until they had loaded a lorry with birds (approximately 1 – 1 ¼ hours). Teams would typically then rest between loads for approximately 15 -20 minutes. 53% of teams (or 10 out of 19 teams) reported that they disinfected their footwear on leaving the poultry building for a break – the ten teams including all of the teams that reported that they disinfected going into the poultry house). This is a significant improvement on what was recorded before (less than 20%) and, even if the numbers of catchers who say that they disinfect their footwear represents 'the best case' – and the project team were aware of some inconsistencies (for 3 teams) in terms of what was said to be done and what was observed - the increase in awareness of what should be done is encouraging. It would be expected that the numbers that disinfect their foot wear would increase further if boot dips were positioned at the vehicle doors.

Hand washing facilities (and similarly access to toilets) featured in the report of the 2008 training course - most teams complained of a lack of accessible wash hand facilities and toilets. The situation has improved markedly over the intervening years so that when questioned for this survey all teams said that they normally had access to hand washing facilities (including soap and sanitiser) and, while there were exceptions, most farms provided access to toilets. Where access to toilets was limited it could be because the toilet was within the home of the farm manager (so catchers probably correctly reasoned that they would not be welcomed in their work apparel) or, in a very limited number of reports, the toilet may be locked.

Encouragingly the increased access to hand washing facilities was matched by a reported increase in the number of catchers that washed their hands when taking a rest break (all except two teams saying that they would normally wash their hands before taking a break). In practice, from our observations, it is likely that while hand washing may precede a 'meal' break it may be that hands are less likely to be washed if the break only involves a snack, cigarette or similar.

All the teams tended to take their rest break in the vehicle. When the training course was carried out in 2008 the facilities for farm employees and catchers to rest in varied considerably but generally, particularly for the catchers, suitable facilities were limited.

Overall there appears to have been an improvement in the standard of accommodation that catchers might use. For example, one of the larger companies has positioned a mobile building at the entrance to most if not all of their farms. These buildings, which were heated, had a sink supplied with hot and cold water and soap and sanitising gel dispensers. Bench seating was positioned around the periphery of the room. Although one team said that they would prefer to rest in a room only once did we observe catchers using this type of building for a rest break. Lack of facilities may, on some farms, still be a reason for catchers to take breaks in their vehicles but in practice it seems that even when good quality areas are provided the catchers prefer to use their vehicles. The reasons for this include, proximity (a walk to and from a restroom may take more than 50% of the time available for the rest period) and familiarity and convenience (the team have 'ownership' of the vehicle and it contains their refreshments).

Without exception teams sat in the vehicle, on their rest breaks, wearing their PPE. The implications of this for cross-contamination are clear. Although there was awareness of the importance of keeping vehicles clean most of the vehicle seating observed was not covered with an impervious layer that would have allowed disinfection. This weakness in biosecurity undermines the improvements that have been made in wearing clean PPE onto each farm.

What has changed since 2008?

Approximately 50% of teams reported that they disinfected their footwear on leaving the poultry building for a break compared with less than 20% in 2008.

Access to, and use of, on-farm toilets and hand washing/sanitising facilities has improved such that in 2008 this represented a, if not the, main complaint of catchers, whereas in this survey only two crews reported that they would not normally wash and/or sanitise their hands before taking a break.

As in 2008 practically all rest breaks are taken in the vehicle. The interior of vehicles, and in particular the seats, are not designed to be disinfected on leaving the farm and this continues to represent a major weakness in biosecurity, undermining good work done in other areas such as the wearing of clean PPE.

3.6 Departing the farm

Six of the teams (all from one company) wore disposable coveralls which would be discarded on the farm when the team had finished work on that farm. A further four teams would change out of their dirty PPE before leaving the farm and would bag the dirty PPE prior to washing. The remaining nine teams would, if travelling to another farm, wear their PPE to the next location.

When their shift had finished six teams would bag their dirty PPE for transport off the farm, one team would change but place their dirty PPE loose in the vehicle, two teams would wear the dirty PPE to the depot (where they would change) and four teams would wear the clothing home. The remaining six teams wore disposable coveralls that were disposed of on-farm. Of the 13 teams that had clothing to wash ten teams would wash all or some of the clothing themselves with the remainder being washed by the company. It is worth mentioning that gloves were invariably seen as a personal item of clothing, often not supplied by the company and, as a consequence gloves tended to be washed by the individual. Placing the responsibility on the individual to wash their PPE removes potential difficulties in reconciling equipment to the owner but potentially is a weakness in the system, placing reliance upon the manager to maintain standards. None of the catching teams said that they experienced any problems in obtaining clean PPE.

What has changed since 2008?

There has been little change in the way that catchers handle used PPE.

Gloves, which were worn by 58% of teams, were invariably seen as the property of the individual (much as in 2008). While most said that the gloves should be clean for the start of each shift they continue to have the potential to breach biosecurity because they are often laundered by the individual and are worn throughout a shift on multiple farms.

3.7 Procedures for depopulation and thinning

The procedures for depopulation and thinning were, with one exception, identical. The exception was that one team said they would disinfect the forklift prior to use if they were thinning. These findings are consistent with what was reported following the 2008 training course. It would seem that producers are relying upon scheduling as a way of addressing what should be a higher level of biosecurity associated with thinning - whether this is adequate is a moot point.

What has changed since 2008?

There has been no change in the way that catchers differentiate between the biosecurity required for flocks to be thinned and those to be depopulated, the catchers relying upon scheduling, which is not always applied, to reduce the risk of cross-contamination.

3.8 How do the catchers view compliance with biosecurity?

At least a third of the teams did not understand the term biosecurity although they did understand the procedures that biosecurity entailed. This lack of understanding was due primarily to a lack of awareness rather than a problem with the English language. This said only three teams reported that following optimal biosecurity procedures was not unusual, the remainder reporting that not to be able to conform to what was expected was a rare event. As always this type of response begs questions such as: what is understood by the standards, who sets the standards, and who assesses the standards?

When asked for common reasons for not being able to follow optimal procedures (as defined in the discussion by the project team) most teams (10) reported the lack of an appropriate washer as the main reason. Examples given of inappropriate washers included garden hoses or washers that failed to work. Other examples given were a failure to provide disinfectant dips (two teams) frozen pipes (four teams) and, for four teams, a failure of the farm manager to enforce procedures. This last mentioned opens up an interesting area.

When asked who maintains the standards (in terms of biosecurity) all the teams, with the exception of one, said that it was the catching team leader, and for only two teams was there an acknowledgement that the farm manager would have a role to play in this. This however needs to be set in the context of another series of questions that related to the *best* and *worst* farms for biosecurity. These questions elicited a mixed response. In part this may have been because of a reluctance to *name names*. However it was notable that while some (four) teams mentioned newer farms as being the better farms for biosecurity, seven teams said that they thought that the farm manager was the deciding factor. Conversely in terms of unsatisfactory farms, older farms and poor managers were mentioned. The role of the farm manager in setting and maintaining standards is therefore, we would suggest, crucial as far as the compliance of catchers with biosecurity on the farm. Indeed, as one team commented, the farms on which procedures, such as disinfecting vehicles, boots etc, were followed, tended to be those on which the farm manager would enforce the procedures.

Catchers were asked what could be done to improve biosecurity. As mentioned above ten teams identified the need for functioning power washers. Others mentioned that toilets, hot water and soap were not always available, however most farms did now provided these facilities. Three teams identified better management as a prerequisite to raising standards of biosecurity. Individual teams suggested laying concrete plinths in the area used to load the birds, placing boot dips at the vehicle doors, heating the shed used to house the power washer and the company (*cf* the individual) providing the PPE.

What has changed since 2008?

There was greater awareness of the need for biosecurity although this did not always result in the appropriate actions. As in 2008 very few farms provided disinfectant boot dips at the access used by most catchers (ie the vehicle doors) and, again as in 2008, although team leaders were often seen as being the person that set and maintained standards in practice the attitude of the farm manager was probably as important.

4.0 Impact of the 2008 course

According to the catchers, 50 of the 101 people interviewed remembered attending the training session in 2008. As mentioned above however some catchers said initially that they had not attended the original training course only to be corrected by their colleagues who said that they had. This said, a total of seven teams were recorded as having no one that had attended the original training course. The data were analysed to see what the impact was of removing for the analysis the teams that reportedly contained no members that had attended the 2008 course - there was no significant effect on the findings of excluding this group.

While six teams (contained 27 employees who recalled attending the course) identified the course as being useful because it improved their understanding of biosecurity the majority of the teams reported that they did not recall having learned anything that helped them in their job. When some teams were probed on this response they responded that in essence what they had been told about on the training course was what they were already doing anyway. Similarly, when asked if there had been any improvements, in terms of biosecurity, in how they did their work, the majority (15 teams) reported that there had been no changes. Only one team noted a significant improvement in the accessibility of hand washing facilities, toilets etc and one team identified that the clothing had improved. While this was the view of the catchers it is not consistent with the responses given to some of the questions asked.

The following changes in Northern Ireland and Scotland may not be attributable to the 2008 course alone. However, we believe (albeit we have no quantifiable evidence for this) that the attention that has been focussed by FSA and others on catchers specifically and biosecurity more generally has raised this matter up the industry's 'priority list' - the focus being behind many of the following changes that have taken place since 2008:

- improvements in the quality and quantity of PPE used by some catchers (ie those teams that previously wore poor quality PPE are now provided with, or expected to purchase, suitable equipment);
- clean and replacement PPE is readily available;
- improvements in the number of catchers wearing dust masks (all said they wore masks), with the use of air flow helmets by some individuals;
- it is now the exception for teams not to be able to access hand washing/sanitising and toilet facilities - in 2008 this was a, if not the, main cause of complaint by the teams;
- most catchers reportedly washed their hands when taking a break compared with the minority washing their hands in 2008.

- although not used by the catchers some companies have made a significant investment in the facilities at the farm gate, providing a warm, brightly lit space that has seating and hand washing facilities;
- although understanding of the terms *biosecurity* and *Campylobacter* was disappointing there was, compared with the 2008 report, greater awareness of the importance of boot dipping, although this awareness did not always translate into practice.

In terms of the apparent impact of the training course delivered in 2008 there were no significant differences at the level of the catching teams in Northern Ireland and Scotland.

As mentioned above, it is difficult to isolate and quantify the impact of the training course delivered in 2008 from the benefits that resulted from other, similar, activities. Also the benefits of the course are likely to have been direct and indirect. A direct benefit of the training course was that it informed the catchers why they should follow biosecure procedures. However where companies lacked the management framework to support these procedures it was unlikely that there would be a significant change in working practices. So, where within a production company the infrastructure (from senior managers to catching team leaders) was not optimal for biosecurity the indirect benefits may have been as or more important. In these circumstances an indirect benefit of the training course, along with other *Campylobacter*-related awareness raising activities such as meetings and workshops, was that it supported the sector in strengthening its approach to, and management of, biosecurity as evidenced by improvements in hand washing, toilet and changing facilities as well as in the PPE provided.

Whether the various FSA initiatives contributed to the decision to amend the Red Tractor Farm Assurance Poultry Standards that apply to catchers is not known but some of the areas that have been highlighted as still being cause for concern will be covered by new, more comprehensive, standards (see Appendix 2). In this respect a key section is DE9, parts of which are reproduced below.

DE.9

Revised

Biosecurity measures must be followed. (CB.DE.9) (CP.DE.9)

Suitable, clean protective clothing must be worn at the commencement of catching at each farm. Foot dips must be used and, in addition, Defra-approved disinfectants must be used in accordance with manufacturers' recommendations. Footwear must be cleaned and sanitised between farms.

DE.9.1

New

R It is recommended that catchers ensure that in the course of a day's work they undertake any first depletions before any depopulation. (CB.DE.9.1) (CP.DE.9.1)

Catching first depletion sites first in the day is best practice in terms of potentially reducing the risk of transferring Campylobacter infection.

DE.9.2

New

Catchers must be required to wear new/clean outer clothing at each farm and to change on entering /leaving farms. (CB.DE.9.2) (CP.DE.9.2)

DE.9.3

New

Catchers footwear must be clean and disinfected prior to entry and on leaving every farm. The footwear must be clean and 'dippable' and must be dipped in the foot dips provided and disinfected prior to leaving and on entry to every house/bird area. (CB.DE.9.3) (CP.DE.9.3)

Footwear means robust dippable boots such as rigger boots, wellingtons, vulcanised sealed work boots etc. Trainers are not acceptable footwear.

DE.9.4

New

There must be a system/procedures in place for a designated person to inspect and check forklifts and other catching equipment (including catchers' transport) for cleanliness and disinfection with a Defra approved disinfectant prior to entry of the biosecure area. (CB.DE.9.4) (CP.DE.9.4)

It is not acceptable for any catching and collection vehicles to arrive at a farm in a dirty/unclean condition. The designated person may be the foreman of the catching team if appropriate but the name and details must be recorded.

The assessor will check that a system or procedures are in place.

DE.9.5

New

Forklifts and other catching equipment (including catchers' transport) must be washed off, cleaned and disinfected before leaving the farm unless it is taken to be cleaned and disinfected at an off-site location such as a factory. (CB.DE.9.5) (CP.DE.9.5)

Forklifts should be inspected to show physical cleanliness and a Defra approved disinfectant should be used for disinfection. If cleaning and disinfection does not take place on the farm then loose debris must be removed from forklifts before they leave the farm.

DE.9.6

New

R It is recommended that clean tidy, facilities are made available on farm for catchers to use during breaks. (CB.DE.9.6) (CP.DE.9.6)

This will become mandatory at the next standard review.

It can be seen that DE 9.2 will require catchers to change into clean clothing on arriving at the farm entrance; DE9.3 requires catchers to disinfect footwear on entering and leaving bird areas; DE9.4 requires that a '...designated person ... inspect and check forklifts and other catching equipment (including catchers' transport) for cleanliness and disinfection with a Defra approved disinfectant prior to entry of the biosecure area; DE9.5 requires equipment such as forklifts and transport to be cleaned disinfected on leaving the farm – all issues identified within this review as requiring attention.

5.0 Conclusions

When concluding the report of the 2008 training sessions a number of issues were identified, including:

- the common practice of not disinfecting vehicles onto and off site;
- seemingly common failure of teams to routinely use boot dips;
- the absence of company supplied clothing affected several teams;
- a widespread problem was the lack of on-farm access to toilet and effective hand washing facilities;
- a lack of effective disinfection and washing equipment on some farms;
- contaminated module frames and drawers.

At the time of this survey some of these issues remain but equally there have been some areas of significant improvement. Many of the areas where some teams can make significant improvements (such as disinfecting vehicles onto and off sites and wearing clean PPE onto the farm) are targeted by amended Red Tractor Farm Assurance Poultry Standards (Table 1 below).

However, there are some areas that we would argue still require attention. The main change suggested is that:

Either the practice of allowing crews to take a rest break in their vehicles should be stopped or there should be a requirement that crews do not wear contaminated PPE in the vehicle.

Some issues are implicitly covered by the revised (2011) Red Tractor scheme, but from our experiences it is suggested that particular attention needs to be paid to the following as they have the potential to undermine the benefits of the revised scheme.

- Power washers with appropriate disinfectant dosing equipment need to be available at the entrance to all farms (eg not the 'garden hoses' reportedly used on some farms).
- Gloves in particular and other items such as reflective (top-coat type) jackets need to be considered when stipulating that all PPE should be put on clean at the farm entrance.

Table 1: Catchers adherence to, and understanding of, key biosecure procedures

| Procedure/issue | Estimated adherence / understanding in 2008* | Estimated adherence / understanding in 2011 | Addressed by 2011 Red Tractor assurance scheme | Scope for further tightening of wording in RT assurance scheme |
|---|--|---|--|---|
| Understanding of the term 'biosecurity' | <50% | 78% | NA | NA |
| Had heard of <i>Campylobacter</i> | <25% | 43% | NA | NA |
| Prioritisation of farms to be depleted (thinned) over farms to be depopulated | Limited | All teams said that this was the intent | Partially – as a recommendation | Yes – make a requirement |
| Disinfection of catchers' vehicle on arrival at the farm | <50% | 47% | Yes | NR |
| Change into clean clothing at the entrance to the farm | Relatively few, most changed per shift | 32% | Yes | Yes – specify gloves in particular as an item of PPE |
| Provision by company of clean PPE for each farm | Most provided clothing for a shift only | 53% | Yes | NR |
| Use of disinfectant bootdips on entering poultry house | 20% | Approx 50% | Yes | NR |
| Hand washing and toilet facilities available | Poor | >90% | Yes | NR |
| Breaks taken in catchers' vehicle wearing dirty clothing | >90% | >90% | No | Yes – specify that either all PPE are to be removed or prohibit use of vehicles for rest breaks |

| | | | | |
|--|--------------|------|-----|----|
| Forklift disinfected when leaving farm or at factory | <75% | >90% | Yes | NR |
| Catchers vehicle disinfected when leaving farm | Most did not | 47% | Yes | NR |

*As this feedback was from a training course not designed for the collection of data some data are more subjective than others

NA = considered by project team to be not appropriate; NR = not required

- The requirement to disinfect footwear on entering and leaving buildings is likely to have a higher rate of compliance if boot dips are positioned at the entrances commonly used by catchers (eg often not the normal pedestrian doors).
- If (depleted) thinned flocks cannot be scheduled before flocks to be depopulated then the catchers need to be aware that adherence to biosecurity procedures becomes all the more important.

Not covered by the new scheme is consideration of some form of disinfection for the wheels of the forklift as it travels in and out of the shed, particularly when used for depletion.

6.0 Acknowledgements

The project team would like to acknowledge the support provided by employers in arranging the interview sessions, and the catchers for the way that they engaged in the process.

The project team are also grateful to the support and funding provided by FSA Scotland and FSA Northern Ireland.

6.0 Appendix 1 Questionnaire

Project S14R0039
On-Farm Questionnaire

List of information to be recorded, questions and observations to be made

Location/timing

Names of project team attending:

Date and time of observation/interviews:.....

Location of observation/interviews:.....

Name of participating company:.....

Company representative in attendance: yes/no (name.....)

1. On-farm bio-security - observations

- 1.01 Farm entrance – record book used: yes/no,
Comment (if required).....
- 1.02 Farm entrance – functioning vehicle disinfection point: yes/no
Comment (which of the following power washer, sanitizer added to water in power washer bucket, other).....
- 1.03 Farm entrance – vehicle disinfection point used by catchers for own vehicle on entering/leaving: yes/no
Comment.....
- 1.04 Farm entrance – vehicle disinfection point used by catchers for forklift on entering/leaving: yes/no,
Comment.....
- 1.05 Farm entrance – catchers change into clean clothing, gloves, footwear at gate or arrive with clean clothing and change elsewhere on farm (comment): yes/no,
- 1.06 Farm entrance – if answer to 1.5 is no then go to 1.7 if answer is yes then catchers collect or bring with them clean clothing, gloves, footwear (✓):

| | Collected at farm gate | Brought by catcher |
|-------------------------|------------------------|--------------------|
| Clean clothing/coverall | | |
| Gloves | | |
| Footwear | | |
| Other (name) | | |
| Other (name) | | |

Comment (if required).....

1.07 Farm entrance – catchers bring used clothing, gloves, footwear:

| | Used on previous farm that shift (how many farms) | Used on previous farm in previous shift (how many days) | Other |
|-------------------------|---|---|-------|
| Clean clothing/coverall | | | |
| Gloves | | | |
| Footwear | | | |

Comment (if required).....

1.08 Poultry house – evidence of any disinfection process for catchers before entering poultry house: yes/no

Comment.....

1.09 Poultry house – evidence of any disinfection process for forklift before entering poultry house: yes/no,

Comment.....

1.11 Poultry house – evidence of any disinfection process when:

a) stopping for break: yes/no

b) re-entering poultry house after break: yes/no

Comment.....

2. Catching team ID

Catching team ID:.....

Number in team:.....

Number who attended original training session:.....

Questions (where noted answers to be graded **Good** [>75% agree/can answer], **Average** [75-25% agree/can answer], **Poor** [<25% agree/can answer], **None** [all disagree/can answer]

2.01 Did crew leader attend training session? yes/no

2.02. Crew has a good understanding of biosecurity? G / A / P / N

Comment.....

2.03 All the crew has heard of Campylobacter? G / A / P / N, Comment

Comment.....

2.04 For those that received training in 2008 information was anything learned that was relevant to your job? G / A / P / N

Comment.....

2.05 Has the way you work changed in the last two years (with respect to biosecurity)?

If **yes**, how?

If **no**, why not?

Comment.....

2.06 Procedure for arriving on-farm and entering the poultry house (cover disinfection and clothing change but without focusing on these aspects)

| | Item worn | | Frequency of change of items | | | | | Disinfection point | | |
|----------|-----------|----|------------------------------|------|-------|--------|-------|--------------------|-------|-------|
| | Yes | No | House | Farm | Shift | Weekly | Other | Farm | House | Other |
| | | | | | | | | | | |
| Coverall | | | | | | | | | | |

| | | | | | | | | | | |
|---------------------------------|--|--|--|--|--|--|--|--|--|--|
| Top and trousers | | | | | | | | | | |
| Own clothing | | | | | | | | | | |
| | | | | | | | | | | |
| Gloves | | | | | | | | | | |
| | | | | | | | | | | |
| Dust mask | | | | | | | | | | |
| | | | | | | | | | | |
| Rigger boots | | | | | | | | | | |
| Other footwear | | | | | | | | | | |
| Other | | | | | | | | | | |
| Vehicle – crew bus | | | | | | | | | | |
| Vehicle – individual's vehicles | | | | | | | | | | |

Comment.....

2.07 Describe the procedure for handling dirty PPE (eg how contained in vehicle, who cleans)

| | Yes | No |
|---|-----|----|
| Placed in bag and washed by company | | |
| Placed in bag and washed by individual catchers | | |
| | | |
| Placed loose in vehicle and washed by company | | |
| Placed loose in vehicle and washed by individual catchers | | |
| | | |
| Worn in vehicle and then worn to company depot | | |
| Worn in vehicle and then worn home | | |
| | | |
| Other (describe) | | |
| | | |

Comment:.....

2.08 Describe the procedure for getting clean PPE (eg frequency, ease)

| | Footwear | | Clothing | | Gloves | | Dust-mask | | Other (define) | |
|---------------------------|-------------|----------------------------|-------------|----------------------------|-------------|----------------------------|-------------|----------------------------|----------------|----------------------------|
| | As required | Fixed time interval (note) | As required | Fixed time interval (note) | As required | Fixed time interval (note) | As required | Fixed time interval (note) | As required | Fixed time interval (note) |
| Obtained from crew leader | | | | | | | | | | |
| Obtained from stores | | | | | | | | | | |
| | | | | | | | | | | |
| Collected on-farm | | | | | | | | | | |
| | | | | | | | | | | |
| Supplied by self | | | | | | | | | | |
| | | | | | | | | | | |
| Other | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Comment:.....

2.09 Describe the procedure for getting replacement PPE (eg footwear – frequency/ease)

| | Footwear | | Clothing | | Gloves | | Dust-mask | | Other (define) | |
|---------------------------|-------------|----------------------------|-------------|----------------------------|-------------|----------------------------|-------------|----------------------------|----------------|----------------------------|
| | As required | Fixed time interval (note) | As required | Fixed time interval (note) | As required | Fixed time interval (note) | As required | Fixed time interval (note) | As required | Fixed time interval (note) |
| Obtained from crew leader | | | | | | | | | | |
| Obtained from stores | | | | | | | | | | |
| | | | | | | | | | | |
| Collected on-farm | | | | | | | | | | |
| | | | | | | | | | | |
| Supplied by self | | | | | | | | | | |
| | | | | | | | | | | |
| Other | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Comment:.....

2.10 Does it make a difference to any of the procedures if you are thinning (cf depleting)?

yes/no

If yes:

a) Comment on what

b) ascertain if any differences in procedures are actually followed in practice

2.11 Describe the procedure when you take a break on-farm (eg hands washed, sanitised, clothing change, sit in vehicle/rest room)

| | Procedure followed | | Where | |
|---|--------------------|----|---------|------------|
| | Yes | No | On-farm | In vehicle |
| Hands washed in water | | | | |
| Hands washed using soap and water | | | | |
| Hands sanitised | | | | |
| | | | | |
| Boots sanitised (if yes record where) | | | | |
| | | | | |
| Rest break taken in restroom | | | | |
| Rest break taken in vehicle | | | | |
| | | | | |
| All PPE taken to/worn in rest room (if no then comment) | | | | |
| All PPE taken to/worn in vehicle (if no then comment) | | | | |
| | | | | |
| | | | | |
| Other (record what) | | | | |

Comment:.....
....

2.12 Is there somewhere on-farm that you can wash/sanitise your hands?

| | There is always somewhere | | Where | |
|-----------------------------------|---------------------------|----|---------|------------|
| | Yes | No | On-farm | In vehicle |
| Hands washed in water | | | | |
| Hands washed using soap and water | | | | |
| Hands sanitised | | | | |
| | | | | |
| | | | | |
| Other (record what) | | | | |

Comment:.....
....

2.13 How often are you not able to follow optimal biosecurity procedures?

| Never | Rarely | Not uncommon | Frequently | Always |
|-------|--------|--------------|------------|--------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

And why can you not always follow procedures

| Procedure | Time | Equipment | Not enforced by manager | Other (define) |
|-----------|------|-----------|-------------------------|----------------|
| | | | | |

2.14 Who maintains/enforces the standards for your team (biosecurity)?

| | Area Manager | Farm manager | Crew Leader | Other |
|-------------------------|--------------|--------------|-------------|-------|
| Relative importance (%) | | | | |

2.15 Which farm or type of farm do you think is the best for biosecurity procedures?

Name.....

Comment on why.....

2.16 Which farm or type of farm do you think is the worst for biosecurity procedures?

Name.....

Comment on why.....

2.17 What percentage of the farms are in your opinion good, average and poor for biosecurity?

G = %, A = % P = %

2.18 List the three things that would make it easier to improve the biosecurity associated with what you do and why they not being done already?

| | What could be done? | Why is it not done now? |
|---|---------------------|-------------------------|
| 1 | | |
| 2 | | |
| 3 | | |

Interviewer – note other points made but not listed above

7.0 Appendix 2 Red Tractor Standards - 1 April 2011 (selected extracts)

DE.1 All catching contract companies must be registered with the Scheme. (CB.DE.1)
(CP.DE.1)

DE.4 Vehicle and transport crates must be clean, disinfected and not pose a risk of injury to the birds.
(CB.DE.4) (CP.DE.4)

DE.5 The manager or stockmen responsible for the birds must be present at depopulation. (CB.DE.5)
(CP.DE.5)

DE.6 A loading area must be available for the loading of birds for transport and must be clean, tidy and hygienically managed. (CB.DE.6) (CP.DE.6)

DE.9

Revised

Biosecurity measures must be followed. (CB.DE.9) (CP.DE.9)

Suitable, clean protective clothing must be worn at the commencement of catching at each farm. Foot dips must be used and, in addition, Defra-approved disinfectants must be used in accordance with manufacturers' recommendations. Footwear must be cleaned and sanitised between farms.

DE.9.1

New

R It is recommended that catchers ensure that in the course of a day's work they undertake any first depletions before any depopulation. (CB.DE.9.1) (CP.DE.9.1)

Catching first depletion sites first in the day is best practice in terms of potentially reducing the risk of transferring Campylobacter infection.

DE.9.2

New

Catchers must be required to wear new/clean outer clothing at each farm and to change on entering /leaving farms. (CB.DE.9.2) (CP.DE.9.2)

DE.9.3

New

Catchers footwear must be clean and disinfected prior to entry and on leaving every farm. The footwear must be clean and 'dippable' and must be dipped in the foot dips provided and disinfected prior to leaving and on entry to every house/bird area. (CB.DE.9.3) (CP.DE.9.3)

Footwear means robust dippable boots such as rigger boots, wellingtons, vulcanised sealed work boots etc. Trainers are not acceptable footwear.

DE.9.4

New

There must be a system/procedures in place for a designated person to inspect and check forklifts and other catching equipment (including catchers' transport) for cleanliness and disinfection with a Defra approved disinfectant prior to entry of the biosecure area. (CB.DE.9.4) (CP.DE.9.4)

It is not acceptable for any catching and collection vehicles to arrive at a farm in a dirty/unclean condition.

The designated person may be the foreman of the catching team if appropriate but the name and details must be recorded.

The assessor will check that a system or procedures are in place.

DE.9.5

New

Forklifts and other catching equipment (including catchers' transport) must be washed off, cleaned and disinfected before leaving the farm unless it is taken to be cleaned and disinfected at an off-site location such as a factory. (CB.DE.9.5) (CP.DE.9.5)

Forklifts should be inspected to show physical cleanliness and a Defra approved disinfectant should be used for disinfection. If cleaning and disinfection does not take place on the farm then loose debris must be removed from forklifts before they leave the farm.

DE.9.6

New

R It is recommended that clean tidy, facilities are made available on farm for catchers to use during breaks. (CB.DE.9.6) (CP.DE.9.6)

This will become mandatory at the next standard review.

DE.13

Updated

There must be a 'Standard Operating Procedure' for catching which includes reference to biosecurity (with particular reference to Campylobacter) health & safety, hygiene and bird welfare requirements. (CB.DE.13) (CP.DE.13)

The catching plan should:

take into consideration bird weight

allow sufficient breaks between loads

The Standard Operating Procedure should include boot cleaning, wearing protective clothing, provision of hand sanitisers and the need for a scheduled catching plan which

takes into consideration bird weight

allows sufficient breaks between loads

See relevant Appendix

DE.14 R It is recommended that there is a scheduled catching plan. (CB.DE.13) (CP.DE.13)

The plan should:

take into consideration bird weight

allow sufficient breaks between loads