



Survey Report

AFBI survey of Northern Ireland farmers who have adopted Selective dry cow therapy (SDCT)

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Somatic cell count (SCC)

Advisors Milk recording

Mastitis **Herd Health**

Dry cow management

Udder conformation

**Antimicrobial
resistance**

Antibiotic use

California milk
test

Selection criteria

Milk yield at dry off

Teat sealant

Vets
Herd health records

Human health

Results of an AFBI survey of Northern Ireland farmers who have adopted Selective dry-cow therapy (SDCT)

Background

This survey was undertaken as part of an ongoing research project being conducted by scientists at AFBI Hillsborough. The project, “STrategic AntiMicrobial use in dairy, beef and sheep Production (STAMP)” aims to promote responsible use of antimicrobials (antibiotics). While the use of antimicrobials at drying off is commonplace, there is ample evidence that not all cows require an antibiotic, and that selective dry cow therapy (SDCT) enables farms to reduce their antimicrobial use by only treating cows deemed to be ‘high risk’.

The purpose of this survey was to develop a better understanding of selective dry cow therapy procedures being used on farms in Northern Ireland, and to gain an insight into farmer experiences and motivations for adopting SDCT on their farm. This survey was completed by 32 dairy farmers who have already adopted SDCT.

This short report presents the findings from the survey.

1. General Farm data

- Average herd size, annual milk sales and somatic cell counts for participating farms are presented below. This highlights that SDCT is being adopted on both smaller and larger farms, and on farms with both moderate and high yielding cows.

	Average	Minimum	Maximum
Herd size (cows)	152	30	390
Milk sold/cow/year (kg)	7,952	5,200	10,500
Somatic cell count ('000 cells /ml)	132,000	64,000	200,000

- *Calving patterns:* 41% of herds surveyed were winter calving, and 25% were autumn calving, with the remainder spring and all year calving (Figure 1).
- *Breeds:* 65% of farmers had either Holstein, Holstein Friesian or Friesian cows (including ‘Irish’, ‘British’ and ‘New Zealand’ Friesian). One Ayrshire herd, one Jersey herd and one Fleckvieh herd, together with 4 crossbred herds, also participated.

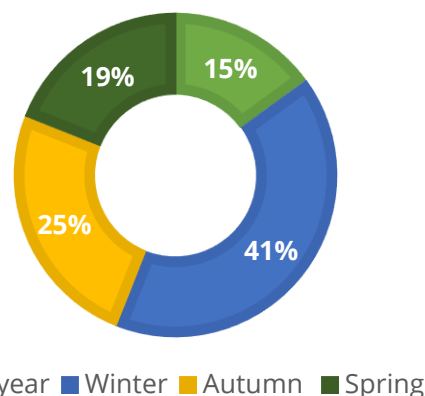


Figure 1. Calving patterns on farms

- *Breeding:* The predominant breeding approach used on farms was AI (91% of farms surveyed).
- *Sire Selection:* Of the farms using AI, 90% of respondents indicated that they consider PLI and/or EBI when selecting sires for their herd. In addition, 76% of respondents consider milk SCC when selecting sires, while 66% of respondents take account of mastitis resistance when selecting sires for their herd. 10%, 24% and 34% of farmers using AI, indicated they were undecided or did not take account of PLI/EBI, SCC or mastitis resistance when selecting sires.
- *Milking systems:* All farms used a conventional milking parlour, with cows milked twice a day.
- *Milk recording:* 88% of farms participated in a milk recording scheme, with 54% of those farms recording on a monthly basis, 21% every 6 weeks, and 11% on alternative months. A small number of farms (n= 4) milk recorded 2, 3 or 4 times/year.
- *Animal health records:* 84% of farms kept 'long term' records for mastitis management (mainly using parlour software/herd management software, or paper records), and 75% of farms agreed that they kept accurate records of all cows treated for mastitis. In addition, 81% of farms make extensive use of individual cow milk recording information to manage the udder health of their herd.

2. Dry cow management

Dry cow housing: Dry cow management was primarily influenced by season, with almost two thirds of farms (63%) managing cows both at grass and indoors. With regards to the quality of dry cow housing, 72% of farms assessed their dry cow housing as 'good' or 'excellent'. Dry cows were housed in a cubicle house by 69% of farmers, while 31% of farmers kept cows in cubicles followed by a straw bedded pen.

Cubicle bedding: Dry cows managed in cubicle houses were predominately bedded with sawdust or shavings (82%). One farmer used a lime/peat mix, three farms used lime only, and two farms used mats with no/little bedding.

Bedding frequency: Fresh bedding was offered daily on 53% of farms, 3 – 4 times per week on 13% of farms and twice weekly on 25% of farms.

Use of antimicrobial product on cubicles: On farms where dry cows were managed in cubicles, 55 % of respondents treated cubicles or cubicle bedding with an antimicrobial product. The most commonly used antimicrobial product was lime/hydrated lime (83%), while a number of farmers used proprietary products. Although the frequency at which antimicrobial product was applied on farms differed, the majority (50%) applied product daily.

Dry cow minerals: Dry cow minerals, offered either in the concentrate or separate from the concentrate, were offered for the duration of the dry cow period on 72 % of farms surveyed. Of farms that did not offer dry cow minerals for the duration of the dry period, dry cow minerals were offered for an average of 4 weeks pre-calving.

3. Selective dry cow therapy (SDCT) – Practical considerations

Of the 32 farms surveyed, over 60% of farms had been practising SDCT for between 2-3 years.

Adoption level within herds: The average proportion of cows in a herd dried-off using SDCT was 64%, but ranged from 15% to 100% of cows. All farms operated SDCT on a cow basis rather than at a quarter level.

Herd selection criteria for SDCT: Less than half of farms surveyed (47%) agreed that average bulk tank somatic cell count should be below a certain threshold before SDCT is adopted on a farm. Of those farmers that did agree (n=15), the majority of respondents suggested the average bulk tank SCC cut-off should be 200,000 cells/ml.

Individual cow selection criteria:

- 94% of farms surveyed adopted the same SCC and/or mastitis thresholds when implementing SDCT on first lactation cows as they use for cows in their second or subsequent lactations. Only two farms surveyed implemented different SCC and mastitis thresholds for first lactation cows. On one of these farms, a more stringent selection criteria in terms of mastitis incidence was adopted when adopting SDCT with heifers compared to older cows, while the second farm considered a lower SCC threshold (100,000 cells/ml) when adopting SDCT with heifers compared to older cows (150,000 cells/ml).
- There was a range of SCC threshold values used on farms for the adoption of SCC, from 100,000 – 250,000 cells/ml (Figure 2). On the majority of farms surveyed, the SCC of a cow must be less than 150,000 cells/ml for 3 months before drying-off for her to be considered for SDCT. However, the timeframe at which SCC thresholds are considered also differed between farms, ranging from 2 to 12 months prior to drying-off.

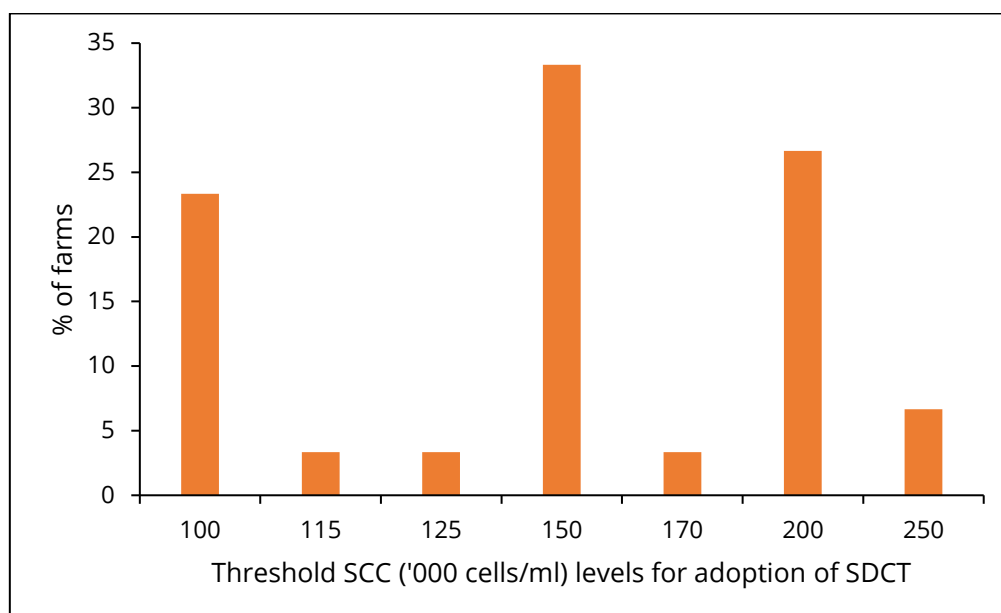


Figure 2. Threshold SCC levels implemented on farms for the adoption of SDCT (% of farms within each category)

- With regards to mastitis thresholds, 80% of farms agreed that when considering an individual cow for SDCT she should have none or no more than 1 case of mastitis in the previous lactation, with no cases of mastitis during the 3 months prior to drying-off.
- Over 60% of farms surveyed used additional indicators to help decide which cows to dry-off without using antibiotics including: milk yield at dry-off (38%), California milk test (28%), age of cow (19%), bacteriological/microbiological analysis of individual cow milk samples (16%), udder conformation (13%), conductivity measurements (9%) and teat end damage/condition (9%). With regards the latter, one farmer noted that 'damaged teats need antibiotics'.

Advice on adoption of SDCT:

- The vast majority of farmers discussed SDCT with their vet before adopting the practise on farm (72%), with 31% of farmers discussing the practice with their CAFRE Advisor, 22% with other farmers and 16% with a consultant.
- Only a third of farms (34%) are involved in an annual review of SDCT practises on their farm, with this normally involving a vet or consultant.

Drying off practices:

- Cows to be dried -off using SDCT were primarily chosen by farmers themselves (78%), with the remainder involving their vet/consultant/farm owner in the decision making.
- While all farmers responded that a standard operating procedure is followed when drying-off cows using SDCT, only 22% of farms have this standard operating procedure written down.
- 59% of respondents agreed that they adopt a more stringent approach when drying cows off using SDCT compared to drying cows off using antibiotic dry cow therapy.
- Almost half of respondents had learned SDCT practises through their vet (47%). However a large proportion of farmers were self-taught (31%), while 19% were taught by a consultant.

When asked what steps were applied when drying cows off using SDCT, farmer responses varied, see (Figure 3).

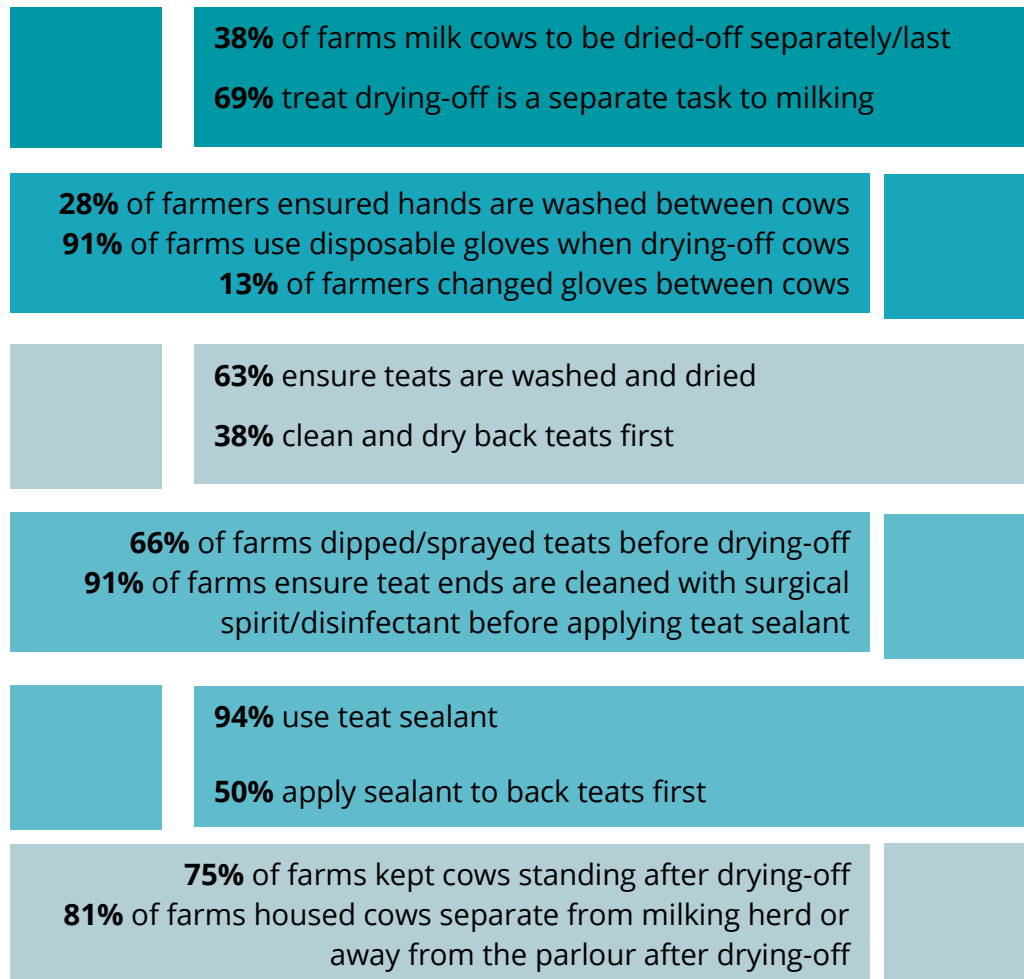


Figure 3. Percentage of farms that implemented a range of steps when drying-off cows using SDCT.

One farmer highlighted the need to check cows daily for 7 days after drying-off.

Teat sealants: 94% of farmers use an internal teat sealant when not using antibiotics to dry cows off, with one of these farmers also using an external teat sealant. 72% of farmers also use teat sealant when drying cows off using conventional antibiotic dry cow therapy.

4. Antimicrobial resistance (AMR) and selective dry cow therapy (SDCT)

The responses to the full range of questions asked concerning farmers' perceptions to the potential impact of AMR, and associated issues are highlighted in Figure 4. As farms that participated in the survey had already adopted SDCT, it was unsurprising that the majority were familiar with the term antimicrobial resistance, and the threat it poses to human health, animal health and were taking steps to actively reduce antimicrobial use (AMU) on-farm. Nevertheless, on average across these questions, between 25 - 30% of farms indicated that they were either 'undecided' or 'disagreed' with the statements made, although the level of indecision/disagreement varied greatly between questions.

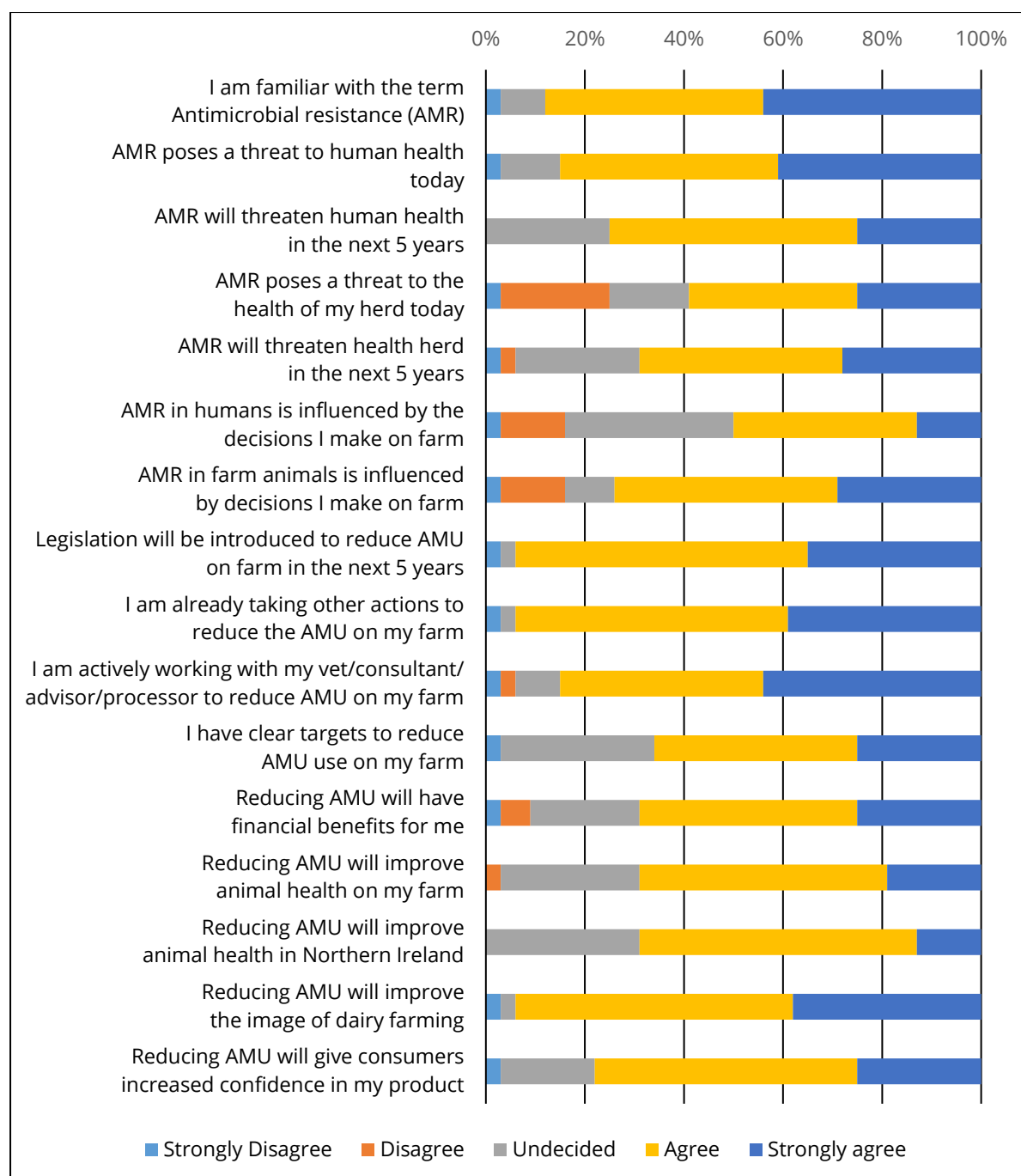


Figure 4. Level of agreement for statements concerning antimicrobial resistance (AMR) and antimicrobial use on-farm (% of farmers within each category)

Farmers were asked to score the main reasons for adopting SDCT on their farm, with the predominant reasons given being to reduce antimicrobial resistance on-farm, and the belief that not all cows need an antibiotic at drying-off (Figure 5). In addition, many farmers suggested that they adopted SDCT, as it would improve herd health, reduce AMR in the herd and that SDCT will be a requirement on farms in the future. However, over half (59%) of farms were unsure/disagreed that they adopted SDCT on the basis it would help reduce antimicrobial resistance in humans.

Other reasons cited by individual farmers for adopting SDCT on their farms, included “to reduce risk of antibiotics entering bulk milk tank”, “SDCT is proven to reduce mastitis in following lactation”, “blanket approach was having a negative impact on herd”, “to avoid calves being fed colostrum with antibiotics in” and “antibiotics kill not only the bad bacteria but also the good bacteria in the udder, leaving cows more open to infection in the next lactation”.

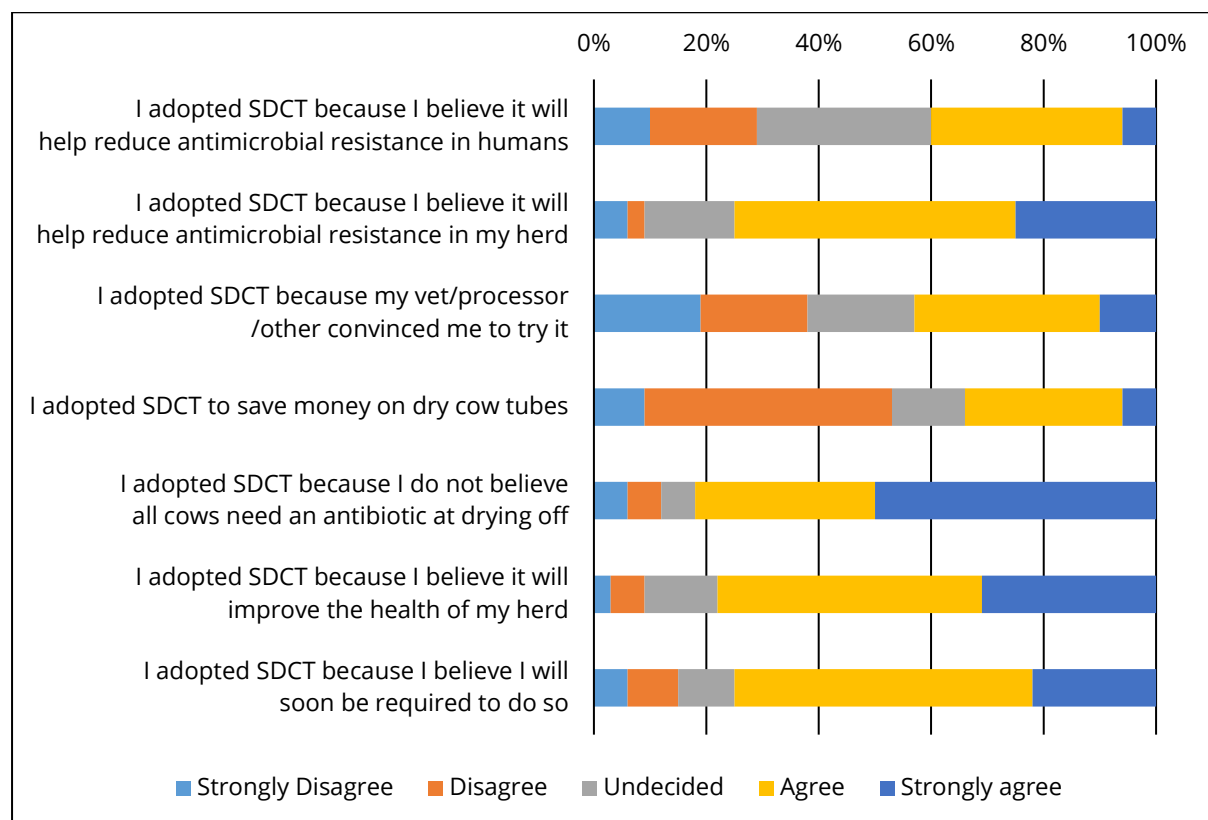


Figure 5. Level of agreement for statements concerning reasons for adopting selective dry cow therapy (SDCT) (% of farmers within each category).

Less than 25% of farms indicated any negative effects on dry cow health, herd mastitis incidence or milk SCC since adopting SDCT (Figure 6). However, a substantial number of farmers (42%) indicated they were unsure if adopting SDCT has a positive financial impact on their farms. Nevertheless, over 80% of farms indicated they would continue to adopt SDCT and believe more farms should adopt SDCT practises.

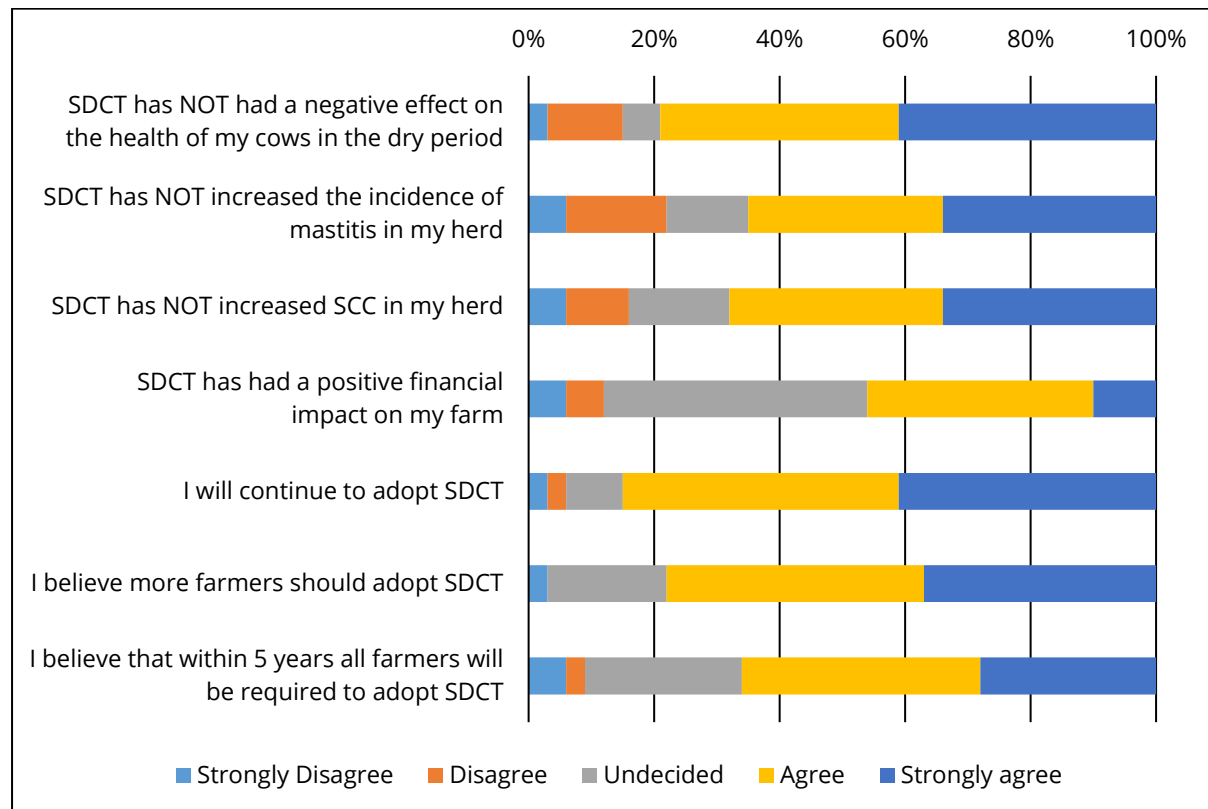


Figure 6. Level of agreement for statements concerning impact of adopting selective dry cow therapy (SDCT) (% of farmers within each category).

Conclusions

This survey has highlighted the diverse range of selection criteria and drying-off protocols that are implemented on farms that have adopted SDCT. Given that selection criteria should be unique to each herd, this finding was as expected. The majority of farms followed a threshold of 150,000 cells/ml and no cases of mastitis in the last 3 months prior to dry-off. Not using antibiotics means hygiene at drying-off is especially critical. While most farms did not have a written protocol for drying-off, many had a 'protocol'. However developing a step-by step written protocol to follow at drying-off will help reduce the risks.

Primarily farms adopted SDCT in the belief that not all cows require antibiotic treatment at drying-off, combined with the expectation of legislation to reduce antibiotic use in the future. Indeed as the dairy sector works towards a reduction in antimicrobial use, there will be increasing pressure for all farms to adopt SDCT protocols.

Acknowledgments

The STAMP project team would like to thank farmers who gave their time to participate in this survey on Selective dry cow therapy, and who have helped to further our understanding of this important issue. Also, sincere thanks is due to the veterinary practices and CAFRE dairy advisors who helped the survey team identify farms that had already adopted selective dry cow therapy. We would also like to thank Ashley Uprichard from the AFBI statistical services branch, who helped create the online survey.

For further information

For further information on the outcomes of this survey, please contact Anna Lavery at anna.lavery@afbini.gov.uk

