

AgriSearch dairy farmer survey: Identifying priority research topics

Introduction

AgriSearch is funding a project to examine global dairy research findings, and translate the results into a series of communications to enhance the profitability and sustainability of the Northern Ireland dairy sector. It is essential that the project examines research topics that are relevant and of use to farmers. As such, a survey was developed to identify and quantify current and future research priorities of the Northern Ireland dairy sector. Furthermore, the opportunity was also taken to quantify opinions on how best to communicate research findings to the farming community. In addition, information was gathered on production parameters including; herd size, milk yield, calving pattern, grazing and silage feeding regimes, the use of total confinement and opinions on zero grazing. The survey results can therefore be interpreted in light of these various production parameters. Moreover, information on levels of total confinement and attitudes to zero grazing will provide useful knowledge to inform research policy in this area and in an era of “sustainable intensification” and the current Northern Ireland “Going for Growth” strategy.

Method

The survey content was informed by a comprehensive stakeholder consultation exercise comprising structured interviews with Northern Ireland dairy industry representatives. The structured interviews consisted of a series of scripted open ended questions to gauge opinions on current and future research priorities, as well as methods of knowledge transfer. In total, 31 stakeholders participated in this process and comprised representatives from the following organisations; Afbi, Agri-Food strategy board, AgriSearch dairy advisory committee, Animal Health and Welfare NI, Dairy council for NI, Dairy UK, DARD dairy advisers, DARD scientific adviser, dairy veterinary surgeons, Farmers Weekly dairy farmer of the year winner, Holstein NI, Northern Ireland Grain Trade Association, UFU dairy representative, United dairy farmer representative. The stakeholder results (full copy available on request) were used to inform the content of the dairy farmer survey and ensure that a full and comprehensive range of research topics were included, representing the current and future challenges of the Northern Ireland dairy sector. An initial survey draft was submitted to members of the AgriSearch dairy advisory committee for detailed comment and feedback, and subsequently amended according to the feedback received.

The survey, a full copy of which is available on request (and also located on AgriSearchwebsite), comprised a questionnaire which was divided into four sections. Section one comprised questions on current research priorities, section two considered future research priorities, section three how best to communicate project findings, while section four gathered information on the farmer and his/her production system. In sections one and two each question contained a list of potential research topics and participants were asked “How important to you are the following research topics?” and asked to rank them on a likert scale from 1 = very unimportant to 5 = very important, while section three contained a list of knowledge transfer methods, with participants being asked “How effective do you find the following methods to communicate project findings?” and asked to rank them on a likert scale from 1 = very ineffective to 5 = very effective. Section four asked questions about the

farmer and his/her production system covering; the person's role on the farm, gender, age, length of time managing dairy cattle, herd size, annual milk yield, calving pattern, grazing method (including an option for total confinement), indoor feeding method, and use and attitudes to zero grazing. Finally, participants were also given space to provide any additional comments.

Surveys were distributed by all the major NI milk buyers and sent to individual dairy farms at the time of distributing milk cheques / producer newsletters (1st September 2013). Farmers were asked to return completed questionnaires to AgriSearch in a prepaid envelope by 31st October 2013. Moreover, survey participants were also recruited at a large Northern Ireland dairy event on 12th December (Royal Ulster Winter Fair), with farmers asked to complete the questionnaire only if they had not already done so. This event represented the final deadline for return of completed questionnaires.

Statistical analysis

Survey results were inputted into Excel, with descriptive and non-parametric statistics conducted using SPSS version 20. For the section on farm details (section four of questionnaire) descriptive statistics are presented in terms of % of respondents. For sections one to three, descriptive statistics are presented as mean likert scores from 1 to 5 (for sections one and two; 1 = very unimportant to 5 = very important, for section three; 1 = very ineffective to 5 = very effective).

Results

Farm details

271 surveys were received which represents approximately 8% of the 3425 dairy production units in Northern Ireland (DARD agricultural census, June 2013). 256 respondents provided herd size data. These respondent herds contained 34,434 cows which represents approximately 12% of the 279,481 adult dairy cows in NI (DARD agricultural census, June 2013). The mean herd size was 135 (minimum = 10, maximum = 450), which is above the NI average of 81 cows (2012, DARD).

94% of respondents categorised themselves as the owner / partner of the farm enterprise, with 5% stating they were a family member (not in the partnership) and 1% stating their role on the farm as a stockperson. 97% of respondents were male, with the age profile shown in figure 1, and the number of years' experience managing dairy cattle shown in figure 2.

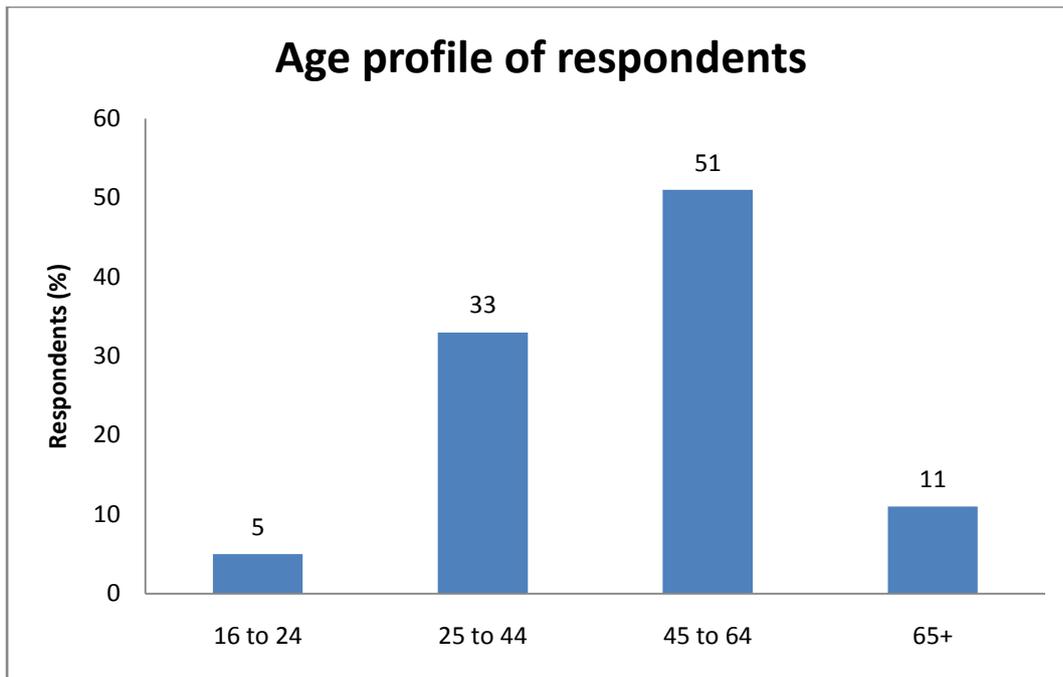


Figure 1. Age profile of respondents.

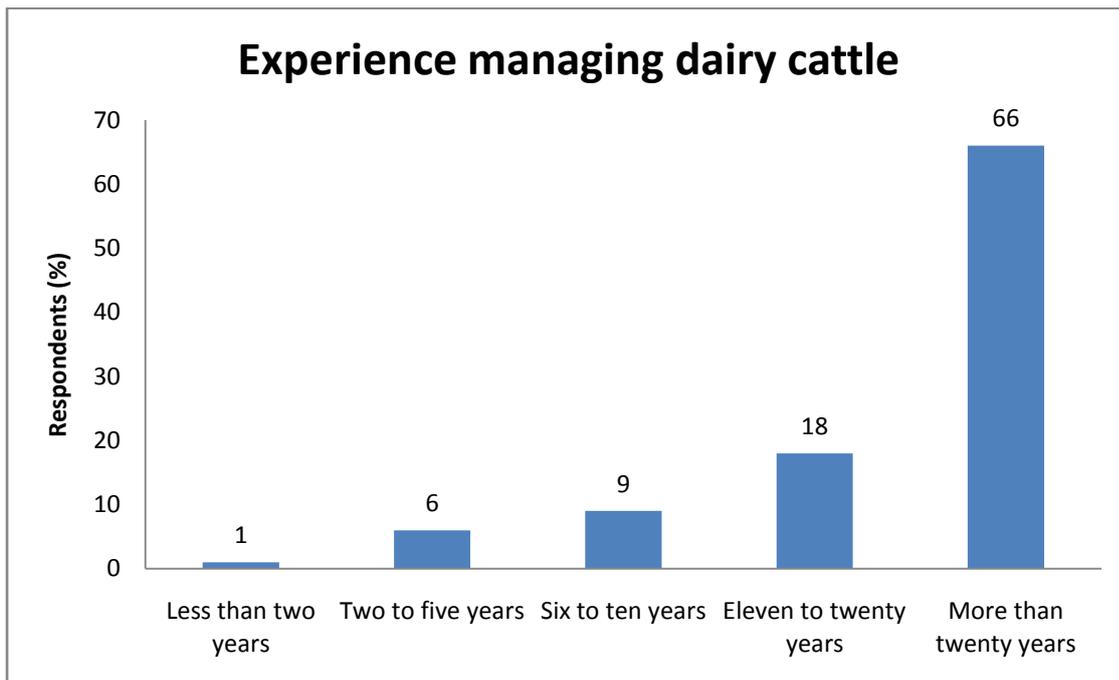


Figure 2. Experience managing dairy cattle.

As shown in figure 3 below, the majority of respondents reported their annual milk yield per cow as being between 6,500-8000 litres.

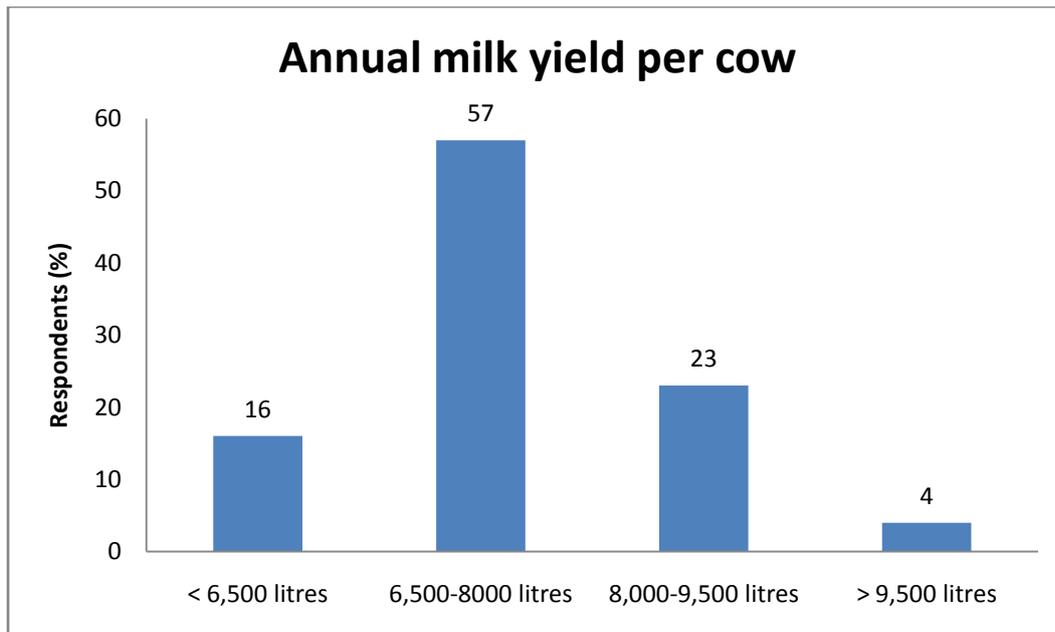


Figure 3. Annual milk yield per cow.

Calving during autumn / winter months and a year round calving pattern were similarly prevalent, with fewer producers adopting a spring calving pattern as shown in figure 4.

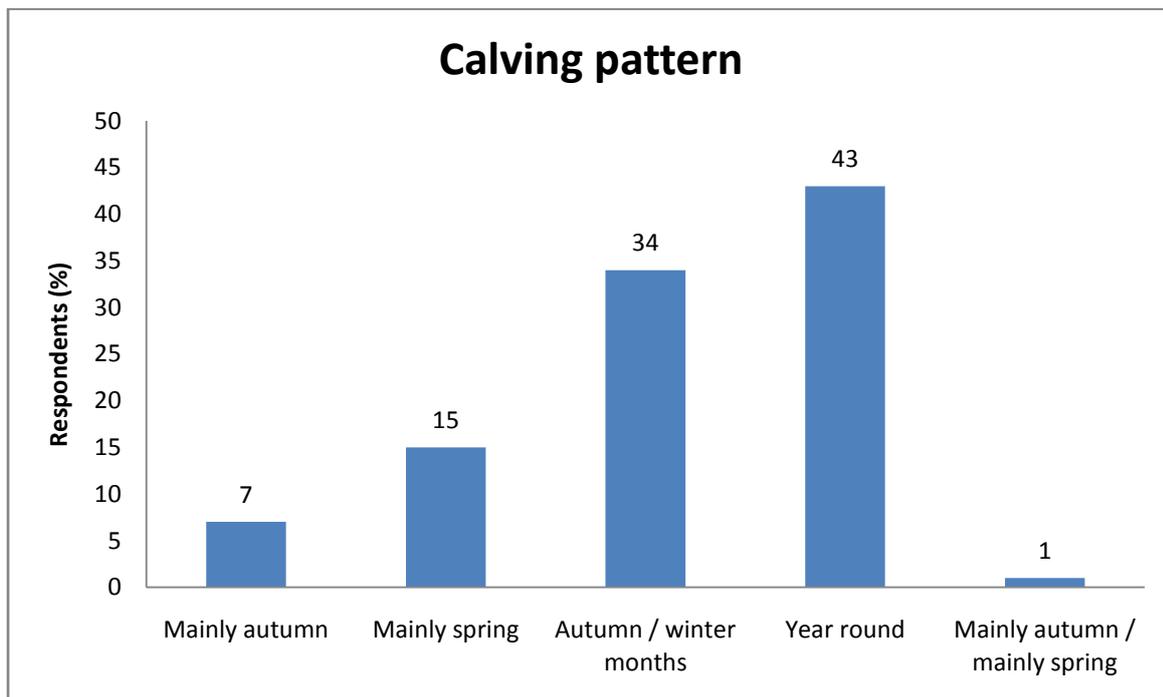


Figure 4. Calving pattern of respondents.

Respondents were also asked about their grazing management, with a range of options provided (Fig 5). The most popular strategies adopted were the use of pasture during the traditional grazing season (Apr/May-Sep) and the use of extended grazing systems, with only 5% reporting the use of total confinement systems.

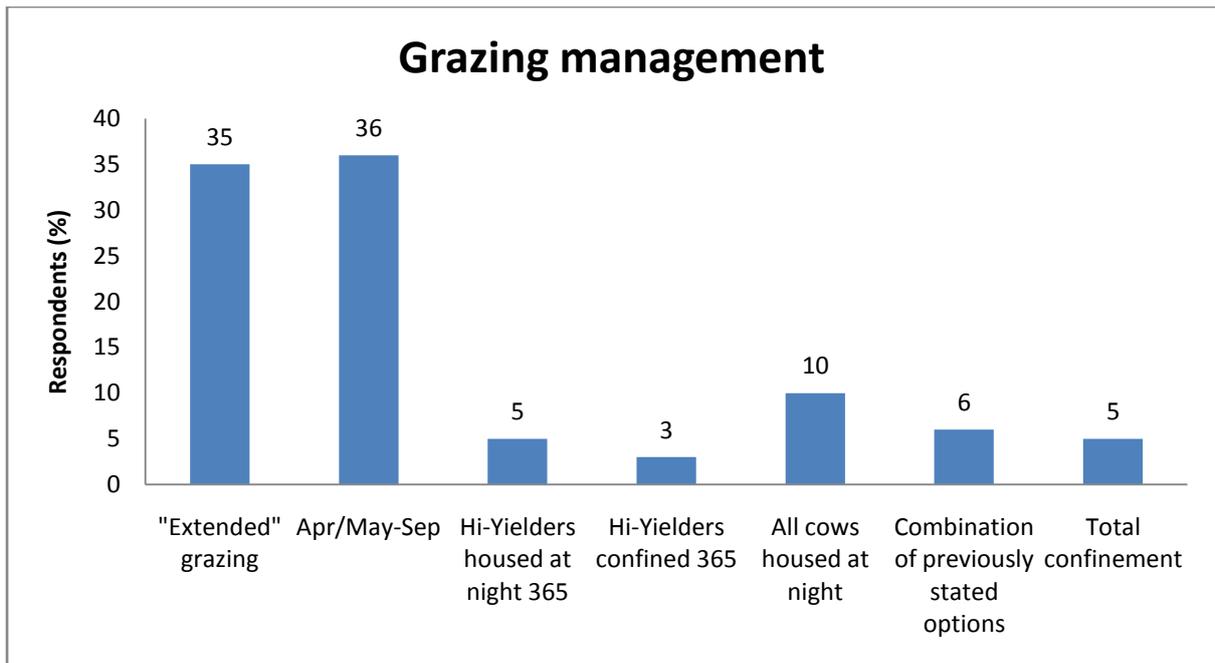


Figure 5. Grazing strategies of respondents.

Regarding silage feeding, 5% reported using a self feed system, 41% an easy feed system, with 54% using a total mixed ration.

As detailed in figure 6, respondents were also asked about their attitudes to zero grazing. The majority did not currently practice zero grazing and were not considering doing so.

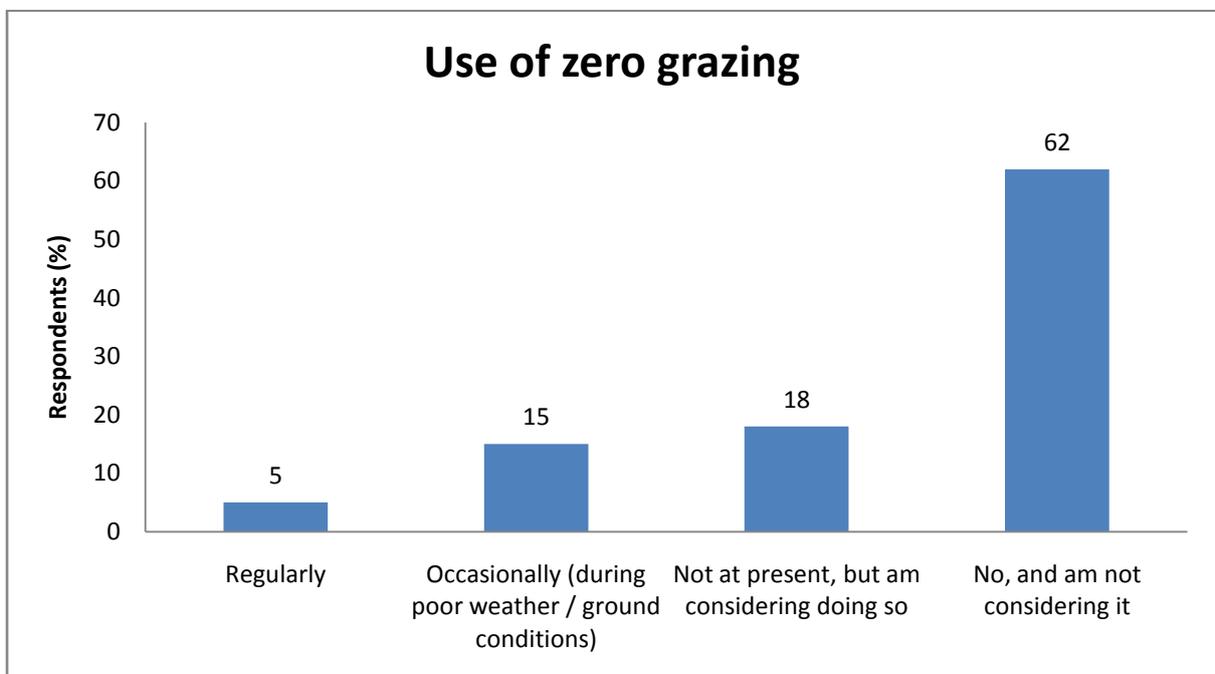


Figure 6. Use of zero grazing.

Current research priorities for the NI dairy sector

Q1. Participants were asked to rate the importance of a list of broad research topics (from 1 = very unimportant to 5 = very important).

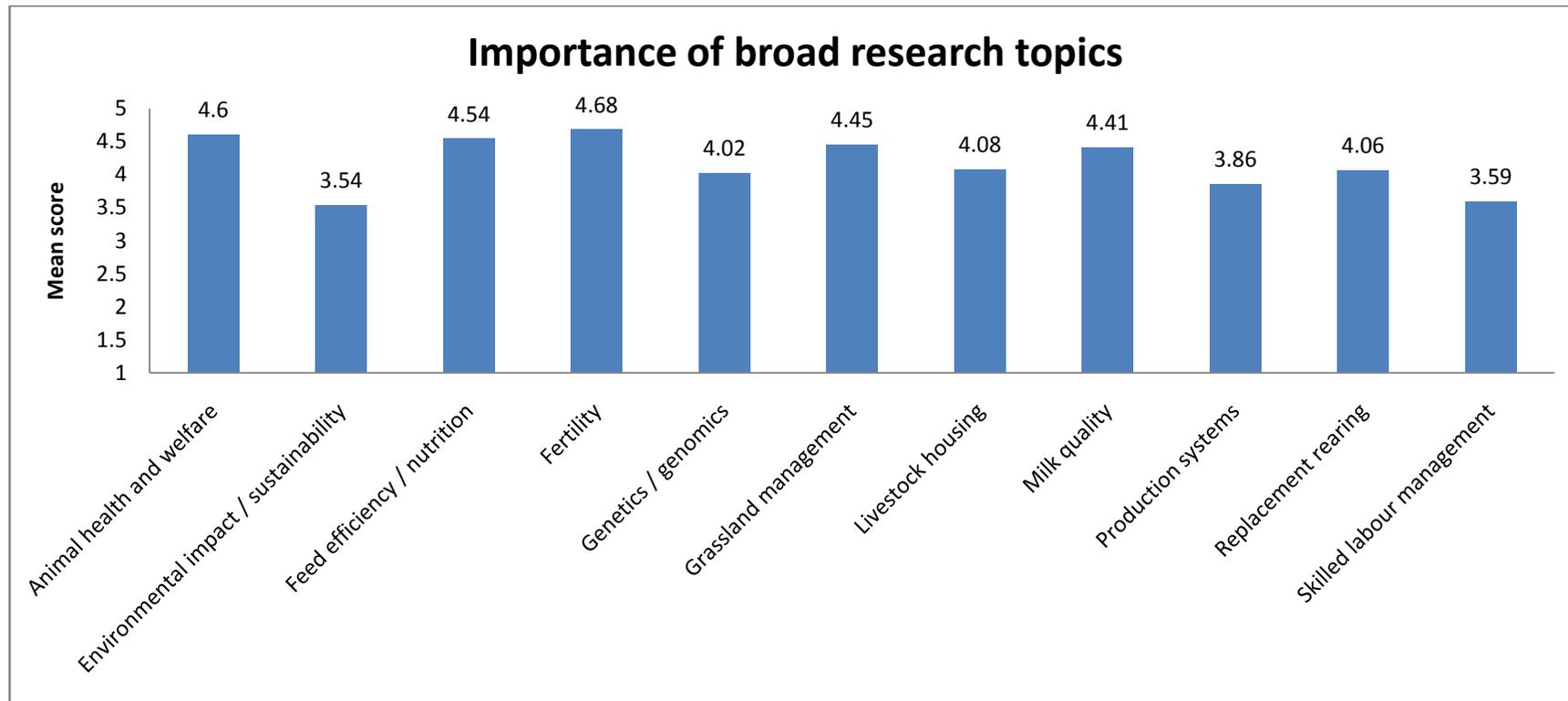


Figure 7. Importance of broad research topics.

Eight of the eleven broad research topics had a mean score greater than 4 (fig. 7), indicating that each of these eight categories were viewed as important research topics. Fertility had the highest mean score (4.68), followed closely by animal health and welfare (4.6), and feed efficiency / nutrition (4.54). It is noteworthy that the lowest scoring research topic was environmental impact / sustainability.

Q2. Importance of research areas within the “animal health and welfare” topic.

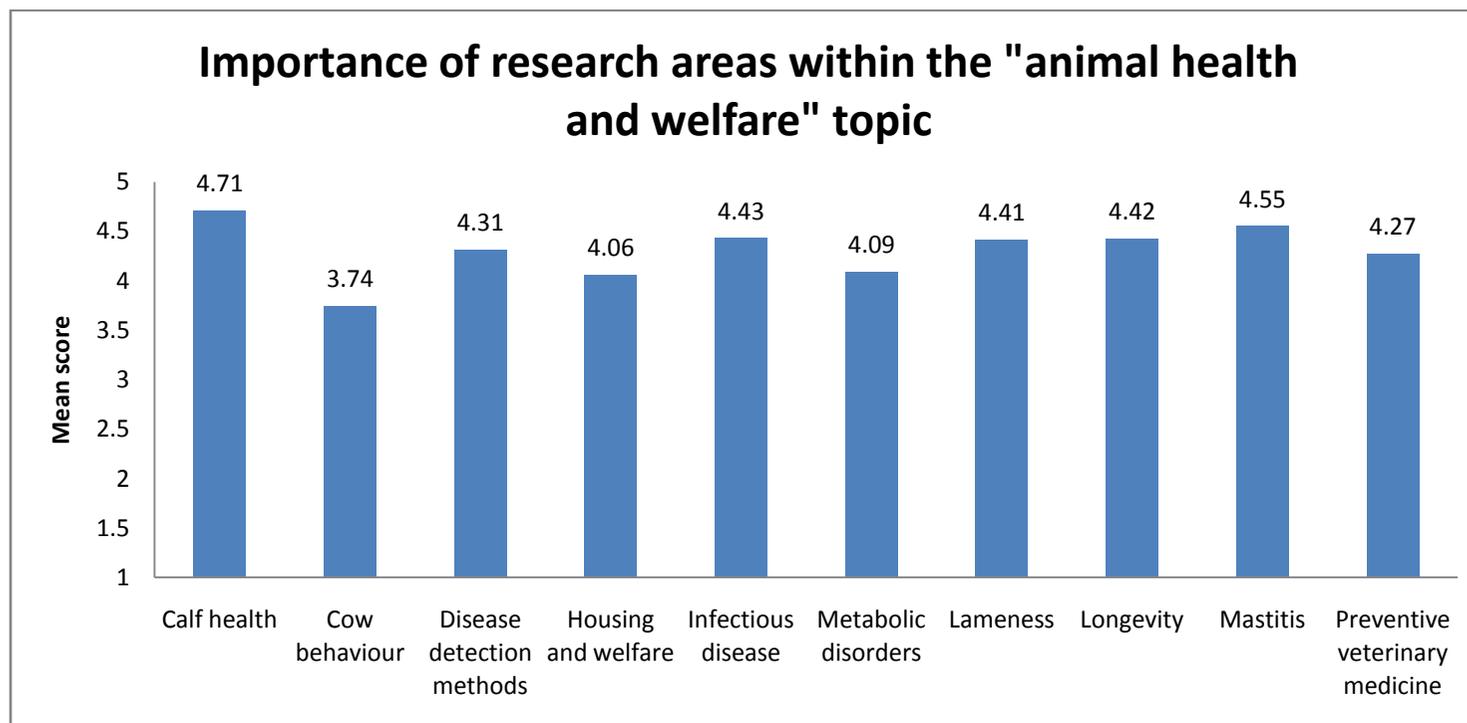


Figure 8. Importance of research areas within the “animal health and welfare” topic.

Again it is noteworthy, that with the exception of “cow behaviour” each of the research areas had a mean score greater than 4 (fig. 8), indicating they were viewed as being important. Calf health had the highest mean score (4.71), followed by mastitis (4.55) and then infectious disease (4.43), longevity (4.42), and lameness (4.41), with these latter 3 all having very similar mean scores.

Q3. Importance of research areas within the “environmental impact / sustainability” topic.

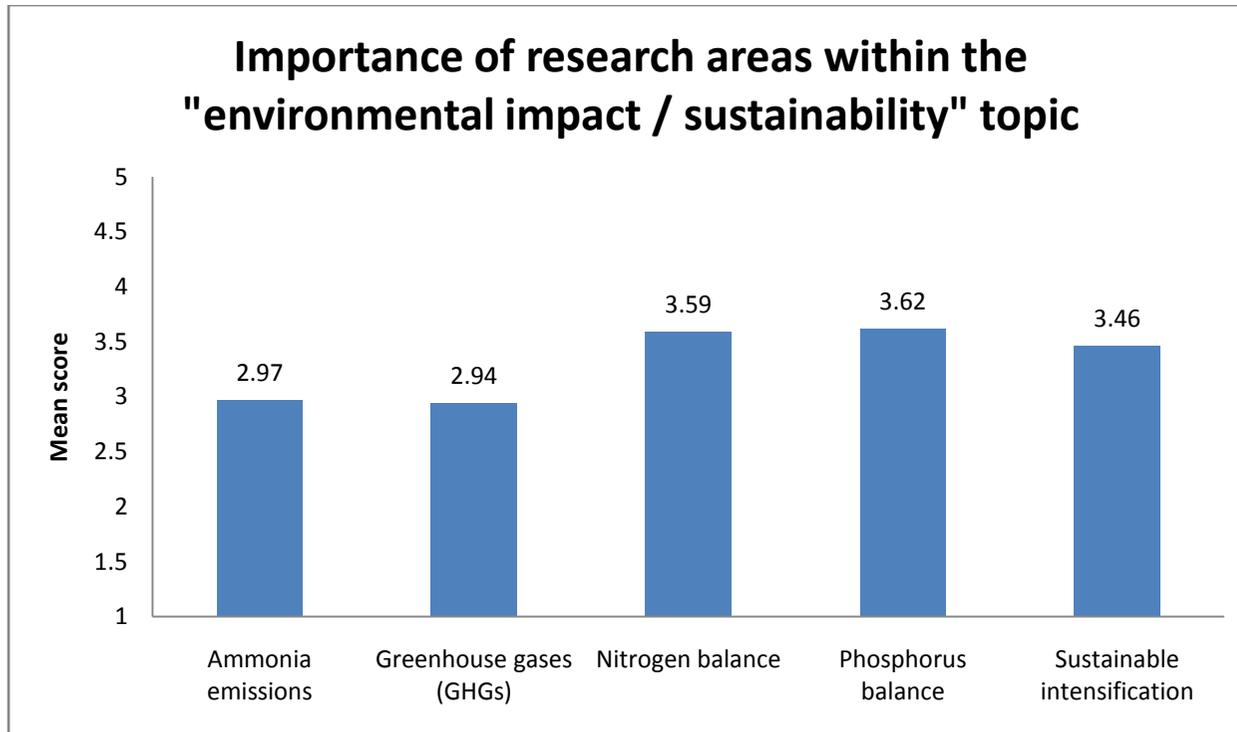


Figure 9. Importance of research areas within the “environmental / sustainability” topic.

Figure 9 highlights that farmers did not view the research areas within the environmental impact / sustainability topic as being important, with greenhouse gases having the lowest score (mean 2.94). Further research to examine the low priority given to these topics by farmers would be warranted given the importance of this area is only likely to increase in the future, particularly in terms of meeting goals for sustainable intensification.

Q4. Importance of research areas within the “feed efficiency / nutrition” topic.

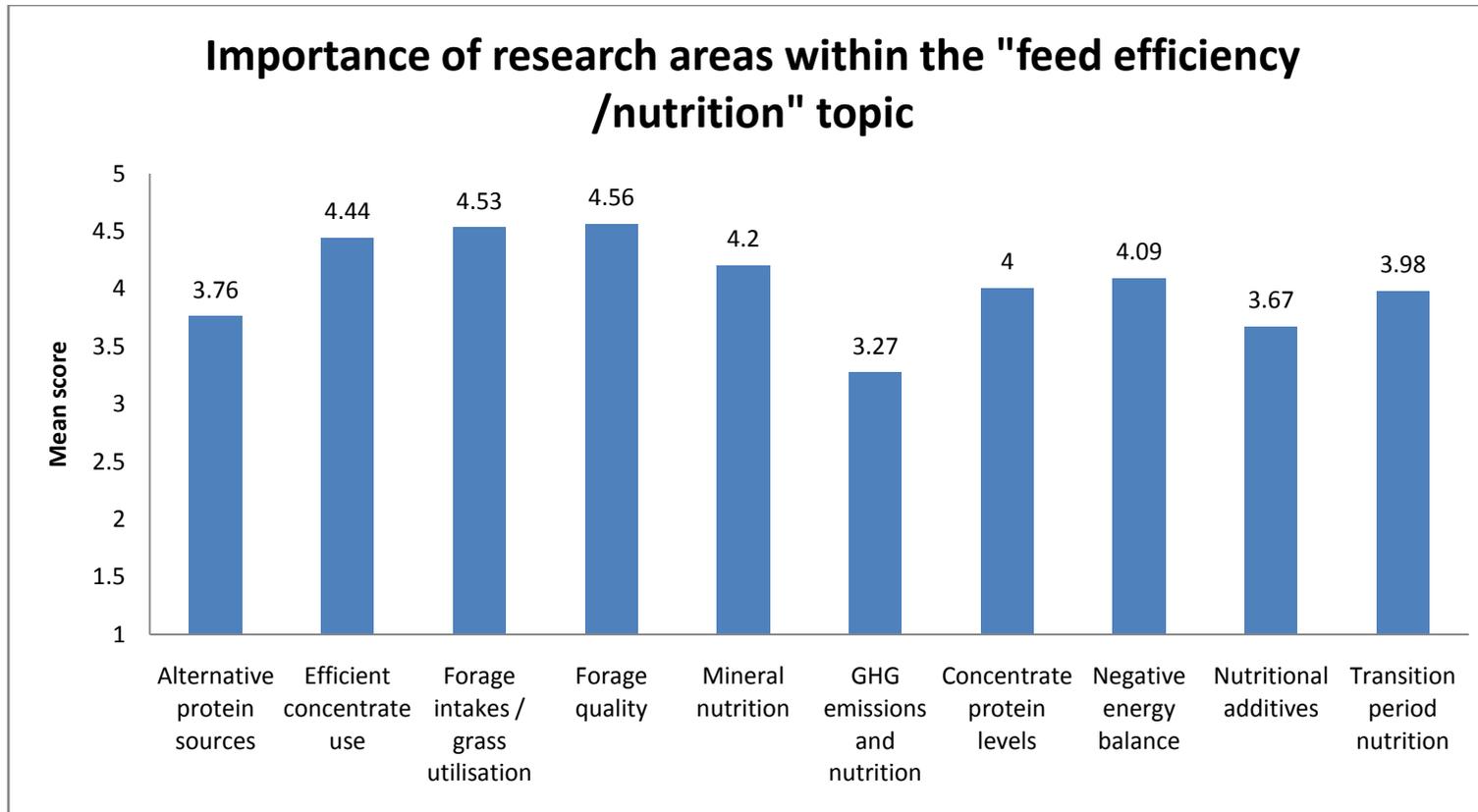


Figure 10. Importance of research areas within the “feed efficiency / nutrition” topic.

Forage quality (4.56), and the closely related area of forage intakes / grass utilisation (4.53) emerged as the highest priority research areas within the feed efficiency / nutrition topic (fig. 10), followed by efficient concentrate use, all of which are highly relevant research priorities. Again noteworthy, and consistent with findings detailed for Q3, is the fact that GHG emissions and nutrition emerged with the lowest mean score (3.27) in this category.

Q5. Importance of research areas within the “fertility” topic.

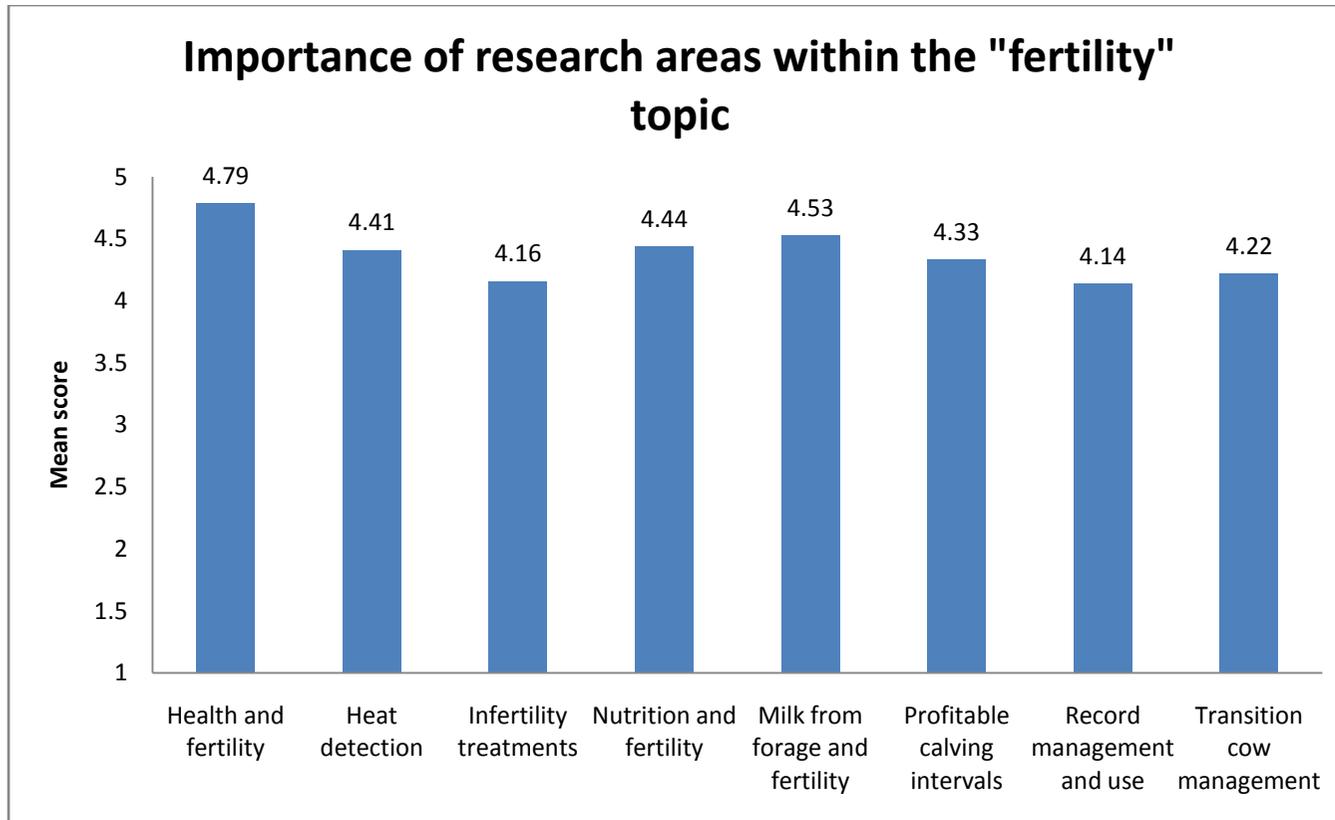


Figure 11. Importance of research areas within the “fertility” topic.

Indicating the importance with which the fertility topic was considered, each of the research areas within this topic had a mean score greater than 4 (fig. 11). The area of health and fertility emerged with the highest mean score (4.79), followed by milk from forage and fertility (4.53), with nutrition and fertility (4.44), and heat detection (4.41) also scoring highly.

Q6. Importance of research areas within the “genetics /genomics” topic.

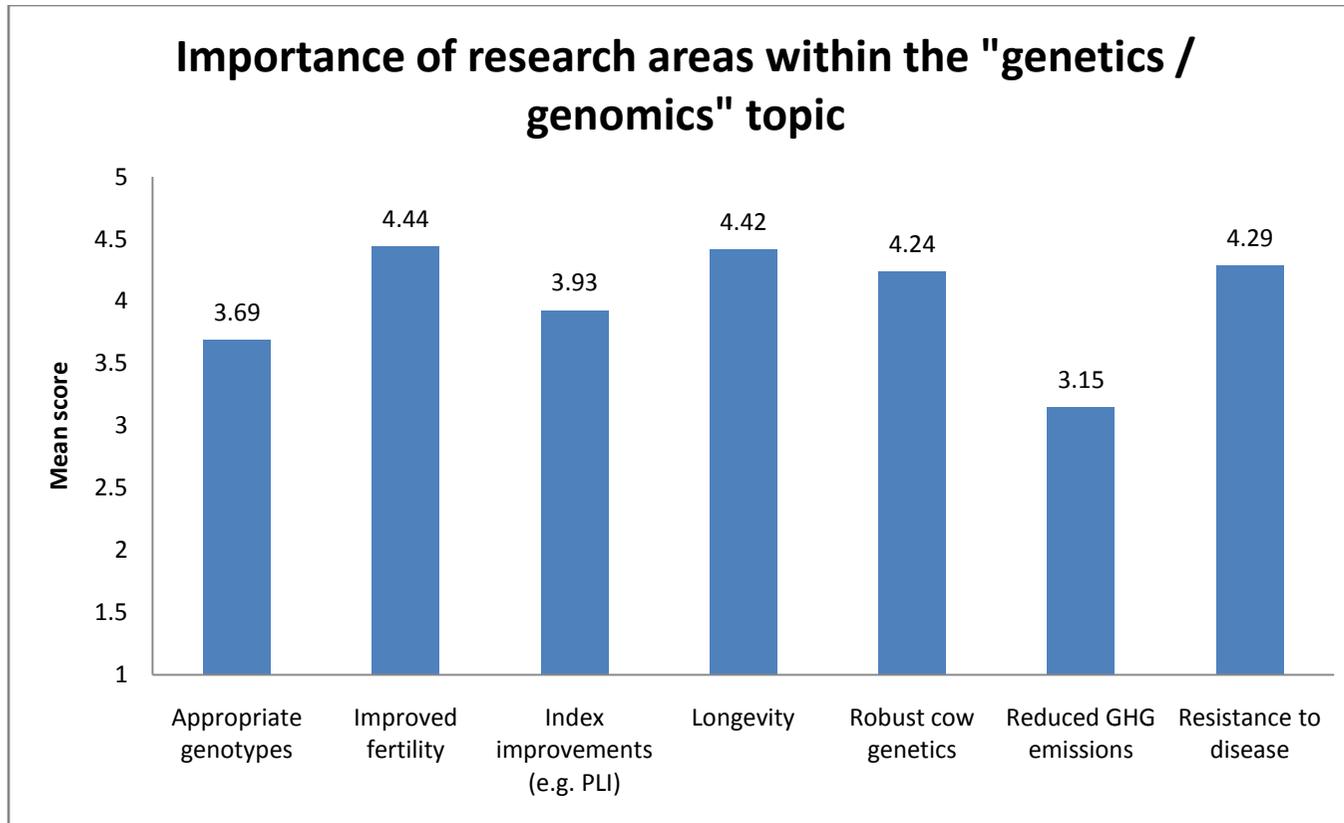


Figure 12. Importance of research areas within the “genetics / genomics” topic.

Four of the seven research areas had a mean score greater than 4, indicating the importance with which they were viewed (fig. 12), with improved fertility (4.44) and longevity (4.42) scoring highest. As is emerging as a common theme, reduced GHG emissions had the lowest mean score (3.15).

Q7. Importance of research areas within the “grassland management” topic.

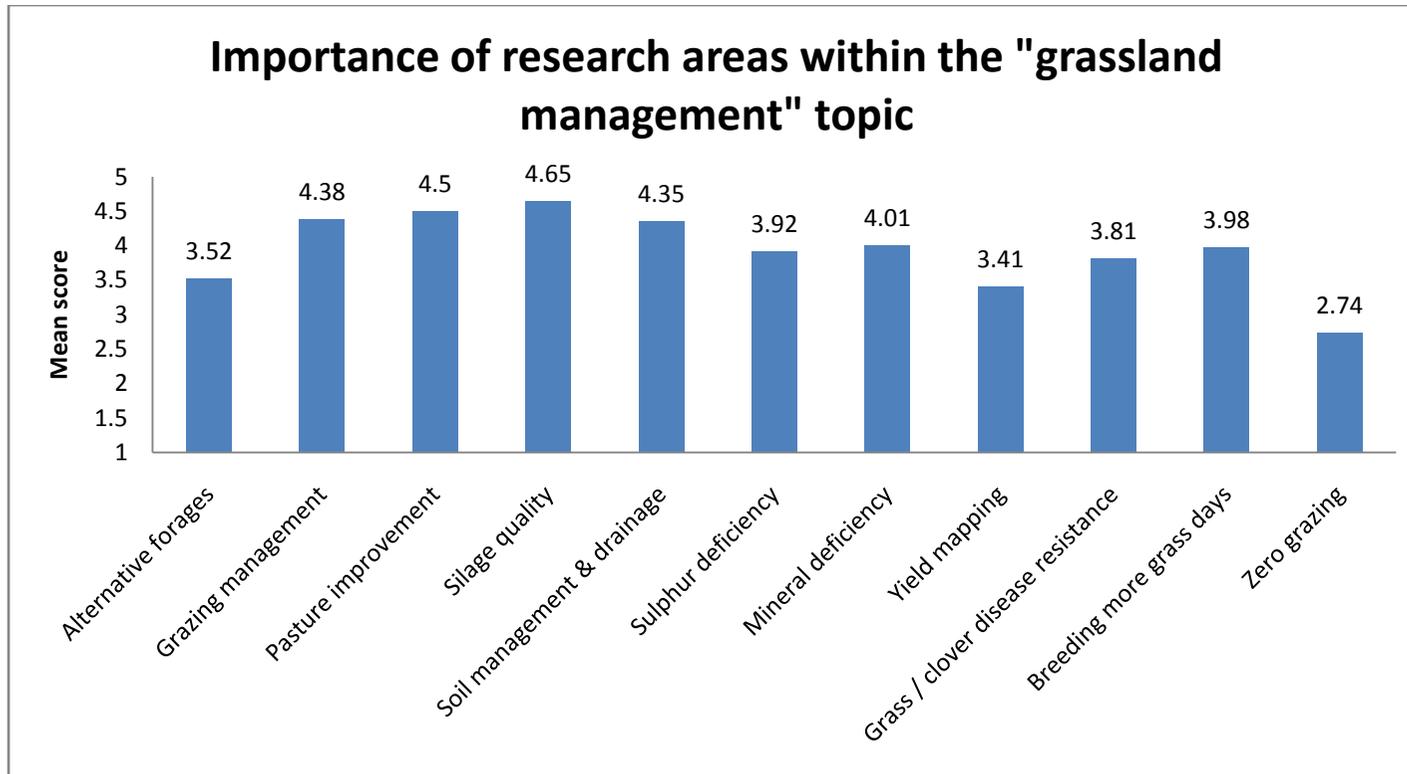


Figure 13. Importance of research areas within the “grassland management” topic.

Five of the eleven research areas in this topic were viewed with importance as evidenced by a score greater than 4 (fig. 13), with silage quality having the highest mean score (4.65), followed by pasture improvement (4.50). Important information also emerged regarding opinions on zero grazing, an issue which has been highly topical recently. Somewhat unexpectedly this emerged with the lowest score of the entire survey (2.74).

Q8. Importance of research areas within the “housing” topic.

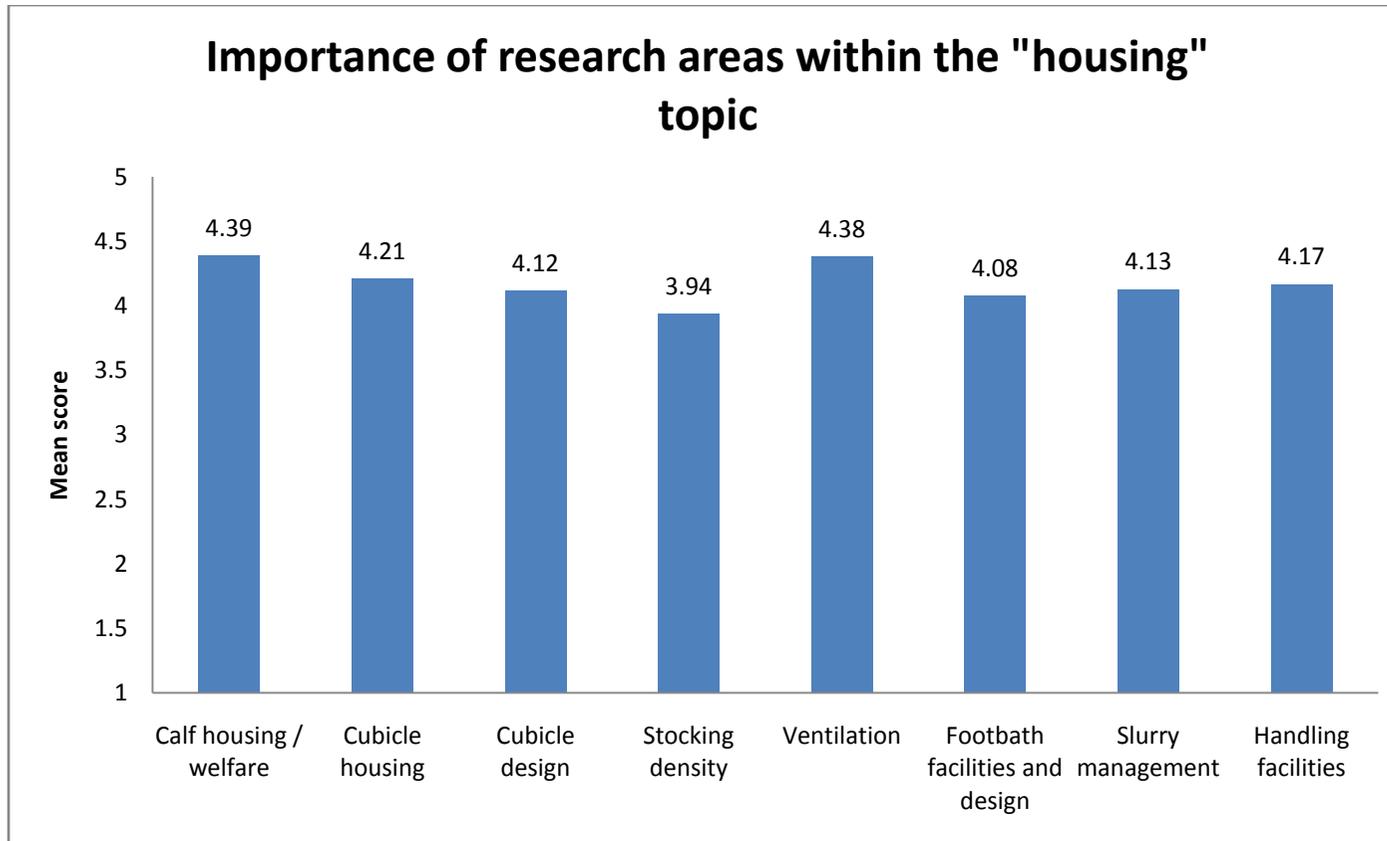


Figure 14. Importance of research areas within the “housing” topic.

Each of the research areas within the housing topic were viewed as important (fig.14), with little variation between them, although calf housing / welfare (4.39) and ventilation (4.38) emerged with the greatest mean scores.

Q9. Importance of research areas within the “milk quality” topic.

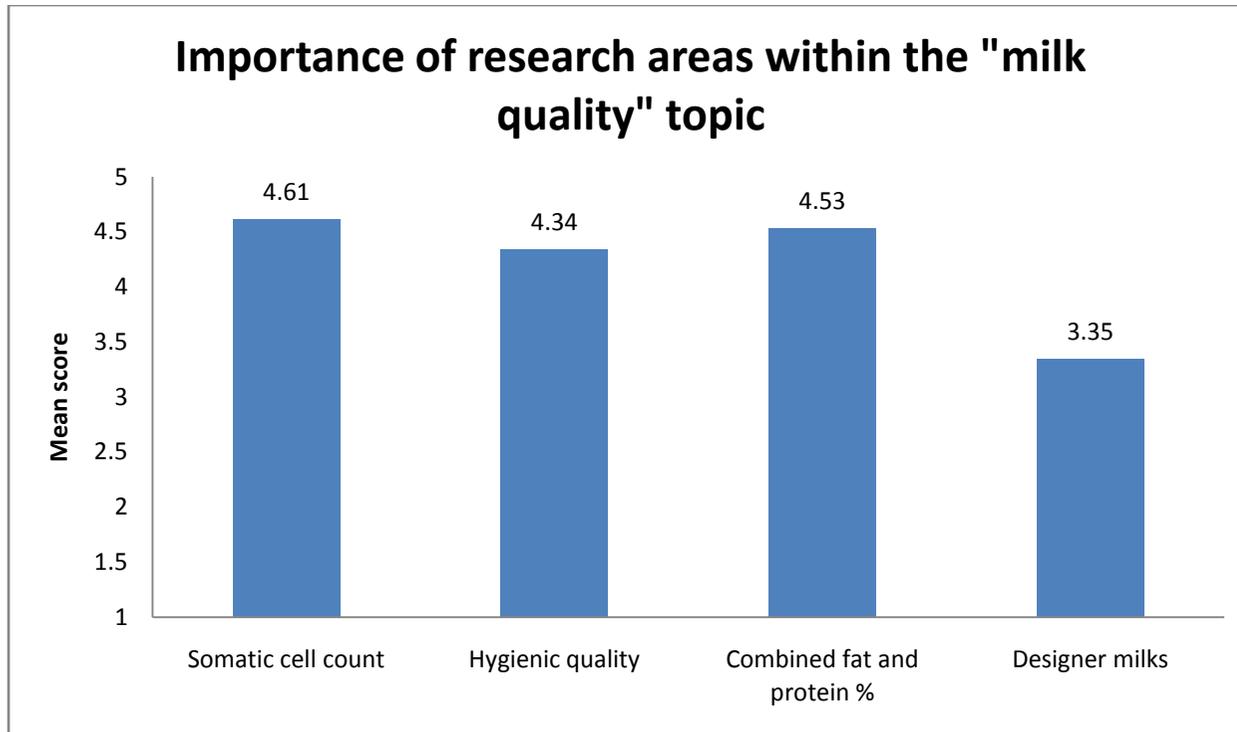


Figure 15.Importance of research areas within the “milk quality” topic.

Three of the four research areas within this topic were viewed as important (fig. 15); somatic cell count (4.61), combined fat and protein % (4.53), hygienic quality (4.34), while designer milk was viewed with less importance (3.35).

Q10. Importance of research areas within the “production systems” topic.

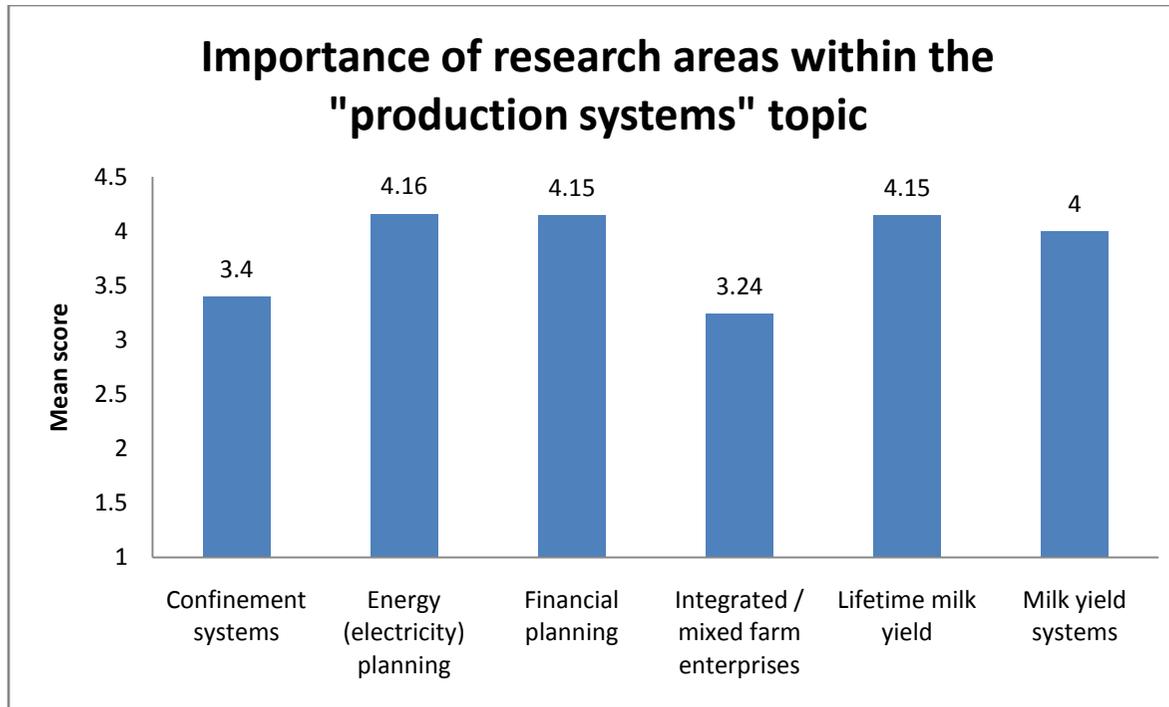


Figure 16. Importance of research areas within the “production systems” topic.

Within this topic, three research areas had a score greater than 4 (fig. 16); energy (electricity) efficiency (4.16), financial planning (4.15), and lifetime milk yield (4.15).

Q11. Importance of research areas within the “replacement rearing” topic.

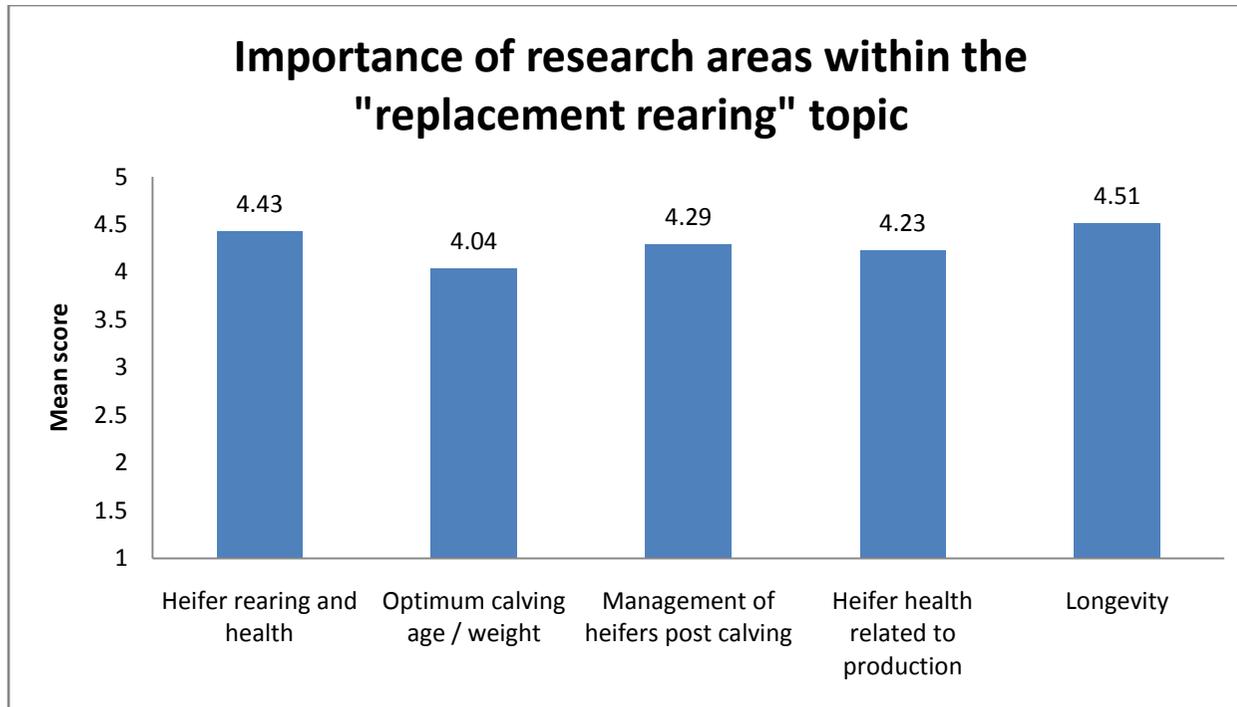


Figure 17. Importance of research areas within the “replacement rearing” topic.

Each of the research areas within this topic had a score greater than 4, indicating they were viewed as being important (fig. 17). There was little variation among the scores of the 5 areas, although longevity (4.51) and heifer rearing and health (4.43) emerged with the highest scores.

Future research priorities for the NI dairy sector

Q12. Participants were asked to rate how important a number of research areas would be in 5-10 years’ time (from 1 = very unimportant to 5 = very important).

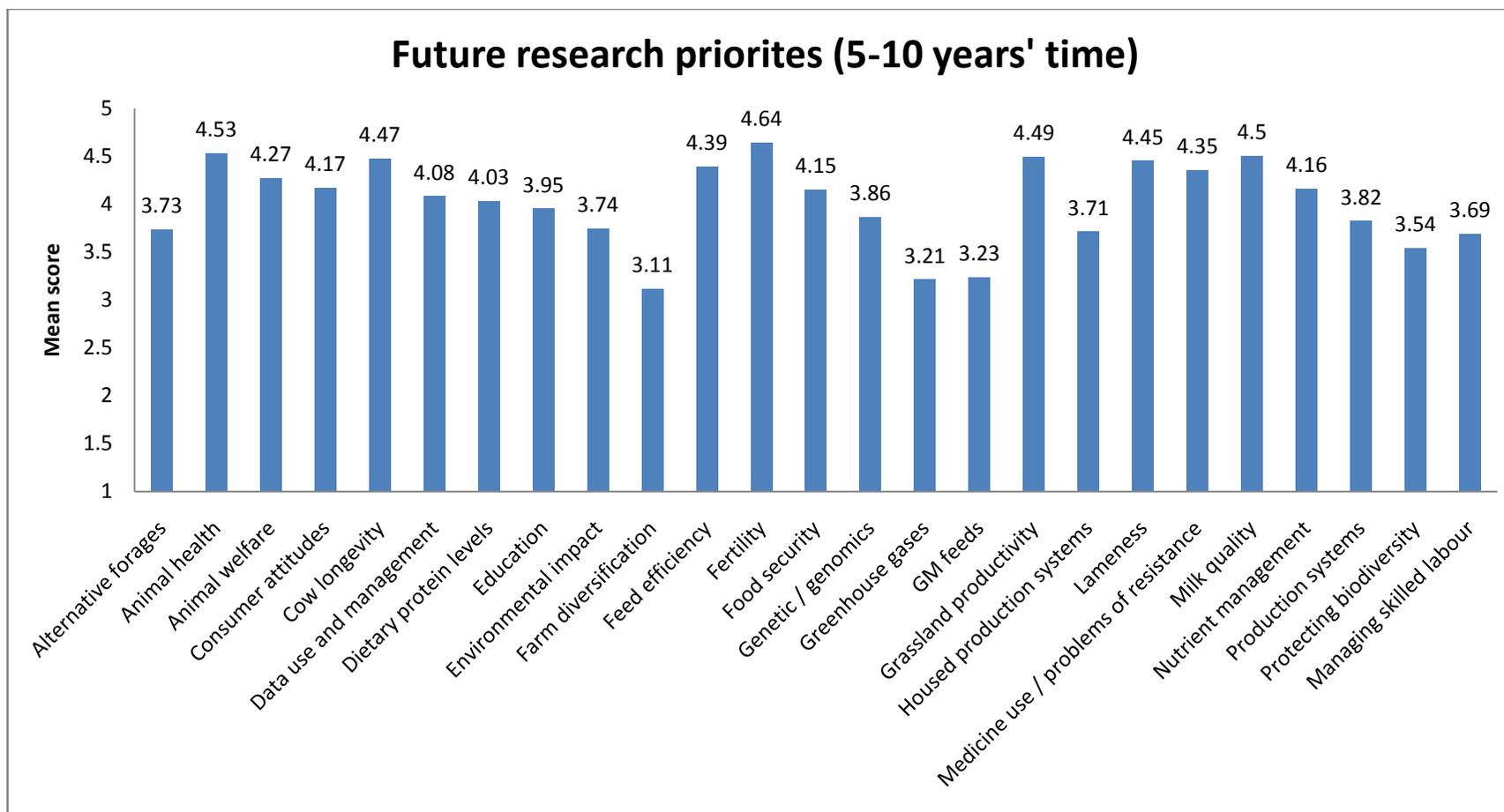


Figure 18. Future research priorities (5-10 years' time).

Consistent with results for current research priorities, farmers' viewed fertility (fig. 18) as still being of the highest research priority in 5-10 years' time (4.64). Also, in a similar pattern to previous results, greenhouse gases was not viewed as a priority research area (3.21), while the topic of farm diversification emerged with the lowest score (3.11), perhaps unsurprising if farmers are focussed on specifically enhancing dairy performance. GM feeds also emerged amongst the lowest scorers (3.23), perhaps mirroring sceptical opinions of the wider public. Other notable

areas receiving a score greater than 4 included; animal health (4.53), animal welfare (4.27), cow longevity (4.47), feed efficiency (4.39), lameness (4.45), medicine use / problems of resistance (4.35), milk quality (4.50), and grassland productivity (4.49), which interestingly scored above housed production systems (3.71).

Communication of research findings

Participants were asked to rate the effectiveness (1 = very ineffective to 5 = very effective) of a number of knowledge transfer methods.

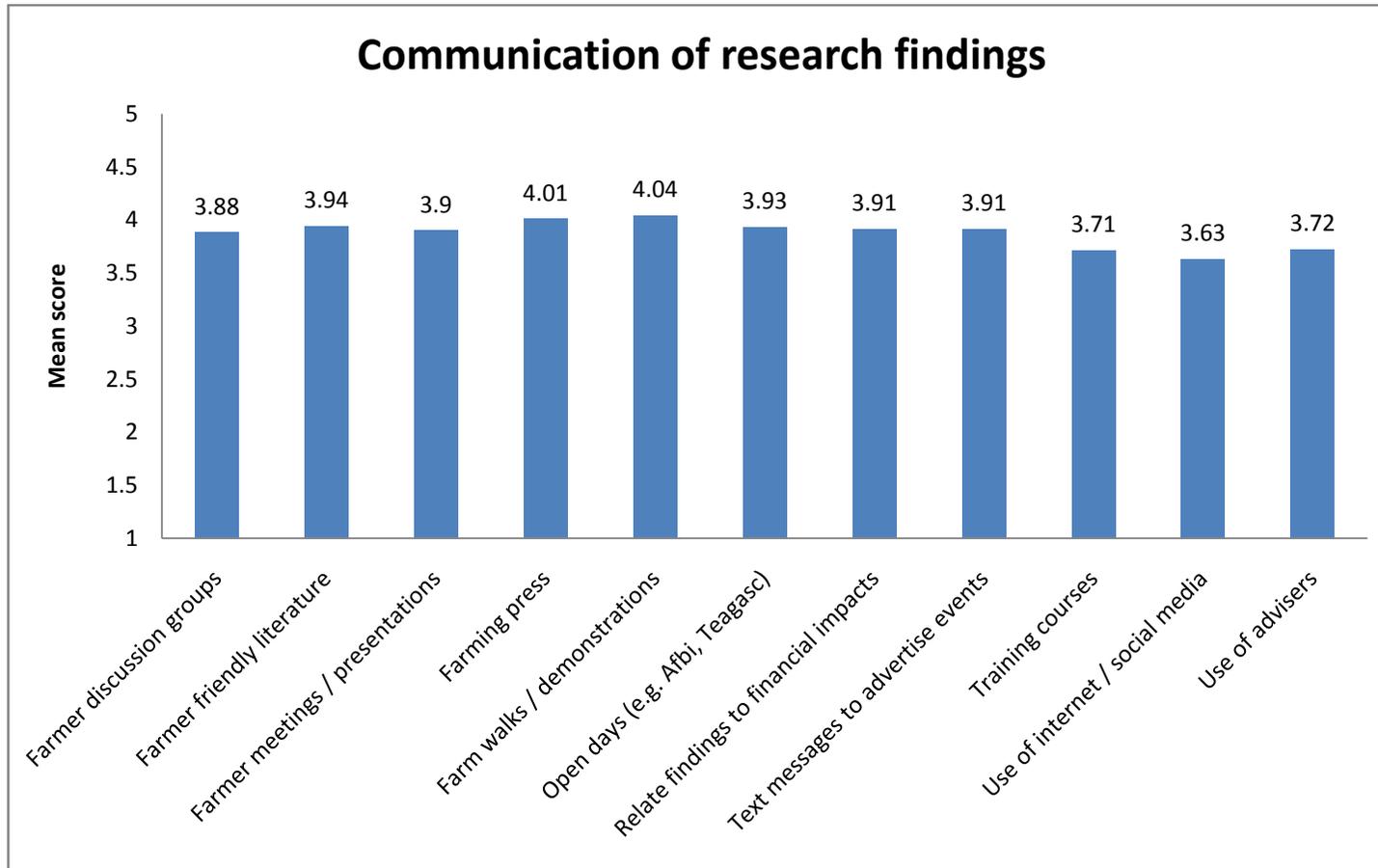


Figure 19. Methods of knowledge transfer.

It is interesting to note that the mean likert scores for the various methods of knowledge transfer were generally not as high as those reported for the majority of research topics, with only two of the eleven options scoring greater than 4 (fig. 19), a score indicative of effective knowledge transfer. This likely reflects the well known challenges of communicating research findings to a wider audience. Of the methods examined, farm walks / demonstrations had the highest mean score (4.04), followed by the farming press (4.01), with the use of internet / social media scoring lowest (3.63), perhaps reflecting the age profile of respondents.

Conclusions

- Concerning the farm data, it is interesting to note that only 5% of respondents reported the use of total confinement and zero grazing, with the majority not doing so at present and not considering it as an option.
- Regarding the scoring of research topics, it is noteworthy that the likert scores were generally high, indicating farmers viewed them as important areas for consideration. Exceptions to this and receiving lower scores were topics concerning the environment, greenhouse gases, and zero grazing, with the latter issue receiving the lowest score of all the research areas surveyed. Also, indicative of the challenges of effective knowledge transfer, the options offered had lower scores on a 5 point scale than for the questions gauging opinions on research topics.
- Top three broad current research areas identified; fertility, animal health and welfare, feed efficiency / nutrition.
- Lowest scoring broad current research area identified; environmental impact / sustainability and further investigation as to why this is the case would be warranted.
- Top research areas within top three broad topics. (1) Fertility; health and fertility, milk from forage and fertility, nutrition and fertility, and heat detection. (2) Animal health and welfare; calf health, mastitis, infectious disease, longevity, lameness. (3) Feed efficiency / nutrition; forage quality, forage intakes / grass utilisation, efficient concentrate use.
- Top future research priorities identified; fertility, animal health, animal welfare, cow longevity, feed efficiency, lameness, medicine use / problems of resistance, milk quality, and grassland productivity.
- Knowledge transfer methods: all scored similarly indicating that a range of methods is necessary for the effective communication of research findings.