Consumers’ Preferences Toward Techniques for Improving Manual Catching of Poultry

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ABSTRACT Growing interest in ameliorating animal welfare has prompted numerous studies that compare various aspects of manual and mechanical catching. In general, mechanical catching has been adopted as a realistic alternative for manual catching. The success of a catching machine as an alternative for manual catching does not only depend on its practical applicability, but also on its acceptance by “the general public.” In the history of technological change, public perception of new technologies has often been ambivalent. Against this background, it is important to know how consumers perceive the production methods. This paper provides an evaluation of the preferences for catching methods by “society” to investigate whether there is a shift in preference due to the confrontation with video segments and the potential effect of awareness and importance attached to animal welfare on preference. Data were gathered through a questionnaire-based survey, including 450 respondents, performed in Belgium. For this study, the data indicated that when subjects were provided information concerning catching methods of broilers, they liked the technology much more. However, for those respondents without prior awareness of both catching methods or with high importance attached to animal welfare, giving information could not convince them of the advantage of using a mechanical catching machine. It is obvious that preference varies with the awareness and experience of the respondents. Future research should move forward from simple assessments of consumer concerns about the technologies and focus more directly on questions and issues related to the consumer’s expected bottlenecks of these technologies. In this way, working at a better understanding can directly influence the acceptance of these technologies.

Key words: catching poultry, animal welfare, consumer, perception, survey

INTRODUCTION

Animal welfare is an issue of increasing significance for European consumers and individuals (Bornett et al., 2003), especially for the pork and poultry industry (Verbeke, 2001). Because consumers are the end-users, their opinion and beliefs about farm animal management are to be taken into account when improving current or developing new animal husbandry practices.

Broiler production was one of the first livestock sectors to industrialize, with increases in the scale of production and mechanized production processes. Almost every aspect of broiler production has been automated, except the catching process (Lacy and Czarick, 1998). In most European countries, broilers are currently still caught and loaded into cages entirely by hand. Broilers are caught by the leg, inverted, and carried by a catcher with 3 or 4 birds in each hand at a rate of 1,000 to 1,300 birds per hour (Bayliss and Hinton, 1990). Handling by humans may affect animal welfare and carcass quality (European Commission, 2000).

Attempts to reduce injuries and stress associated with handling poultry have been the subject of many studies. These studies urged further work into changes in handling procedures, including possible mechanical harvesting (Kannan and Mench, 1996). In these studies, mostly 3 aspects of the problematic nature of harvesting broilers are investigated. The reached product quality and the welfare of the birds are examined, and often a cost-benefit analysis is performed. However, a fourth crucial pillar, societal acceptability, is mostly not taken into account. As a result, nothing is known about public attitudes toward new technologies such as catching machines.

Experiences from previous studies (Nijdam et al., 2005; Delezie et al., 2006) indicate that no significant differences were found between manual and mechanical catching for meat quality and stress level of the broilers. However,
the success of the catching machine is not only dependent on its technological perfection and practical applicability, but also on its acceptance by the general public. In the specific case of mechanical broiler catching, animal welfare can be expected to be an important aspect for public acceptance of the technology. When animal welfare issues come into play, husbandry techniques that do not meet with the approval of consumers are seriously at risk for not succeeding commercially (Frewer et al., 2005). Ultimately, what is the sense of developing a harvester machine if its use would not be accepted or the technology not be preferred by consumers?

Framework and Objectives

Although many consumers have a low degree of factual knowledge about current agricultural practice, most of them may have a substantial degree of subjective or perceived knowledge based on specific beliefs, which mainly results from mass-media coverage of agricultural practices (Verbeke et al., 2005). Exposure to a particular message should yield awareness; it is likely to shape beliefs and perception and may cause a shift from a preexposure preference (e.g., for a particular catching method in this case) into a postexposure preference. Consumers’ preference before exposure to a particular message can be called “preexposure preference” (i.e., preference based on the image or beliefs that consumers hold without being explicitly informed or confronted with the issue at hand). Preference after exposure can be called “postexposure preference.” Furthermore, the impact of being exposed to information is likely to differ depending on individual’s previous awareness of an issue and on their related interest in knowing more about it (Verbeke, 2005). The issue at hand in this particular case is the catching method as a part of poultry production practice. The only contact most people have with technological innovations such as a catching machine is through mass media such as magazines or television or word of mouth from other people. Therefore, in this study, exposure was realized through confronting people with different video segments of catching methods.

Farmers mostly relate good animal welfare with animal health and economic performance criteria, whereas many consumers are more concerned about the rearing conditions that they perceive to be unnatural and damaging to the welfare of the animals. Two views (or perceptions) toward animal welfare can be proposed (De Tavernier and Decuyper, 2001): an anthropocentric view and a zoocentric view. People holding an anthropocentric view believe only human beings have moral status, which means that humans have no direct moral responsibilities toward animals, which justifies using animals as objects for human ends. It is the view of people who say that as long as the animal is not ill, as long as it grows and reproduces, it has a good welfare. The concept of animal welfare fitting with the zoocentric view is a concept in which sentient animals are perceived as equal to humans (e.g., in their ability to feel pain or suffer), and well-being involves control of pain and suffering and allowing the animals to live their lives in a way that suits their biological nature. For those people, it is not a choice to be kind to animals; it is our moral duty (Verhoog, 1992). Most people, however, are situated on a continuum between both views and do not fall distinctly into one or the other extreme group. Most likely, an individual’s view on animal welfare will associate with their level of concern or personal relevance (Zaichkowsky, 1985) attached to animal welfare. Furthermore, importance attached to animal welfare usually acts as a motivational force that influences decision-making variables such as information processing during and after exposure (Verbeke and Vackier, 2004).

Finally, the impact of exposure to mechanical catching methods is likely to depend on sociodemographic characteristics, such as age, gender, involvement with agriculture, and place of residence (Hughes, 1995). For instance, urban and rural consumers were shown to differ in their beliefs regarding meat production (McEarchern and Schroeder, 2002).

The objectives of this research were 3-fold. The first objective was to assess society’s preference toward a particular catching method for poultry. The second objective was to evaluate shifts in an individual’s preferences for catching methods after being exposed to video segments showing manual and mechanical poultry catching practices. The hypothesis was that exposure to the method influences the beliefs and preference of society about this new technology. The third objective of this study was to assess differences among respondents based on their individual profile. The focus was on 2 potential determinants of consumer preference, namely awareness about the catching of broilers and importance attached to animal welfare.

MATERIALS AND METHODS

Quantitative data were gathered through a questionnaire-based survey with individuals in Belgium. The survey, including n = 450 respondents, was performed during spring 2005. A nonprobability convenience-sampling procedure was used for respondent selection (Malhotra, 2004). Although this nonprobability sampling method does not strictly allow generalizing to the overall population, it should be noted that a wide variety of sociodemographic characteristics were obtained in the final sample (Table 1). Gender was equally spread between men and women, and the age of participants varied from 18 to 70 yr (mean age was 30 yr). The sample also included respondents from different locations and education levels. Almost all respondents were poultry meat consumers. Half of the questioned persons ate poultry meat once a week, 19% more than once a week, 25% less than once a week, and 5% never consumed poultry meat.

Structure of the Questionnaire

An experimental study design was used to assess individual’s preference for catching method before and after
exposure to video segments of the catching methods. The exposure experiment consisted of showing video images of the manual catching method and of 2 catching machines (mechanical catching methods) to each respondent. For the mechanical catching methods, video segments of 2 different catching machines were shown: the Chicken Cat Harvester (CCH) and the Super Apollo (SA), which mainly differ in the way broilers are gathered. The CCH has a collecting unit in the front, containing 3 rotating, hydraulically driven cylinders. The surface of the cylinders is covered with long, flexible rubber fingers, which force the broilers onto the conveyor belt. The SA has a frontal, completely automated gathering system. A 6-m wide loading platform catches the birds, and another conveyor belt covered with rubber fingers takes the birds to a loading unit at the rear of the machine. The 3 video segments (manual catching, the CCH and the SA) were shown in random order so as to avoid possible effects of video segment sequence. Information provision was limited to showing video images. No further verbal or written information about the catching methods was provided.

To gain information about an individual’s preexposure and postexposure preference, a questionnaire was designed that included 3 sections. In the first section of the questionnaire, respondents were asked to indicate on a nominal scale which poultry catching method they preferred, first before exposure and repeated after exposure to the video segments. After exposure to the video segments, they had to choose twice, once among manual, mechanical (CCH), or no preference and once among manual, mechanical (SA), or no preference. In the second section of the questionnaire, respondents were asked to indicate whether they had any involvement with agriculture, and, if so, to which sector this involvement was related. Participants were also asked if they found it “important to be informed about a catching method,” if they “are interested in this knowledge” and if they know “the way broilers are caught manually or mechanically.” Respondents were asked to score the first 2 questions on an interval scale ranging from 1 to 5. Whereas the first 2 items were included to measure interest in knowing more about poultry catching methods, the latter was included as a proxy for awareness of poultry catching methods.

Third, 12 items focusing on animal welfare were developed from existing literature. The questionnaire did not include items that covered all aspects of animal welfare but only those focusing on attitude toward birds and consumer perceptions of welfare vs. no welfare. Responses were made on 5-point Likert scales ranging from “totally disagree” to “totally agree.” The items are presented in Table 2. To measure importance attached to animal welfare, 4 items related to the perceived importance of animal welfare were added. The statements were “animal welfare is an important topic in today’s society,” “there is insufficient attention to animal welfare,” “how important is animal welfare,” and “the traffic problem is less important than animal welfare.” These items were also scored on a 5-point scale.

Finally, the questionnaire included relevant standard sociodemographic characteristics such as age, gender, education, and living environment, as presented in Table 1. Additional items focusing on consumer awareness and understanding of obstacles of both catching methods were also included in the questionnaire, but these are not presented in this article.

Statistical Analysis

The questionnaire was pretested, modified, and refined before starting the fieldwork. After editing and coding the questionnaire, the data were analyzed using SPSS release 12.0 for Windows (SPSS Inc., Chicago, 2003). The analysis includes exploratory factor analysis using principal component analysis, internal reliability consistency analysis using Cronbach’s \( \alpha \), cross-tabulation with \( \chi^2 \) statistics for testing associations among categorical variables, and independent sample t-tests for comparison of mean scores. Null hypothesis was rejected at the 5% or lower level of significance.

RESULTS AND DISCUSSION

Individual’s Perception and Choice of a Particular Catching Method

Results from this study show that a dramatic shift occurred between preexposure and postexposure preferences. Before video segments of catching methods were shown, more than half (65%) of the respondents claimed to have no preference for 1 of the catching methods. About 18% of the sample indicated that they preferred manual catching, whereas in 17% of the cases, mechanical catch-
Table 2. Factor analysis of the items about animal welfare (factor loadings from principle-components analysis)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoocentric dimension ($\alpha = 0.8$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animals ought not to be made to suffer</td>
<td>0.750</td>
<td>—</td>
</tr>
<tr>
<td>Government has to impose standards of animal welfare</td>
<td>0.749</td>
<td>—</td>
</tr>
<tr>
<td>I will pay more for animal-friendly produced products</td>
<td>0.722</td>
<td>—</td>
</tr>
<tr>
<td>Animals must be able to practice their natural behavior</td>
<td>0.656</td>
<td>—</td>
</tr>
<tr>
<td>Animals may be hurt if it leads to an economical advantage</td>
<td>0.557</td>
<td>—</td>
</tr>
<tr>
<td>Anthropocentric dimension ($\alpha = 0.83$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slaughtering for meat production is acceptable</td>
<td>—</td>
<td>0.763</td>
</tr>
<tr>
<td>Production of milk and meat is acceptable</td>
<td>—</td>
<td>0.727</td>
</tr>
<tr>
<td>Not allowing the use of animals for human purpose</td>
<td>—</td>
<td>0.717</td>
</tr>
<tr>
<td>Selection on product characteristics is acceptable</td>
<td>—</td>
<td>0.678</td>
</tr>
<tr>
<td>Animals can be used as laboratory animals</td>
<td>—</td>
<td>0.662</td>
</tr>
<tr>
<td>Human and animals are equal</td>
<td>—</td>
<td>0.620</td>
</tr>
<tr>
<td>There is a distinction between human and animals</td>
<td>—</td>
<td>0.538</td>
</tr>
<tr>
<td>Mean value $\pm$ SD</td>
<td>3.51 $\pm$ 0.81</td>
<td>4.12 $\pm$ 0.75</td>
</tr>
</tbody>
</table>

*aItems reversely scaled.

ing was preferred. Hence, only 35% had a preexposure preference for a particular catching method, whereas after exposure, this percentage was increased to about 65%. This suggests that lack of information and understanding about agricultural practices causes consumers to be skeptical about some methods and therefore have no pronounced preference.

Respondents with a preexposure preference for mechanical catching did not change preference after video segments were shown, which suggests that those respondents were well informed and convinced of the benefits of mechanical catching. This was not the case for the respondents with a manual or no preference preexposure. After being confronted with video segments of the CCH, 63, 76, and 35% of the respondents kept their preexposure choice for manual, mechanical, or no preference, respectively. For the SA, these percentages were 50, 83, and 33% (Table 3). Therefore, only 50 to 60% of the respondents with a manual preexposure preference stuck to their opinion. This means that a lot of those respondents were no longer convinced of their manual choice after additional information of both catching methods was given and switched their preexposure preference from manual toward mechanical or no preference. The greater half within the group with no specific preexposure preference also changed their perception and had a postexposure preference for 1 of both catching methods.

When combining the postexposure preferences for both machines, for the CCH as well as for the SA, 9 different groups could be distinguished. The different options of choices can be interpreted through inspection of Table 4. The postexposure preference among manual catching, the CCH, or no preference, combined with the postexposure preference among manual catching, the SA, or no preference will be further called the “combined postexposure preference.” Taking into account both catching machines (the CCH as well as the SA), combined postexposure preferences were almost equally distributed among manual catching (26%), mechanical catching (26%), or no preference (23%). Some people had a different opinion concerning both catching machines: 10% preferred manual catching over the first catching machine but mechanical catching over the second one; 4% also preferred manual catching over the first machine but had no preference in case of the second one. However, if there was a preference for the CCH, the second catching machine, the

Table 3. Impact of the video segments (manual catching, the Chicken Cat Harvester (CCH) and the Super Apollo (SA)) on the shift in preference (%) for a catching method (preexposure preference compared with postexposure preference)

<table>
<thead>
<tr>
<th>Preexposure preference</th>
<th>Postexposure preference (CCH; %)</th>
<th>Postexposure preference (SA; %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item1</td>
<td>Manual (%)</td>
<td>Mechanical (%)</td>
</tr>
<tr>
<td>Preexposure preference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual (18%)</td>
<td>63</td>
<td>10</td>
</tr>
<tr>
<td>Mechanical (17%)</td>
<td>9</td>
<td>76</td>
</tr>
<tr>
<td>No preference (65%)</td>
<td>43</td>
<td>22</td>
</tr>
</tbody>
</table>

1Preexposure preference = consumer’s preference before video segments of the different catching methods were shown; postexposure preference = consumer’s preference after video segments of the different catching methods were shown.
that the 3 item scores could be merged into a single con-
bach’s interitem correlation, which was translated in a Cron-
variance. The 3 interest items all had a significant positive
ising at 0.75 or higher and accounting for 62.5% of the total
sulted in a single factor solution with all 3 variables load-
their preference were examined.
ods, and their sociodemographic characteristics, includ-
and confidence in the production system. Therefore, the
with a decreasing knowledge of production processes
distance, physical as well as mental, which is associated
producer and the public is widening due to a growing
beke and Viaene (1999) stated that the gap between the
consumer negativity is due to an alienation of consumers
agricultural production methods? In the literature, reliable
determinants of negative attitudes toward modern ag-
logies applied to animals, and familiar technologies are more


SA, was often also preferred, but this was not the case in reverse order (Table 4). Therefore, the largest group of the respondents (45%) regarded public acceptance of the SA as less unproblematic in relation with animal welfare as compared with the CCH. The main difference between both catching machines is the way broilers are picked up from the ground. Therefore, these results indicate that consumers prefer the collecting unit of the SA: a gathering platform instead of rotating cylinders to pick up broilers (collecting unit of the CCH).

Impact of Awareness on Perception about the Catching of Broilers

According to other consumer surveys, there is a wide variability of the acceptance of agricultural technologies. Following von Alvensleben and Steffens (1990), technologies applied to plants are more accepted than technologies applied to animals, and familiar technologies are more accepted than new technologies. However, what are the determinants of negative attitudes toward modern agricultural production methods? In the literature, reliable results on causality are rare. The hypothesis that consumer negativity is due to an alienation of consumers from agricultural production (von Alvensleben, 1998) is confirmed by our results. Korthals (2001) as well as Verbeke and Viaene (1999) stated that the gap between the producer and the public is widening due to a growing distance, physical as well as mental, which is associated with a decreasing knowledge of production processes and confidence in the production system. Therefore, the effects of consumer interest, awareness of catching methods, and their sociodemographic characteristics, including their involvement with agriculture and poultry, on their preference were examined.

Factor analysis of the 3 items measuring interest resulted in a single factor solution with all 3 variables loading at 0.75 or higher and accounting for 62.5% of the total variance. The 3 interest items all had a significant positive interitem correlation, which was translated in a Cronbach’s α internal reliability coefficient of 0.70, suggesting that the 3 item scores could be merged into a single con-
struct score. The mean value of interest in knowing more about catching broilers was 3.1 ± 0.93 on the 5-point scale.

Three substantial groups could be distinguished based on claimed awareness about poultry catching. People in the first group reported to be only acquainted with the manual catching method (n = 179), whereas both catching methods were known by the respondents in the second group (n = 75). The third and largest group contained respondents with no previous awareness of any poultry catching method (n = 192). Finally, there were 4 individuals who indicated to be only aware of mechanical catching. Because this group was not substantial enough to draw statistical inference, it was not taken into account in further analyses. Associations between consumers’ awareness and interest, their involvement with agriculture, and sociodemographic variables were assessed through cross-tabulations and the χ^2 statistics (Table 5).

Involvement with agriculture (χ^2 = 150.8; P < 0.01) and involvement with the poultry sector in particular (χ^2 = 217.03; P < 0.01) were significantly associated with awareness about catching methods. People involved with agriculture reported relatively high awareness of manual catching (59.2%) or both catching methods (29.4%), and individuals involved with the poultry sector had the highest awareness about the catching of broilers. On the other hand, people without any involvement with agriculture did not have any awareness about the catching of broilers and certainly not about mechanical catching (Table 5).

Significant associations between awareness and sociodemographic variables such as gender, living environment, and being vegetarian were discovered. Male consumers (χ^2 = 28.22; P < 0.0001), people living in rural areas (χ^2 = 48.60; P < 0.0001), and people not being vegetari-an (χ^2 = 4.8; P = 0.05) had a higher awareness of the broiler catching methods. In general, urban residents, having no involvement with agriculture and the poultry sector in particular, had no previous awareness about both catching methods. Individuals without awareness of poultry catching methods (group 3) were significantly more interested in knowing more about this than individuals who had some awareness (F = 3.11; P < 0.05; Table 5). People living on the countryside and committed to

<table>
<thead>
<tr>
<th>Group</th>
<th>Mechanical (CCH)</th>
<th>No preference</th>
<th>Mechanical (SA)</th>
<th>No preference</th>
<th>Combined postexposure preference</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Manual/manual</td>
<td>117 (26%)</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>CCH/SA</td>
<td>118 (26%)</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>No preference/no preference</td>
<td>105 (23.5%)</td>
</tr>
<tr>
<td>4</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Manual/SA</td>
<td>45 (10%)</td>
</tr>
<tr>
<td>5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>No preference/no preference</td>
<td>19 (4%)</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>No preference/SA</td>
<td>31 (7%)</td>
</tr>
<tr>
<td>7</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>CCH/no preference</td>
<td>9 (2%)</td>
</tr>
<tr>
<td>8</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>CCH/manual</td>
<td>4 (1%)</td>
</tr>
<tr>
<td>9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>No preference/manual</td>
<td>2 (0.5%)</td>
</tr>
</tbody>
</table>

*Nine different groups could be distinguished. The postexposure preference for the respondents concerning the preference among manual catching, the CCH, or no preference, combined with the postexposure preference among manual catching, the SA, or no preference is the “combined postexposure preference” of the respondents. For each group, the number of respondents and the percentage is presented.*
on the most important choices, it can be stated that no
between awareness and preference (in the case of the SA, there was also a significant association
ferred manual catching and 31% had no preference. In
postexposure preference of respondents familiar with
ness chose manual catching. From consumers who
without prior awareness did not claim a particular postex-
ition before and after the video segments (Table 6). Table
“combined preferences.” Presenting all the combinations
should be confusing and too complicated. The other
groups were too small to draw valid conclusions.
A distinction could be made between 2 profiles of re-
the public to animal welfare and related issues to take
One thing is clear: Decisions about the structure of agriculture will have to
take expectations properly into account. One thing is clear: Decisions about the structure of agriculture will have to
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groups were too small to draw valid conclusions.

As indicated by the results of this study, preference for
a catching method was significantly influenced by the
level of awareness. For the CCH ($\chi^2 = 23.10; P = 0.001$),
the postexposure preference of respondents familiar with
manual catching was equally spread among the 3 options,
whereas 52% of respondents without preceding aware-
ness chose manual catching. From consumers who
claimed awareness of both catching methods, 42% preferred manual catching and 31% had no preference. In
in the SA, there was also a significant association
between awareness and preference ($\chi^2 = 29.49; P = 0.0001$); however, different results were obtained. The preference
of respondents familiar with manual catching was no
longer equally spread among the 3 options, but 53% of them chose mechanical catching after exposure. People
without prior awareness did not claim a particular postex-
posure preference. From those respondents aware of
mechanical catching, 53% indicated mechanical catching
as preference.

Significant effects between awareness and preferences
were also found if both postexposure preferences (the
preference concerning the CCH as well as concerning
the SA) were combined, resulting in 9 possible combinations,
as presented in Table 4 ($\chi^2 = 51.19; P = 0.001$). Focusing
on the most important choices, it can be stated that no
previous awareness of manual catching was associated
with higher preference for manual catching, whereas the
respondents with knowledge of this method preferred
mechanical catching. It is obvious that those respondents
knew from experience that manual catching might be
harmful for the welfare of broilers. Therefore, mechanical
catching was mainly chosen by respondents having
awareness of manual or both catching methods.

Analysis of the influence of awareness on the shift in
preference (preexposure compared with combined post-
exposure preference) revealed that a lack of knowledge
was mainly associated with a shift, and personal aware-
ness sometimes was insufficient to make the same deci-
sion before and after the video segments (Table 6). Table
6 only represents 3 combinations out of the 9 possible
“combined preferences.” Presenting all the combinations
would be confusing and too complicated. The other
groups were too small to draw valid conclusions.

A distinction could be made between 2 profiles of re-
respondents. The first group consisted of people with a
substantial degree of awareness about the catching meth-
ods, who, therefore, did not change their preference after
exposure. Out of the these respondents, 49, 75, and 26%
did not alter their preexposure preference for manual,
mechanical, or no preferred catching method, respect-
ively. The “unaltered manual preference respondents”
(49%) were found to have awareness of manual catching
(52%) or both methods (23%). Also, the unaltered mecha-
nical preference respondents (75%) reported a high aware-
ness of 1 or both catching methods (45% in both cases).
Clearly, this awareness of the catching methods was suf-
icient when making catching method decisions, and ex-
posure did not contribute meaningfully to change preex-
posure preference. A second group of respondents re-
ported a high knowledge of 1 or both catching methods,
however, due to exposure to the video segments, their
preferences changed. This group consisted of 2 sub-
groups: first, the respondents displaying a shift in pref-
erence from manual to mechanical catching (11%) or to no
preference (22%) and, second, respondents who changed

<table>
<thead>
<tr>
<th>Item</th>
<th>Group 1 (n = 179)</th>
<th>Group 2 (n = 75)</th>
<th>Group 3 (n = 192)</th>
<th>$\chi^2$ significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest (mean)</td>
<td>2.98a</td>
<td>2.98a</td>
<td>3.19a</td>
<td>F = 3.11*</td>
</tr>
<tr>
<td>Involvement with agriculture 2</td>
<td></td>
<td></td>
<td></td>
<td>$\chi^2 = 150.8**$</td>
</tr>
<tr>
<td>Yes (n = 202)</td>
<td>59.2</td>
<td>29.4</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>No (n = 248)</td>
<td>24.0</td>
<td>7.0</td>
<td>69.0</td>
<td></td>
</tr>
<tr>
<td>Involvement with the poultry sector 2</td>
<td></td>
<td></td>
<td></td>
<td>$\chi^2 = 217.03**$</td>
</tr>
<tr>
<td>Yes (n = 78)</td>
<td>47.5</td>
<td>50.0</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>No (n = 372)</td>
<td>39.2</td>
<td>8.8</td>
<td>52.0</td>
<td></td>
</tr>
</tbody>
</table>

*a,b*Scores in one row with a different superscript are significantly different (1-way ANOVA and post hoc Tukey’s multiple comparison test).

1Group 1 = respondents who were aware of manual catching before the survey; Group 2 = respondents who were aware of manual and mechanical catching before the survey; Group 3 = respondents who were not aware about the catching of broilers, neither about manual catching nor about mechanical catching.

2Percentage of respondents.

*P < 0.05; ** P < 0.01.
their preference from mechanical catching toward no preference (13%). Although they were aware of the way broilers were caught manually or manually and mechanically, those respondents changed their minds after exposure.

### Role of Personal Importance Attached to Animal Welfare

A second presupposition stated that negative attitudes toward new technologies could be explained by the fact that some consumers had already formed a negative opinion about the “overtechnologization” of agriculture and its potential threat to animal welfare. Therefore, consumer attitude toward animal welfare and its potential impact on the acceptance of the catching machine were investigated. In general, considerable concern about animal welfare was observed, confirming the fact that the welfare issue is considered to be very important (Verbeke and Viaene, 2000; European Commission, 2005).

The questions about perception of animal welfare with their respective factor loadings from exploratory factor analysis are presented in Table 2. Cronbach’s \( \alpha \) internal reliability coefficient confirmed the existence of 2 dimensions in consumers’ view on animal welfare: a zoocentric dimension (\( \alpha = 0.80 \)) and an anthropocentric dimension (\( \alpha = 0.83 \)). The average score of 3.51 ± 0.81 for the zoocentric dimension vs. 4.12 ± 0.75 for the anthropocentric dimension indicated that birds are more considered as useful instead of the equivalent to humans by the respondents in this study.

Respondents were also asked to assess their personal importance attached to animal welfare on Likert-type scales. The 4 “importance” items all had significant positive correlations \( (P < 0.001) \), with interitem correlations ranging from 0.44 to 0.56. Cronbach’s \( \alpha \) internal reliability coefficient was 0.80, suggesting that the separate items constitute 1 construct, which will be called “personal importance attached to animal welfare.” There were strong correlations between personal importance attached to animal welfare and the zoocentric dimension \( (r = 0.79, P < 0.01) \) and anthropocentric dimension \( (r = -0.62, P < 0.01; \) Table 7). The negative correlation coefficient means that the higher the relevance attached to animal welfare, the less people had an anthropocentric dimension (i.e., people...
with a high importance attached to animal welfare who consider humans and animals more as equal). The different opinion of respondents according the value of animals explains a different way of thinking about the use of animals but also about all processes associated with this use. These different views can be caused by differences of lifestyle (De Tavernier, 2005), which is confirmed by this research. Many sociodemographic variables had significant effects on consumer importance attached to animal welfare. It should be noticed that the welfare issue appeared to be more important for women (χ² = 39.25; P = 0.0001), people having no involvement with agriculture (χ² = 66.88; P = 0.0001), and people living in the city (χ² = 34.25; P = 0.0001). Those respondents had a higher preference for manual catching above the CCH, whereas for the SA, there was more uncertainty, indicated by an absence of preference for some respondents. Mechanical catching was more preferred by respondents with lower importance attached to animal welfare (Table 7). Therefore, it can be assumed that respondents who set great value on animal welfare have already formed a negative opinion about new technologies and mechanization and cannot be convinced of the opposite.

For this study, it can be concluded that when subjects are provided information concerning catching methods of broilers, they are more accepting of the technology. However, for those respondents without prior awareness of any of the catching methods or with high importance attached to animal welfare, video segments alone could not convince them of the advantage of using a mechanical catching machine. Therefore, awareness of the catching of broilers and attitude toward animal welfare have a high impact on the acceptance of new technologies. In this case, the assumption that the positive effect of information is greatest when people have little or no prior awareness does not hold, likely because those consumers have already formed a negative opinion about the over-technologization and overrate the manual working method.

Future research should move forward from simple assessments of consumer concerns about the technologies and begin to focus more directly on questions and issues related to the consumer’s expected bottlenecks of these technologies. Efforts to inform consumers should also be extended. In this way, a better understanding can be developed that directly influences the acceptance of these technologies and improves their likely success in tomorrow’s marketplace.

This study faced some limitations, which are related to the sampling procedure, more specifically, the fact that convenience sampling was used and that some sociodemographic groups were slightly overrepresented in the sample. This holds for younger individuals and people committed with agriculture, therefore, this sample was not representative for overall population. However, oversampling of involvement with agriculture was judged to be reasonable in this research, because the share of those respondents in the sample otherwise would be too small to draw statistical conclusions about the potential impact of awareness of poultry catching methods. Furthermore, as the respondents were only drawn from the Belgian population, results cannot be generalized to other regions of the world. The conclusion about what factors determine acceptance most likely hold in other regions as well. The degree to which these factors determine acceptance can differ and remains an empirical issue to be investigated in specific population groups apart from the Belgian situation.

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