Associations with rabbits and rabbit meat of three different ethnic groups in Stellenbosch, South Africa

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OPSOMMING

Die vraag kan gevra word of die produksie van konynvleis 'n lonende mikro-besigheid kan wees. Vir die verbruiker hou dit voordele in: dit verskaf 'n gesonde vleisalternatief weens die relatief lae vetinhoud, gunstige vetsuursamestelling en hoë proteïeninhoud. Terselfdertyd bied dit afwisseling op die spyskaart. Data oor die faktore wat die potensiële verbruik van konynvleis in Suid-Afrika beïnvloed, is nie beskikbaar nie. Ten spyte van allerlei soektogte op verskillende wetenskaplike databasisse, naamlik *EbscoHost, FSTA*, *ProQuest, Religion Index, Science Direct* en *Social Sciences Citation Index,* asook populêre soekenjins soos *Google,* is bykans geen literatuur gevind oor die assosiasies van individue met voedsel of met konyne en konynvleis nie, wel oor hulle houding jeens voedsel en hul persepsies van voedsel. Dit ly geen twyfel nie dat mense se assosiasies hul persepsies oor voedsel beïnvloed en, op die langtermyn, die aanvaarding van die produk op die mark. Derhalwe is die assosiasies met konyne en konynvleis ondersoek by drie etniese groepe, naamlik swart (n=101), wit (n=102) en bruin respondente (n=101) in Stellenbosch, Suid-Afrika. Daar is gebruik gemaak van 'n vooraf getoetste, gestruktureerde vraelys en daar word in die verslag oor vier kategorieë van vrae wat assosiasies met konyne en konynvleis ondersoek, gerapporteer, naamlik algemene gedagtes wat opkom by die respondent as die woord 'konynvleis' hom voordoen (oop vraag); beskrywings vir konynvleis ('n geslote vraag); landbouprodukte waarmee konynvleis geassosieer word (geslote vraag); en die vraag of bygelowe met konynvleis en konyne geassosieer word (geslote vraag) en, indien wel, is die respondente gevra om daarop uit te brei (oop vraag). Met behulp van chikwadraattoetse is vasgestel dat daar betekenisvolle verskille was tussen die verskillende etniese groepe in die verhouding van die response vir sekere (nie alle) assosiasies tot die getal response per etniese groep vir 'n bepaalde vraagkategorie.

Voorbeelde van sodanige betekenisvolle verskille is dat 'n oorgrote proporsie blanke respondente konyne met 'n oulike troeteldier ($p<0,01$) en met die troeteldierbedryf ($p<0,01$) geassosieer het, terwyl meer swartes en kleurlinge dit met vleis geassosieer het ($p<0,01$). Daar was betekenisvolle verskille in proporsie binne die etniese groepe vir hulle assosiasie van konyne met bygelowe. Meer swartes ($p<0,01$) het konyne met bygelowe geassosieer.

In die konteks van volhoubare voeding vir plattelandse ondervoede gemeenskappe kan 'n tuisindustrie met konyne 'n geleentheid bied om probleme met wanvoeding aan te spreek, veral as in ag geneem word dat dit die swart respondente is wat konyne die meeste met vleis geassosieer het. Daar is egter sekere teelrisiko's verbonde aan so 'n tuisnywerheid. Tensy sterk en geslaagde bemarkingsaksies geloods word, kan 'n mikro-besigheid wat daarop gemik is om konynvleis te bemark as 'n ekonomiese risiko gesien word.

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Acknowledgements
We are indebted to Mr Frikkie Calitz, Statitician, Agrimetric Division of Infruitec, Agricultural Research Council, Stellenbosch for his expertise with regard to the analysis of the data.

INTRODUCTION

A better understanding of the consumer's association with a product is very important because the success thereof is determined by its conformance to the needs of consumers (Dalle Zotte, 2002, Verbeke, 2001, Warriss, 2001:5). Consumer preference for rabbit meat is always ranked at a lower level when compared to other meats (Hoffmann *et al*, 1992). The negative perception about game meat, as mentioned in the Bezuidenhout report: Why SA consumers aren't game for venison (2001), namely that ignorance of the benefits associated with game meat may be a contributing factor towards limiting its consumption, may also apply to rabbit meat. Bezuidenhout's results indicated that most consumers showed great appreciation of game meat after being informed of its nutritional value when compared to other meats. Nyete, cited by Gittens (2000), stated that South Africans are not aware of the benefits of rabbit meat.

Knowledge and culture affect the intake of a particular food (Asp, 1999) and lack of knowledge and cultural habits may therefore negatively impact on rabbit consumption. Dalle Zotte (2002) also points out that its consumption relies heavily on cultural and religious beliefs, while Sonandi *et al* (1996) report that there are African beliefs, which forbid the consumption of rabbit meat.

Bush meat is the term used to describe meat obtained for consumption by means of illegal hunting or poaching. The fact that the availability of bush meat has diminished over the last couple of years (Lukefahr & Cheeke, 1990) has made a significant contribution to small-scale farming in many developing countries (Gittens, 2000). Rabbit-meat production is suitable for small-scale farming. This could meet the challenge of altering total food production to improve the balance of nutrients available to the population (Vorster & Hautvast, 2002:266). This is also an opportunity to address malnutrition, thereby improving food security and deriving economic benefits. However, Asp (1999:289) notes that households require 'familiar' food for their meals. 'Familiar' food implies set food-behaviour patterns: "liked foods are those that are familiar, considered pleasant, and are the ones eaten, thus food preferences predict consumption" (Asp, 1999:289). It goes without saying that familiar foods are more likely to be those foods more easily available, therefore the availability of the foods in the long run will also determine consumption.

Despite the fact that some consumers shy away from rabbit meat due to traditional eating habits influenced by culture, religion, age and price, rabbit meat has become a favourite among health-conscious consumers in other parts of the world (Dalle Zotte, 2002).

Therefore the purpose of this survey conducted in Stellenbosch, South Africa was to investigate the effect of ethnicity on the potential consumers' associations with rabbit meat. No research was found that investigated associations with food products, although many research papers have been published on perceptions and attitudes. It is hypothesised by the authors that such associations will predict marketing success: the more positive the associations, once they have been interpreted, the greater the potential for marketing success.

METHODOLOGY

Research design

A quantitative research approach was used because this best suited the aim of the study. The purpose of the survey was to investigate the effect of ethnicity on the potential consumers' associations with rabbit meat and beliefs surrounding rabbit meat in a town (Stellenbosch) in the Western Cape Province (Figure 1). The three ethnic groups investigated were blacks (Xhosa-speaking), whites and coloureds. The survey was conducted in one of the three official languages of the Western Cape: Xhosa, English and Afrikaans, depending of the language preference of the persons interviewed.

In order to meet the objective of this study the descriptive survey method was employed using a pre-tested, structured questionnaire.

Study population

The study population consisted of three ethnic groups (Xhosas, coloureds and whites) of different ages and various educational levels. A sample of 304 consumers was randomly drawn from the population residing in the Stellenbosch area and a representation for each ethnic group (black respondents (n=101), coloured respondents (n=101) and white respondents (n=102)) was used. To achieve a random selection the systematic sampling technique was used (Frankfort-Nachmias & Nachmias, 1996:187). This involved counting residential houses from property layout maps of Stellenbosch area, deciding on the number of respondents required from each area and dividing sample size by number of houses. The identified houses were marked on the area maps. To substantiate the map an address list was compiled. Interviews were conducted in Stellenbosch during May-June 2003. The areas included were Idasvallei, Cloetesville, Kayamandi, Uniepark, Mostertsdrift, Dalsig, Universiteitsoord, La Colline, Kromrivier, Die Boord, Paradyskloof and Onderpapegaaiberg.

Survey instrument

The structured questionnaire was designed to investigate consumer associations regarding rabbit meat consumption. The dendrogram technique (Schutte, 1992) analogous to the conceptual framework explained by Frankfort-Nachmias and Nachmias (1996:33) served as a foundation for the design of the survey questionnaire. This technique was applied after the boundaries for the theory were defined during a comprehensive literature review and acted as a guide for asking relevant questions within the scope of the study. The construct related to 'associations with rab-

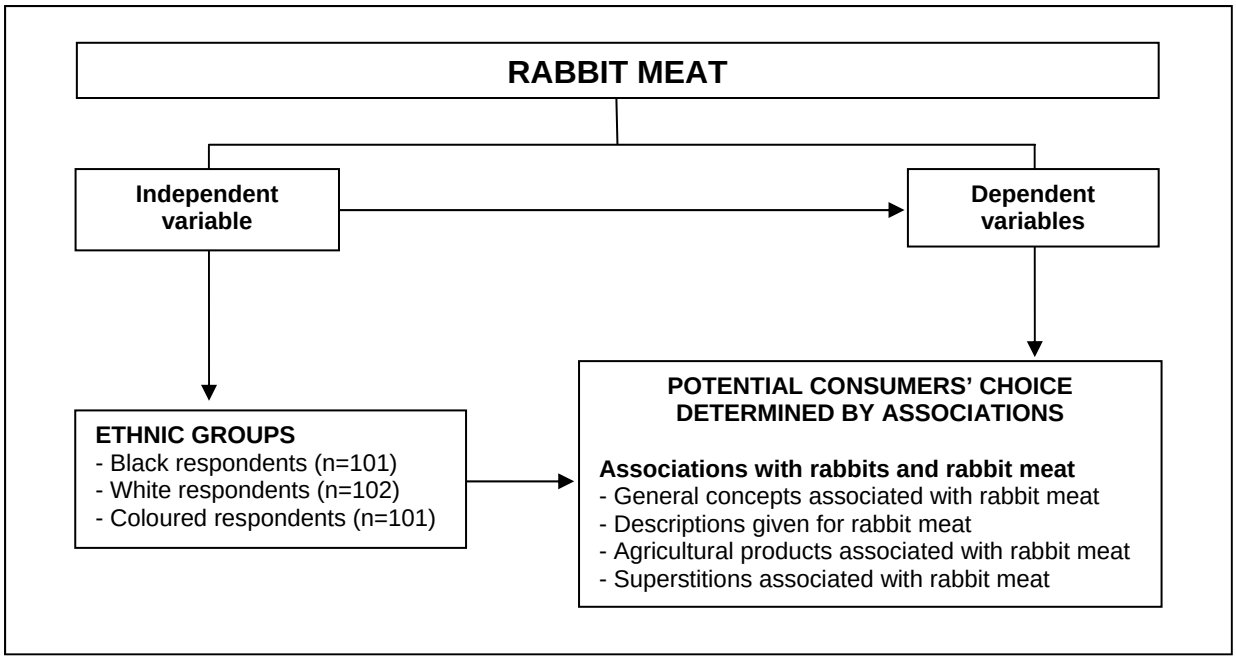

FIGURE 1: CONCEPTUAL FRAMEWORK OF STUDY DEPICTING THE INDEPENDENT VARIABLES AND DEPENDENT VARIABLES

bits and rabbit meat' at the first level; at the second level sub-concepts were identified; thereafter the questions of the questionnaire were defined at the third level (Frankfort-Nachmias & Nachmias, 1996:33). In this way, the research moved from theoretical constructs to the operational level.

The term 'association' is defined by The South African Concise Oxford Dictionary (2002:65) as the making of conceptual links. To operationalise the study a set of four conceptual links relating to associations with rabbits and rabbit meat were investigated: namely general thoughts that come to mind when the term rabbit meat is mentioned (open-ended question); descriptions of rabbit meat (close-ended question); agricultural products associated with rabbits (open-ended question); and superstitions associated with rabbits or rabbit meat (close-ended question) and if there were superstitions associated with rabbits and rabbit meat, respondents were asked to expand on them (open-ended question).

The English draft questionnaire was translated into Afrikaans and Xhosa - the traditional language spoken mainly by blacks in Stellenbosch. These preliminary questionnaires were evaluated by a panel of subject specialists from the disciplines of Animal Sciences and Consumer Sciences. The questionnaire was pretested amongst students from the different ethnic groups on the campus of the University of Stellenbosch before collection of data commenced. Relevant changes were made to the questionnaire based on these findings.

Data collection and organisation

Three well-experienced fieldworkers were used for the collection of data, after having been screened for suitability as interviewer in the particular area. They were given thorough training to minimise problems that may affect the reliability of the results.

Data analysis

For the open-ended questions all the various (dissimilar) answer categories were listed and similar answers were grouped together in the category where they belonged and thereafter coded. The data were entered into a *Microsoft Excel* spreadsheet. The quantitative data were then analysed to establish the means, standard deviations, frequencies and percentages using the 8.2 version of the SAS package (1999). The significance of the effects of the independent variable - ethnic groups - on the dependent variables were determined using Chi-square tests at $p<0,05$ (Snedecor and Cochran,1967:228-257) to test for differences in the proportions of ethnic groups and their response (chosen or not) for each association. The proportion is depicted as percentage – bearing the number of responses within the ethnic groups in mind, as well as the total responses. The results of chi-square tests (omitting the 'no responses') are reflected in the B-Tables of this report.

RESULTS AND DISCUSSIONS

Demographic profile of respondents

The first six questions of the questionnaire were on the demographic attributes of the respondents and are depicted in Table 1. Of the 304 respondents, 46% were males and 54% were females. As the questionnaire was designed to evaluate the effect of ethnicity on associations with rabbits and rabbit meat of the adult household members in Stellenbosch, irrespective of gender, this demographic characteristic was not evaluated further.

TABLE 1: DEMOGRAPHIC DATA ON THE RESPONDENTS (N=304)

Demographic properties	Blacks n = 101	Whites n = 102	Coloureds n = 101	Total N = 304
	n	n	n	%
Age in years				
No response	1	1	2	1,32
0 - 20	1	2	0	0,99
21 - 30	24	21	11	18,42
31 - 40	28	13	34	24,67
41 - 50	31	25	21	25,33
51+	16	40	33	29,28
Educational level				
No response	3	2	6	3,62
Primary education	41	0	16	18,75
Secondary education	43	11	67	39,80
Tertiary education	14	89	12	37,83
Religion				
No response	1	5	3	2,96
Christian	100	94	97	95,72
Other	0	3	1	1,32
Monthly income (R)				
No response	39	17	24	26,31
0–500	34	2	22	19,08
501–600	15	2	13	9,87
601–700	6	1	3	3,29
701–800	5	0	5	3,29
801–900	0	1	5	1,97
901–1 000	0	2	4	1,97
1 001–1 100	0	0	4	1,32
1 101–1 200	1	1	5	2,30
1 201–1 300	0	2	1	0,99
1 301–1 400	1	13	1	4,93
1 401–1 500	0	3	2	1,64
1 501–1 600	0	2	4	1,97
1 601–1 700	0	4	1	1,64
1 701+	0	52	7	19,41

TABLE 2A: GENERAL CONCEPTS (N=307) IMMEDIATELY ASSOCIATED WITH RABBIT MEAT

General concepts associated with rabbit meat	Number of concepts associated with rabbit meat			% of total concepts
	Blacks n = 104	Whites n = 102	Coloureds n = 101	
Cute little bunnies	9	40	10	19,22
Tasty stew	17	13	20	16,29
Wild animal	14	0	25	12,70
Strange idea – have never eaten before	8	13	16	12,05
Hunting	33	0	1	11,07
Disgusting	6	10	15	10,1
Like chicken	6	13	4	7,49
Healthy meat	11	8	1	6,51
No responses	-	5	9	4,56

* Note that a respondent could indicate more than one response. This resulted in 307 responses for concepts that came to mind with 'no responses' included.

Age The results in Table 1 reveal that the age of the respondents ranged mainly from 21 years to 51+. More than half of the white respondents (65) and the coloured respondents (54) were in the age-categories above 41, while the majority of black respondents (54) were in the age categories 40 years and younger.

Level of Education Results revealed that the three ethnic groups differed significantly (p<0,01) in terms of educational level. A large percentage (40%) of black respondents had primary education only, while 43% had secondary education, and 14% were educated at tertiary level (n=101). On the other hand, 87% of white respondents had tertiary education, while there were no white respondents with only a primary education (n=102). With the coloured respondents (n=101), 16% had primary education only, 66% secondary education and 12% tertiary education. In general, the largest percentage of respondents (40%) had secondary education, with tertiary training a close second - 38% of the respondents. Only 19% of the sample had limited education at primary-school level (Table 1).

Religion The three ethnic groups did not differ significantly (p>0,05) in their religious affiliation. In fact, 96% of all respondents (N=304) were Christians (Table 1).

Income Although 26% (N=304) of the respondents did not indicate their monthly income due to unemployment and/or the overall feeling that income should be confidential, there was a significant difference (p<0,01) in the monthly income of these three ethnic groups (Table 1). White respondents dominated the highest category (R1701+) of monthly household income (17%), thereafter followed coloured respondents (2%). No black respondents earned in this category of household income. In the highest six categories of household income (above R1 201) the black respondents (n=101) were limited to one income category namely in the R1 301-R1 400 with only one black respondent in this income category. At the lowest level of income (0–R500), the majority of the respondents were black (34), followed by coloured (22) and white (2).

Associations with rabbit meat

Responses to four sets of questions pertaining to the associations the respondents had with rabbits and rabbit meat are reported below.

General concepts associated with rabbit meat In response to the question on '*what comes to mind when rabbit meat is mentioned?*' a variety of responses was recorded of which the more frequent, and in descending order, are depicted in Table 2A.

Among the most important associations identified, associating rabbits with pets (cute little bunnies) and not as meat-producing animals were most common (19%). However, associations also included reference to menu-items. Seventeen per cent of the respondents reported rabbit meat as being associated with a tasty stew (the second highest association with rabbit meat), while some respondents also noted other food associations, saying that it tastes similar to chicken (7%) and is a healthy meat (7%). The third highest association was with wild animal (13%) and a close conceptual link with wild animal was hunting (11%).

Lukefahr (2002) encourages the elevation of the stature of the rabbit as a significant 'niche' livestock species to benefit humanity through the expansion of sustainable, small-scale rabbit farming or development projects. The fact that there are no 'value-added' products available is seen as a weakness in the farmed-rabbit industry (Bodger & Goulding, 2003:76).

Ten percent of the respondents disclosed that they found the thought of eating rabbit meat disgusting and were not at all interested in the idea of eating it. However if the slightly negative responses to rabbit meat, namely 'Strange idea – have never eaten before*'* and 'Disgusting' are added there is a high response (22%) that reflect a resistance to rabbit meat, a phenomenon that can possibly be explained by the responses to *'Meat of an unclean animal'* discussed further on (see text for Table 3A).

The various associations that initially came to mind were reported above (Table 2A). How did the ethnic groups differ with regard to the major associations? Only associations drawing more than 10% of the responses reported in Table 2A will be discussed below. Note that the original N=307 becomes N=293, as 'no responses' were omitted. Further analysis of this data is given in Table 2B.

Cute little bunnies Among all the associations identified, associating rabbits with pets (cute little bunnies) was the most common (59), especially amongst the white respondents (40 out of 97, 41%,), thereafter coloured and black respondents in close succession (10 out of 92, 11%, and 9 out of 104, 9%, respectively). A significantly larger proportion of whites associated rabbits with cute little bunnies than the other two ethnic groups (p<0,01). This association was also reported by Lukefahr and Cheeke (1990) and by Bodger and Goulding (2003:75) "*consumers' perceptions of rabbits and the meat are hindering potential demand … consumers think rabbits are 'too cute' to eat*'". In view of the fact that more white respondents had this association with 'cute little bunnies' it can be regarded as a major constraint in successful rabbit meat farming (Lukefahr & Cheeke, 1990, Bodger & Goulding, 2003:75) and marketing of rabbit meat for this ethnic group in particular.

Tasty stew A higher percentage of coloureds associated rabbits with a tasty stew (20 out of 92, 22%), with 16% (17 out of 104) blacks having this association, while only 13% (13 out of 97) of the whites had the same association. There was no significant difference in the proportions of the ethnic groups associating rabbits with a tasty stew.

Wild animal Of the 39 respondents giving this response 27% (25 out of 92) was given by coloureds, while 14% (14 out of 104) was from blacks. No whites

TABLE 2B: TOTAL RESPONSES (N=293) TO EACH OF THE MAJOR GENERAL CONCEPTS IMMEDIATELY ASSOCIATED WITH RABBIT MEAT, DEPICTING ETHNIC DIFFERENCES (n) (%)

General concepts and number of responses for each concept	Number and percentage of responses by the different ethnic groups						Association Chi square
	Blacks N=104		Whites N=97		Coloureds N=92		
	n	%	n	%	n	%	P
Cute little bunnies (59)	9	8,7	40	41,2	10	10,9	<0,01
Tasty stew (50)	17	16,4	13	13,4	20	21,7	0,30
Wild animal (39)	14	13,5	0	0,0	25	27,2	<0,01
Strange idea – have never eaten before (37)	8	7,7	13	13,4	16	17,4	0,12
Hunting (34)	33	31,7	0	0,0	1	1,1	<0,01
Disgusting (31)	6	5,8	10	10,3	15	16,3	0,06
Like chicken (23)	6	5,8	13	13,5	4	4,3	0,04
Healthy meat (20)	11	10,6	8	8,2	1	1,1	0,03

TABLE 3A: RESPONSES TO DESCRIPTIONS (N=389) FOR RABBIT MEAT

Description of rabbit meat and total number of responses to the description	Number of responses to descriptions of rabbit meat by ethnic groups			% of grand total of responses
	Blacks n = 101	Whites n = 174	Coloureds n = 114	
Meat of an unclean animal (107)	2	62	43	27,69
Meat for the poor (89)	1	47	41	22,82
Meat for the rich (69)	2	44	23	17,69
Healthy meat (41)	13	21	7	10,51
No responses (83)	83			21,28

* Note that a respondent could indicate more than one response, grand total taken as 390 with 'no responses' included.

TABLE 3B: TOTAL RESPONSES TO EACH OF THE DESCRIPTIONS ASSOCIATED WITH RABBIT MEAT (N=307) DEPICTING ETHNIC DIFFERENCES (n) (%)

Description of rabbit meat and total number of responses to the descriptions	Number of responses to descriptions of rabbit meat by ethnic groups						Association Chi square
	Blacks N=18		Whites N=175		Coloureds N=114		
	n	%	n	%	n	%	P
Meat of an unclean animal (107)	2	11,1	62	35,4	43	37,7	0,09
Meat for the poor (89)	1	5,6	47	26,9	41	36,0	0,02
Meat for the rich (69)	2	11,1	45	25,7	23	20,2	0,26
Healthy meat (41)	13	72,2	21	12,0	7	6,1	<0,01

TABLE 4A: AGRICULTURAL PRODUCTS ASSOCIATED WITH RABBITS (N=346)

Associations with agricultural products and total number of responses	Number of responses associating rabbits with agricultural products for different ethnic groups			% of grand total (N=346)
	Blacks n	Whites n	Coloureds n	
Meat (128)	70	29	29	36,99
Pets (109)	15	69	25	31,5
Wool (43)	32	2	9	12,43
Pelts (21)	5	13	3	6,07
No responses (45)			45	13

***** Note that a respondent could indicate more than one response, grand total taken as 346 with 'no responses' included.

(N=97) had this association. The proportions of the ethnic groups associating rabbits with wild animals differed significantly (p<0,01). It has been suggested that the white community associates rabbits with the cultivated pet 'cute little bunnies' and only the term 'hares' with a wild animal. In Afrikaans there could possibly be the same confusion between the terms *'konyne'* associated with the English rabbit as cultivated pet, and *'hase'* associated with 'hares'.

Strange idea – have never eaten before Thirty seven responses reflected this association, 17% of them were from coloureds (16 out of 92), 13% from whites (13 out 97) and 8% from blacks (8 out of 104). There was no significant difference in the proportions of the ethnic groups having this association.

Hunting Only 34 responses mentioned this association, which was surprising as rabbits are hunted in other areas of South Africa, e.g. the Karoo (personal observation) although not in the Western Cape. There were 33 out of 104 black respondents (32%) who associated rabbit with hunting in the rural areas, only 1% coloureds (1 out of 92) and no whites (N=97) (p<0,01). This lack of association of the coloureds and whites with the concept of hunting is possibly also explained by the confusion between the terms rabbit and hares. In Australia, Prayaga and Eady (2000) reported that the hunting of rabbits was a well-established practice but a sustained decline in this activity had been noted.

Disgusting Thirty one respondents (N=293) had this association – 16% (15 out of 92) coloureds, 10% whites (10 out of 97), 6% blacks (6 out of 104). There was no significant difference in the proportions of the ethnic groups having this association.

Descriptions given for rabbit meat In response to the close-ended questions 'would you describe rabbit meat as: meat from an unclean animal; for the poor; for the rich; as healthy meat?' the respondents could choose more than one response to the four options. These results are reflected in Table 3A. There were approximately 10 times more responses from whites than from blacks, and whites often had more than one response (the questionnaire allowed for multiple responses). The large percentage of black respondents not responding to this question may possibly be a survey error in that there was a different field worker for each of the ethnic groups. Possibly the field worker for the black ethnic group did not explain this question sufficiently, although the field workers had the same training at the same time

More than a quarter (28%) of the responses indicated that rabbit meat is the meat of an unclean animal. Unclean meat may be associated with the term used in the Old Testament of the Bible. Heiman et al (2004:10) stress: "Religiosity sets behavioural norms that directly and indirectly affect food characteristic choices." The belief that rabbits are unclean is possibly a deep-seated Christian belief found in the Old Testament in Leviticus 11:2-6: " … You may eat any land animal that has divided hoofs and that also chews the cud, but you must not eat camels, badgers or rabbits. They must be considered unclean; they chew the cud, but do not have divided hoofs." (Bible Society of South Africa, 1977:111).

The fact that there were so many responses to 'meat of an unclean animal' makes it evident that many respondents do not consider rabbits edible as food - a barrier in the selection of such food, a result that is explained by Asp (1999) in terms of food habits and cultural effects thereupon. The impact of religion on food choice may be regarded as an axiom, but is also further reflected in contemporary research by Lindeman and Väänän (2002), who found that a religion scale was one of three reliable and valid scales for screening of ethical food choice reasons.

Approximately 23% (N=389) responses indicated that rabbit meat is meat for the poor opposed to 18% that indicated the opposite (meat for the rich). Only 11% of the responses indicated that rabbit meat is viewed as healthy meat.

The descriptions for rabbit meat were chosen by the respondents from a list and reported in the section above (see Table 3A). How did the ethnic groups differ with regard to these descriptions (N=389)? Further analysis of this data is given in Table 3B. However, for this analysis the 'no responses' were ignored, to give a better reflection of the actual responses to descriptions of rabbit meat, therefore note that the original N=389, is N=307 for this analysis.

Meat of an unclean animal The option that had drawn the most responses was 'meat of an unclean animal' (Table 3A). Forty-three of the 114 (38%) responses by coloureds were for this description, while 62 were from whites (N=175, 35%) and 2 from blacks (N=18, 11%). There was no significant difference in the proportions of the ethnic groups having this association ('unclean meat').

Meat for the poor More respondents regarded rabbit meat as meat for the poor than for the rich (23% versus 18%, N=389 (Table 3A)). From Table 3B it is clear that 36% of the responses by coloureds (41 out of 114), 27% by the whites (47 out of 175) and 6% by the blacks (1 out of 18) associated rabbit meat as meat for the poor. There was a significant difference in the proportions of the ethnic groups having this association (p=0,02). It is interesting to note that the coloureds and whites had this association, but it was the black respondents who had the lowest income (see Table 1) and were also most likely to associate rabbits with meat (see the discussion to follow, in relation to Table 4B). There are people who, although they have meagre income, do not see themselves as 'poor', only 'broke' (Kubler-Ross & Kessler, 2001:97). We note a paradox here. Economics is another driving force that explains food choice (Lindeman & Väänän, 2002).

Meat for the rich Forty-five whites (N=175, 26%), 23 coloureds (N=114, 20%) and two blacks (N=18, 11%) chose this option. There was no significant difference in the proportions of the ethnic groups having this association.

TABLE 4B: TOTAL RESPONSES TO AGRICULTURAL DESCRIPTIONS ASSOCIATED WITH RABBITS (N=301), DEPICTING ETHNIC DIFFERENCES (n) (%)

Associations with agricultural products and total number of responses	Number of responses associating rabbits with agricultural products for different ethnic groups						Association Chi square
	Blacks N=122		Whites N=113		Coloureds N=66		
	n	%	n	%	n	%	P
Meat (128)	70	57,4	29	25,7	29	43,9	<0,01
Pets (109)	15	12,3	69	61,1	25	37,9	<0,01
Wool (43)	32	26,2	2	1,8	9	13,6	<0,01
Pelts (21)	5	4,1	13	11,5	3	4,5	0,06

Healthy meat This description elicited only 11% responses (Table 3A), of which blacks had the highest health association (13 out of 18, 72%), thereafter whites (21 out of 175, 12%), and then coloureds (7 out of 114, 6%). There was a significant difference in the proportions of the ethnic groups having this association. The respondents stated that its healthiness is due to the fact that it is highly nutritious (not reflected in these results), even though they made it clear that they were not aware of the specific nutrients. Other studies revealed that in comparison with the meat of other species, rabbit meat is in fact richer in proteins and certain vitamins and minerals (Bernadini *et al*, 1994). Some respondents mentioned that rabbit meat is low in fat, and that it contains less cholesterol than red meat. It is interesting to note that when the respondents were asked in the open-ended question to 'list concepts that came to mind when reflecting on rabbit meat' only 7% associated it with a healthy food choice (Table 2A). It is obvious that health associations seemed to be an obscured association during this research when general associations like 'what comes to mind when rabbit meat is mentioned' are requested in an open-ended question. The health association becomes less obscured when descriptions of meat are pertinently given in a close-ended question.

A few black respondents elaborated on the health association with rabbit meat. They believed that healthy rabbit meat is ascribed to the fact that rabbits feed on grass, bulbs and herbs, which consequently make the meat 'cleaner'. This is a misunderstanding as other animals, e.g. sheep and cattle, also eat the same diet, while it should be borne in mind that many of the primary sources of food-borne pathogens are not only associated with animal sources but also with vegetable sources (Jay, 2000:17,18-32). Another health benefit mentioned by blacks was that traditional doctors use it as a medication to heal. Black respondents also mentioned that rabbit meat has the capacity to reduce high blood pressure. The lower sodium found in rabbit meat and the positive profile of fatty acids recorded by Nkhabutlane (2004:iv, 72) support this view.

Agricultural products associated with rabbits In response to the question *'what agricultural products do you associate a rabbit with?*' there were 346 responses if the 'no response' category is included (Table 4A). The major associations are reported in descending order. The first association was with 'meat' (37%). After 'meat' the association with 'pets' came in close succession (32%). In fact, rabbits are frequently farmed for the pet industry, which does not make this association under 'agricultural products' out of place. The following association was with 'wool' (12%) and thereafter with 'pelts' (6%). The large percentage of 'no responses' in the coloured group cannot be explained.

Further analysis of the data in Table 4A is given in Table 4B to explain differences between the ethnic groups with regard to their associations of rabbits with agricultural products. For this analysis the 'no responses' were therefore ignored.

Meat The responses eliciting 'meat' as an association with agriculture came mainly from the black respondents (57%, 70 out of 122), while 44% (29 out of 66) were from coloured respondents and 26% (29 out of 113) from white respondents. There was a significant difference in the proportions of the ethnic groups having this association (p<0,01).

Lamar (1998) found that rabbit meat consumption is much easier to encourage where consumers are already used to eating widely different kinds of meat, such as that obtained from hunting. Once more these results show that rabbit meat, amongst the black respondents, could be classified as a 'familiar' food (Asp, 1999) and would be better accepted by this ethnic group. This poses a challenge for marketing in those ethnic groups where rabbit is not properly established as meat type. In fact, Batish *et al* (1998) and Bodger and Goulding (2003:76) report marketing problems as a major constraint in the establishment of economic activities.

Pets This association was clearer amongst whites (61%, 69 out of 113), while the responses for coloureds was 38% (25 out of 66) and for blacks 12% (15 out of 122). The white respondents also had a greater association with rabbits as 'cute little bunnies' (see previous section). There was a significant difference in the proportions of the ethnic groups having this association (p<0,01).

Wool There were 43 responses in this category, the major being an association by black respondents (27%, 32 out of 122) compared to nine out of 66 coloured respondents (14%) and to two out of 113 white respondents (2%). There was a significant difference

in the proportions of the ethnic groups having this association (p<0,01).

Pelts More whites (12%, 13 out of 113) associated rabbits with their pelts as an agricultural product (instead of wool) than the other two groups, thereafter came coloured respondents (5%, 3 out of 66) and then black respondents (4%, 5 out of 122). However, the association with pelt was low (21 responses, 6% of the total responses (N=346) for agricultural products – see Table 4A) and there was no significant difference in the proportions of the ethnic groups having this association.

Superstitions associated with rabbit meat The respondents were asked *'are there any superstitions associated with rabbit meat in your culture?'* The majority of the responses indicated that there were no superstitions associated with rabbit meat (84%), though 13% of the responses indicated that such an association existed (Table 5A) (N=304).

A further analysis was conducted to establish how the ethnic groups differ with regard to their *'yes'* and *'no'* responses to superstitions associated with rabbit meat (Table 5B). For this analysis the 'no responses' were ignored to give a better reflection of the actual responses (N=294) to superstitions associated with rabbit meat.

Yes, there are superstitions associated with rabbits Thirty seven black respondents out of 97 (38%), as opposed to 1% for each of the white (1 out of 101) and coloured (1 out of 96) respondents held the view that there were superstitions associated with rabbit meat. Cultural beliefs are a limiting factor in marketing rabbit meat in South Africa. This view is supported by Gittens (2000).

Sonandi *et al* (1996) also found that, although in South Africa 79% of Xhosa people could eat rabbit meat, they considered it to be suitable for boys, a finding which substantiates the view expressed by Wright *et al* (2001:354): "in most societies the eating of meat has traditionally had masculine, assertive connotations". The consumption of rabbit meat was not regarded as suitable for women and girls – as it is believed to cause sterility and abortion. Some respondents in this study believed that if pregnant women continue to eat rabbit meat, they would give birth to children who always cry. According to black respondents, boys and men are the ones who hunt the rabbit.

Among other cultural beliefs identified, it was stated that a rabbit is a fearful animal and eating more of its meat will make one fearful as well. Some black respondents commented that every Xhosa belongs to a certain group or clan that associates with a specific animal and that the rabbit is the animal for a group of people called the Amavundla. These people respect it, and cannot eat it. They perceive it to be a human being (one of them). Some of the Xhosa respondents who had said *'yes'* to superstitions associated with rabbits also indicated that they shy away from certain types of rabbit breeds because they are associated with witch-craft, particularly rabbits with reddish ears referred to as 'kolani' in Xhosa. Some black respondents also indicated that the fearful behaviour of wild rabbit resulted from being troubled by hunters. In this case a rabbit was referred to as an orphan, which means 'never happy'. With this concept in mind, Xhosas believe that rabbit meat should be cooled – anybody who eats it warm, will stay fearful like a rabbit. If someone has big ears and is fearful, they refer to him as a rabbit. Sonandi *et al* (1996) also found that Xhosas believe that if a child eats rabbit meat, its mouth and lips might grow to be like those of the rabbit. This may be used as an explanation for the finding by Gittens (2000) why some families do not allow their children to eat rabbit meat.

No, there are no superstitions associated with rabbits A larger percentage (99%) of the responses not associating rabbits with superstitions were from whites (100 out of 101, 99%) and coloureds (95 out of 96, 99%) respectively, while there were 62% of the black respondents (N=97). There was a significant difference in the proportions of the ethnic groups having this association (p<0,01).

CONCLUSIONS AND RECOMMENDATIONS

The aim of this study was to investigate the influence of ethnicity on associations regarding rabbit meat. Based on the information obtained in this study it can be concluded that the associations with rabbit meat will not influence demand positively and that in the Western Cape the demand is currently low. There are many major factors contributing to the low potential of consumer choice of rabbit meat. They include associating rabbits with pets, mostly by the white respondents and coloured respondents. These two cultural groups also have a high association of 'unclean meat' with rabbits. We propose that this association is deeply rooted in Christian teaching as well as a possible association with rodents, though these were not tested through in-depth questioning. On the other hand, the Xhosas also have some cultural beliefs that forbid them to eat rabbit meat. Blacks also associate rabbit with hunting and wild life, and consider it to be more suitable for boys and men than for women. From the results of the study it is clear that rabbit meat is more acceptable to the black respondents in this study than the other ethnic groups.

In order to increase a demand for rabbit meat, an effort is needed to educate people regarding the benefits of rabbit meat. This can be achieved by planning a long-term consumer education campaign to familiarise people with the various aspects and multiple benefits of rabbit meat. If the findings of this study could be generalised, it can be said that consumers' associations with rabbits and rabbit meat are hindering potential demand. Bodger and Goulding (2003:75) in their report support this with findings regarding poor consumer perceptions and they also suggest (p 76) that if innovative products such as smoked and marinated options and rabbit fryers as well as rabbit sausages could be developed, a change may occur.

In the context of sustainable nutrition for rural, malnourished communities a home-based rabbitry offers an opportunity to address problems of malnutrition. especially if it is borne in mind that mainly the black respondents associated rabbits with meat. For such an industry there are, however, many breeding risks (Bodger & Goulding, 2003:66; 76), e.g. maintaining rabbits at 20-25°C and diseases. Undoudtedly peoples' associations affect their perceptions regarding food and, in the long run, their acceptance of the product on the market.

Should micro-enterprises for the production of rabbit meat be considered, further research should be conducted to substantiate or refute the findings of this study. At present the production of rabbit meat cannot be regarded as a profitable micro-enterprise.

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