UNIVERSITI PUTRA MALAYSIA

AWARENESS, KNOWLEDGE AND UNDERSTANDING ON THE USAGE OF GROWTH HORMONE IN POULTRY INDUSTRY AMONG CONSUMERS IN SERDANG, SELANGOR

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NUR ATIFA BINTI MOHAMAD APANDI

A project paper submitted to the

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CERTIFICATION

It is hereby certified that I have read this project paper entitled "Awareness, Knowledge and Understanding on the Usage of Growth Hormone in Poultry Industry Among Consumers in Serdang, Selangor" by Nur Atifa Binti Mohamad Apandi and in my opinion it is satisfactory in terms of scope, quality and presentation as partial fulfilment of the requirement of the course VPD 4999-1 – Final Year Project.

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In the name of Allah, Most Gracious, Most Merciful.

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Thank you to all that help me finish this study and thesis. May Allah bless you.

DEDICATIONS

This project is dedicated to Allah S.W.T.,

Who had created me and made all things possible throughout this project.

My love of my life,

My beloved mother, Nik A'ainy Nik Daud

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My siblings who always there for me,

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My teachers,

&

All to all those who are directly and indirectly involved in completion of this project.

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ABSTRAK

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sebahagian daripada keperluan kursus VPD4999-1 Projek Tahun Akhir.

Kesedaran, Pengetahuan dan Pemahaman mengenai Penggunaan Hormon Pertumbuhan di kalangan Pengguna di Serdang, Selangor.

Oleh:

Nur Atifa Binti Mohamad Apandi

Penyelia: Professor Madya Dr. Lokman Hakim Idris

Ayam yang diternak untuk daging atau dikenali sebagai ayam pedaging mempunyai kadar pertumbuhan yang lebih tinggi sejak beberapa dekad kebelakangan ini sebagai hasil daripada kemajuan teknologi, pemilihan makanan dan genetic yang lebih baik dalam industry hormon. Di sebalik pencapaian ini, kadar pertumbuhan ayam pedaging yang tinggi telah menimbulkan isu dalam kalangan pengguna di mana mitos ayam diberikan atau disuntik hormon pertumbuhan untuk menghasilkan lebih banyak daging dengan cepat telah tersebar meluas dan menimbulkan kebimbangan terhadap kesihatan dalam kalangan pengguna. Sehubungan dengan kebimbangan yang telah timbul ini, ianya dipercayai bahawa terdapat jurang pengetahuan dan pemahaman mengenai penggunaan hormon pertumbuhan dalam industri hormon dalam kalangan pengguna.

Oleh itu, kajian keratan rentas dengan metodologi temu ramah bersemuka yang melibatkan pengguna awam di Serdang, Selangor dilakukan untuk menilai kesedatan,

pengetahuan dan pemahaman semasa terhadap penggunaan hormone pertumbuhan dalam hormone unggas dan kaitan dengan hormon peribadi; jantina, umur dan latar belakang Pendidikan. Sebanyak 103 orang telah menjawab dalam sesi temu ramah. Kajian ini menunjukkan bahawa 50.5% responden menyedari dan prihatin dengan isu penggunaan hormon pertumbuhan pada ayam pedaging. Walau bagaimanapun, hanya 0.97% daripada jumlah responden yang mempunyai pengetahuan dan pemahaman yang mencukupi mengenai perkara ini. Hasilnya juga menunjukkan bahawa terdapat hubungan (nilai $p < 0.005$) antara usia pengguna (berumur 18 hingga 30 tahun dan 31 hingga 50 tahun) dengan kesedaran tentang penggunaan hormone pertumbuhan pada ayam. Kajian ini menunjukkan kekurangan pengetahuan dan pemhaman mengenai penggunaan hormone pertumbuhan dalam industri yang disumbanglan olej 99% daripada jumlah responden (102 responden, $n = 103$). Oleh itu, jurang dalam pengetahuan dan pemahaman perlu diatasi bagi memastikan pengguna mempunyai pengetahuan dan pemahaman yang mencukupi dan betul mengenai isu ini untuk mengelakkan penyebaran maklumat yang salah secara tidak langsung boleh menyebablan kebimbangan yang tidak perlu di kalangan pengguna.

KATA KUNCI: hormon pertumbuhan, ayam pedaging, pengetahuan, kefahaman, pengguna.

ABSTRACT

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfilment of the course VPD 4999-1 Final Year Project.

AWARENESS, KNOWLEDGE AND UNDERSTANDING ON THE USAGE OF GROWTH HORMONE IN POULTRY INDUSTRY AMONG CONSUMERS IN SERDANG, SELANGOR

By:

Nur Atifa Binti Mohamad Apandi

Supervisor: Associate Professor Dr. Lokman Hakim Idris

Growth hormone or synthetic growth hormone is used to increase meat yield and growth in livestock, commonly in beef cattle and sheep. However, synthetic growth hormone is not used in poultry industry. Broiler chicken has higher growth rate over recent decades as the result of better technology, nutrition and genetics selection. Despite this achievement, the higher growth rate has raises suspicion among consumers where myth of chicken are being fed or injected with growth hormone to produce more meat rapidly has spread in the last few years and created a spurious health concerns. In conjunction to this factitious health concern, it is believed that

there is a gap of knowledge and understanding regarding on the usage of growth hormone in poultry industry among consumers. Therefore, a cross-sectional study with methodology of face-to-face interview was conducted in the public area of Serdang, Selangor involving consumers to determine current awareness, knowledge and understanding on the usage of growth hormone in poultry industry and association with personal factors; gender, age and educational background. A total of 103 have responded in the interview session. This study revealed that 50.5% of respondents are aware and concerned with the issue of growth hormone usage in broiler chicken. However, only 0.97% of total respondents have adequate knowledge and understanding on this matter. Result also suggested that there is an association (p value < 0.05) between age of consumers (18-30 years old and 31-50 years old) with the awareness of the usage of growth hormone in chicken. This study demonstrates that consumers are lack of knowledge and understanding on the usage of growth hormone in poultry industry which are contributed by 99% of the total respondents (102 respondents). Hence, the gap in the knowledge and understanding need to be addressed to ensure consumers have adequate and correct knowledge and understanding on this issue to avoid further spread of misldeading information which may cause unnecessary concern among consumers.

KEYWORDS: growth hormone, broiler chicken, awareness, knowledge, understanding, consumers

1.0 INTRODUCTION

Growth hormone in veterinary is defined as peptide that is used to enhance growth and production (Reinhardt, 2013). It must be administered via a parenteral route and has a short half-life of approximately 20 to 30 minutes. Synthetic growth hormone is more common in beef cattle and sheep compared to poultry industry and it is used to increase meat yield and growth and livestock (Johnson and Chung, 2007). Food and Drug Administration (FDA) approved the usage of synthetic growth hormones in beef cattle and sheep however, it is not approved in poultry industry. This leads to prohibition of hormones usage in the poultry industry. Apart from legal reason, several other factor that may contributed to the decision of not using growth hormones in broiler chicken which are physiological, economic rationale and time (Esquvel-Hernandez Y. et al. 2016).

The global public concerns about industrial agriculture have widely disseminated amongst consumers the myth that chicken was fed with growth hormones to produce meat more efficiently (Allen et al. 1981). This misleading information regarding the use of hormones in chickens is now a growing health concern among consumer group. Public knowledge in poultry production issue has an important connection to their attitude and health concerns of their food safety. Current knowledge and understanding of consumers in the agricultural and poultry industry are fundamental in preventing spreading of the unnecessary health concerns in public regarding growth hormone in the industry. Hence, assessment of public knowledge on the growth hormone issue in poultry industry may contributes to an evaluation of efforts needed

to be taken to ease the health concern of consumers and to correct public perspective towards growth hormone in poultry industry.

To-date, there is no published study reported on Malaysian consumer's awareness and knowledge regarding growth hormones. Thus, this study can provide information on the current awareness and knowledge of consumers regarding the usage of growth hormone in poultry industry. On the other hand, identification of current awareness and knowledge of consumers on these enable the authorities and veterinary practitioners in improving efforts to increase awareness and understanding on this matter. In general, it is imperative to carry out this study in-view of the limited information at the local scenario in Malaysia. This study can be used as the baseline data for future researchers in Malaysia.

1.1 Objectives of study

The general objectives of this study is to investigate and evaluate the awareness, knowledge and understanding of consumers regarding the usage of growth hormone in poultry industry in Malaysia.

The specific objectives include the following:

(1) To determine the personal factors (gender, age and educational background) of consumers.

(2) To determine the current awareness, knowledge and understanding of consumers regarding the usage of growth hormone in poultry industry in Malaysia.

(3) To determine the association of personal factors with current awareness, knowledge and understanding of consumers regarding the usage of growth hormone in poultry industry.

2.0 LITERATURE REVIEW

2.1 The usage of growth hormone in poultry industry

Poultry producers do not use growth hormone during meat production. There are several reasons that can be pointed out with detailed scientific explanation on why hormone is not involved in meat poultry production.

2.1.1 Legal reasons

World-wide Health organization have established a list of approved products, withdrawal periods and safe limits for use of these hormones in livestock (web reference: 2) and (Stephany, 2010). This is to ensure that there are no effects associated with meat consumption. However, these growth hormone implants are not approved for use in poultry meat production because poultry is not considered as livestock. Moreover, governmental regulations in many nations prohibit the use of growth hormones in poultry meat production, as well as in dairy cattle. Accordingly, the use of growth hormone was banned by the meat producer federation worldwide (web reference:1). Comparable legislation for food safety in poultry production has been established in the European Union (Mulder & Hupkes, 2007). Moreover, the use of hormones becomes unreasonable and unprofitable alternative for poultry producers due to fact that commercial firms has to fulfil national and international food safety standards in the globalized structure of modern poultry industry.

2.1.2 Physiological reasons

Meat chickens or broilers reach market at a very young age between 6 to 9 weeks old which when the growth hormone have no effects on the physiological effect on the young chickens as they are marketed prior to reaching sexual maturity. According to (Heitzman R. J. et al. 1981, Vasilatos-younken R. et al. 1988) the physiological effect of growth hormone on muscle production takes about 35 to 98 days after implantation of hormone pellets in cattle. In contrast to cattle, broiler chicken reach market at a very young age. The growth hormone needed to be administered to the chicken before it reached their market age which can be given as early as 4 weeks old (Moellers, 1995). However, the market age may be delayed as it takes about 5 to 14 weeks for the growth hormone to have effect on the physiological growth of the chicken and this may lead to delayed of harvest production and inefficiency.

2.1.3 Economic reasons

The use of growth hormone in meat chicken production does not occur due to fact that the hormone is expensive to be used in chickens and it does not effective as they do not promote growth in chickens. These can be supported by other studies (Leung et al. 1986; Moeller & Scambers 1995; and Scanes 2010). The growth hormone implant is more than 50% of the total cost of chicken meat production as stated by Donohue & Cunningham (2009). The cost will be too high to incorporate as more than 60% of the total cost of poultry production is already dominated by the feed cost claimed by Korver et al. (2004). Governmental regulations in many nations

prohibit the usage of growth hormones in poultry meat production. In the EU and USA regulations prohibit the use of hormones in poultry production as stated in (web reference: 2).

Based on these three reasons together with explanation, it can be concluded that growth hormone is not used in chicken meat production by the poultry industry.

2.2 Consumer's concern

The myth of chicken was fed or injected with growth hormones to produce more meat rapidly has spread globally in the last few years by consumers through social media and Internet. This inaccurate information has created health concerns among consumers. According to The National Chicken Council United State, 78 percent of Americans mistakenly believed that chickens contained added hormones or steroids as a finding of a survey, reported in an article on 1 December 2015 (web reference:4). Following the global spurious health concerns by the consumers, an article has been published (Esquvel-Hernandez Y. et al. 2016) highlighting several reasons with scientific description that can affirm that growth hormones usage in poultry industry is unrealistic.

Meanwhile, the same health concern has been raised in Malaysia recently where the matter was revealed by the President of Subang and Shah Alam Consumer Association (CASSA) in an article by Kasthuri Jeevendran in December 2019 (web reference: 3). This may suggest that the misinformation in several media is still occurring in local scenario. According to Talwar (2019), disinformation in media mass should have not

occurred if the public have adequate knowledge and understanding on the certain issue.

Hence, this study is constructed to determine and evaluate the recent awareness, knowledge and understanding of growth hormone usage in poultry industry among consumers with gender, age and education level as variables.

3.0 MATERIAL AND METHODS

3.1 Procedure

A cross-sectional, face-to-face interview-based study aims to determine the current awareness, knowledge and understanding of consumers on the usage of growth hormone in poultry industry.

This study was conducted at the area of Serdang, Selangor to encourage the participation of the consumers in respected area. Respondents for this study are chicken consumers. Consumers who meet the study criteria are approached and participate in the study on voluntary basis. Data collection took place over a period of 5 weeks (13th August to 10th September 2020).

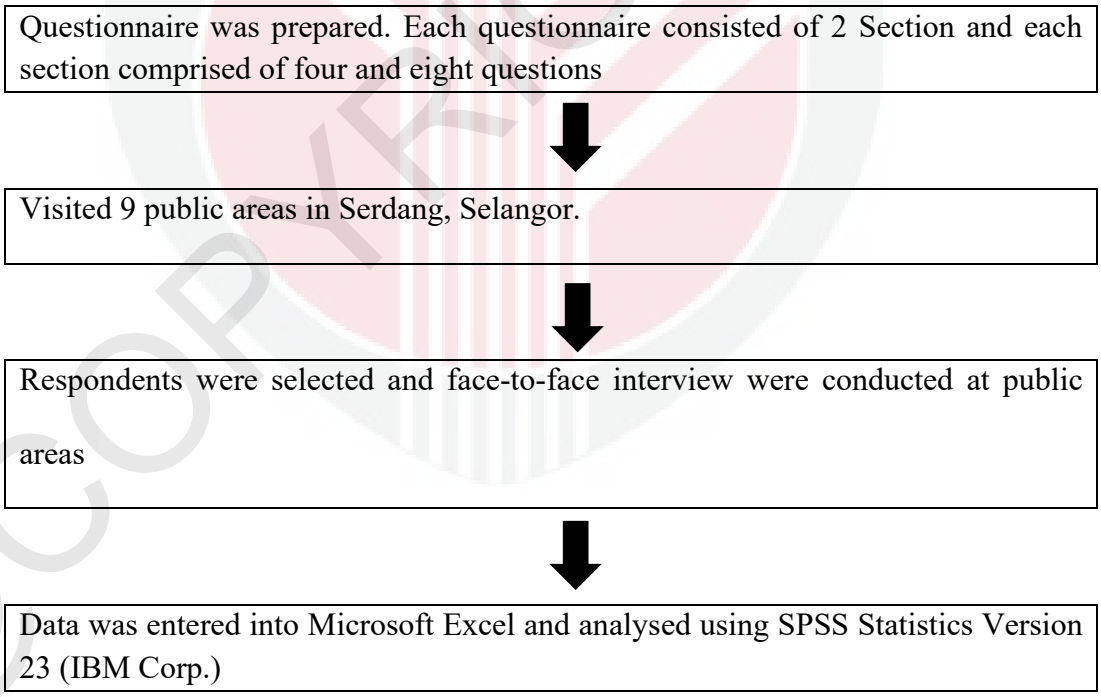

Figure 1 shows the flow chart of data collection procedure.

3.1.1 Inclusion criteria

Respondents who live at the area of Serdang, Selangor.

Respondent can be consisted of all ethnicities, male or female, aged 18 years and above.

Respondents must be able to listen and speak Malay or English language for comprehension and completion of interview session.

3.1.2 Exclusion criteria

Respondents who live outside Serdang, Selangor.

Respondents who are Veterinary Medicine, Animal Health and Production, Animal Science, Institute of Veterinary Malaysia students or post-graduates.

Consumers who are currently or had experienced working in animal health, production or agriculture industry.

Respondents who are failed to fulfil the inclusion criteria, refuse to be interviewed, fail to cooperate with the investigators during the interview sessions will be excluded from the study.

3.1.3 Sample Size

The estimated population of this study is roughly 10,000 consumers which cover Serdang mukim, Selangor. The estimated total sample population is 103. 16 peoples have not responded to the survey and it may be due to current pandemic situation where people tend to avoid public places and people.

3.1.4 Sampling Method and Data Collection

Respondents will be approached randomly at public places. There are 11 places selected for sampling as it represents the study population sample in this study which are consumers in Serdang, Selangor which are stated below:

1. Taman Desa Serdang
2. Taman Serdang Raya
3. Taman Muhibbah
4. Taman Tasek Seri Serdang
5. Taman Sri Serdang
6. Serdang Jaya
7. The Mines Mall
8. KTM Serdang
9. Universiti Putra Malaysia Serdang campus.
10. Pasar Tani MAEPS
11. Pasar Awam Taman Seri Serdang

Selection of respondent is based on inclusion and exclusion criteria. Convenience sampling method was done where male and female respondents were approached alternatively. If the samples are in a group, then the first person the most closed to the interview would be chosen for the interview session. If there are several groups of people at a place, then the groups also will be chosen alternatively to avoid bias; there is a possibility where candidate of interview will have different opinion and understanding from their own initial knowledge due to the fact they heard any information or opinion from the previous interview of the other group near them.

3.2 Questionnaire and Interview

The questionnaire includes both open-ended and closed-ended questions. The questionnaire comprised of two section. Section A is the demographic questions which respondents need to give information of residency, gender, age and education level. The second section which is Section B consists of eight questions. These questions were constructed to evaluate their knowledge and understanding on the growth hormone and their usage in poultry industry. Another purpose is to investigate their awareness on the issue of growth hormone usage in chicken. The last question for this section asked for the source of all the information from the answer given by the respondents. Additional questions may be asked continuously to get more information and confirmation on their understanding matter.

The investigators introduced the objectives of the survey and ask for their willingness in participation on the study. The interview session will be held at the preference of the respondents of any public places and the interview session last for about 5 to 10 minutes. The usage of words or terms will be used according to the level of knowledge and response from the previous question. The answers from respondents were recorded in written form by the investigator.

3.3 Analysis Method

The data collected were collected from the interview then analysed by using SPSS version 25.0 (IBM Corp.). The answers from the questionnaire were then undergoes

content analysis method based on Erlingsson (2017). Condensation was done were the answers undergo process of shortening text while still preserving the core meaning and then they were coded or labelled accordingly. The coded answers then were categorized into a group based on their similarity of the content theme.

Binary logistic regression was performed to determine if there is any association between the demographic variables with the awareness level and knowledge and understanding level ($p<0.05$).

4.0 RESULTS

4.1 Demographic characteristics

A total of 103 respondents (n=103) participated in this survey. Demographic characteristics were collected through questions from Section A in questionnaire. The demographic characteristics of the respondents are presented in Table 1.

Demographic characteristics (n=103)	n	%
Gender		
• Male	48	46.2
• Female	55	52.9
Age (years)		
• 18 – 30	43	41.3
• 31 – 50	56	53.8
• 51 – 70	4	3.8
Educational Background		
• No Education	2	1.9
• Primary and Secondary Education	32	30.8
• Post- Secondary and Higher Education Institution	69	66.3

Table 1: Descriptive statistics of demographic characteristics of respondents (n=103)

As shown in Table 1, 103 respondents who participated during the five-week study at Serdang, Selangor are consists of 48 male consumers (46.2%) and 55 female consumers (52.9%). The majority of age groups is between 31 to 50 years old (53.8%) and between 18 to 30 years old (41.3%) while consumers with age of 51 to 70 years

old is comprised of 3.8% from total of 103 respondents. The second demographic characteristic is the educational background with most of consumers had education at the level of Higher Education Institution (66.3%) followed by Primary and Secondary Education (30.8%). Consumers with No Education background consists of 1.9% from 103 respondents.

4.2 Awareness on the usage of growth hormone in poultry industry

Awareness of consumers regarding the use of growth hormone in meat chicken were assessed through a question from Section B which is question 2. The data collected for Question 2 are as shown in Figure 2 below.

Question 2: Do you think that growth hormone is used in chicken/poultry production?

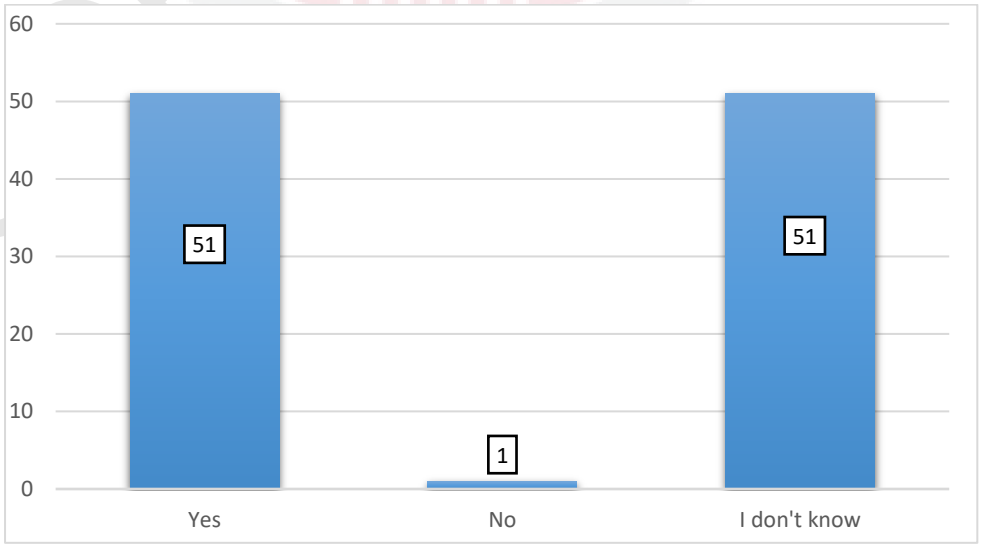

Figure 2: Percentage and number of respondents answering Question 2 from Section B in questionnaire.

Result for Question 2 from Section B is shown as above in Figure 2. Respondents answered with 'Yes' or 'No' are considered aware with the issue of growth hormone in chicken which contributes to the total of 52 respondents (50.5%) from the total respondents (n=103). The remaining of 51 respondents (49.51%) responded with 'I don't know', meaning that the respondents have no knowledge or even aware of the spread of issues regarding the usage of growth hormone in chicken.

4.3 Knowledge and understanding about growth hormone

A total of six questions from Section B was designed to assess consumers' knowledge and understanding on the usage of growth hormone in poultry industry. The answers from all six questions will be analysed as overall and categorized into two categories, which are Adequate Knowledge and Understanding and Inadequate Knowledge and Understanding.

The first question is asked to assess whether the respondents have ever heard on what growth hormone is. The result is shown in Figure 3 below.

Question 1: Have you ever heard of growth hormone?

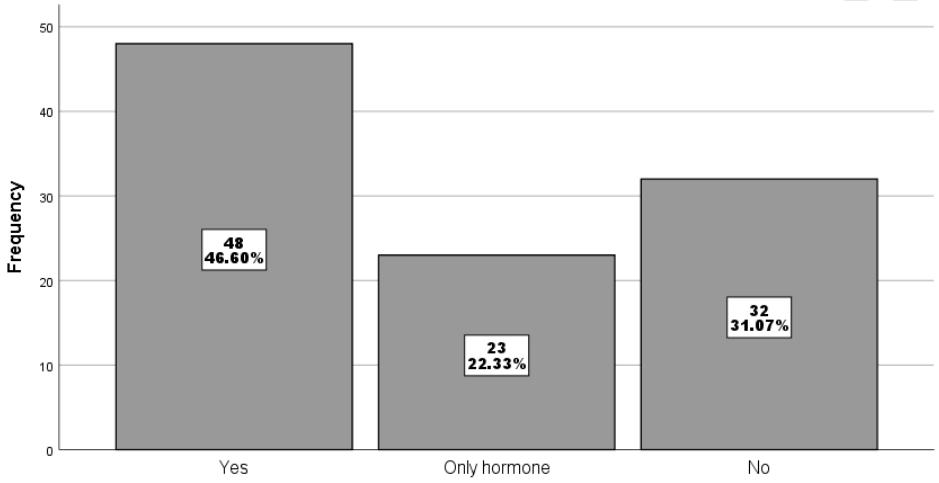

Figure 3: Percentage and number of respondents answering Question 1 from Section B in questionnaire.

From the Figure 3 above, 46.60% (48 respondents) of the respondents have heard of the word 'growth hormone' before. This was followed by 31.07% (32 respondents) of respondents where they did not ever hear of this word. The remaining of 22.33% (23 respondents) have stated that they only know the word 'hormone' instead of growth hormone. In relation to that, majority of the respondents have never heard of the word 'growth hormone' which contributes to the total of 53.4% (55 respondents) of respondents.

Question 3 was asked to assess knowledge on the purpose of growth hormone usage in chicken. The result is shown in Figure 4 below.

Question 3: What is the purpose of growth hormone usage in chicken/poultry?

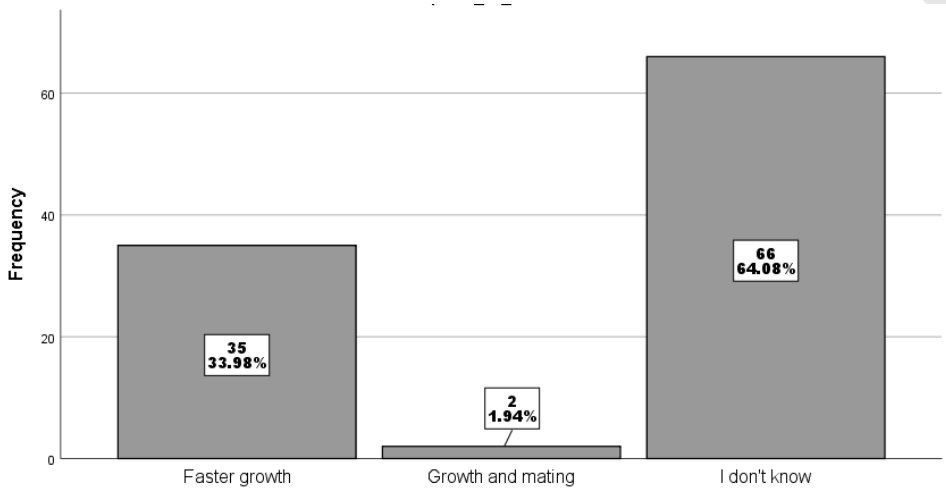

Figure 4: Percentage and number of respondents answering Question 3 from Section B in questionnaire.

Majority of the respondents do not know the purpose of growth hormone given to the chicken which contributes to 64.08% of the total respondents interviewed. 33.98% of the respondents have knowledge where they answered correctly on the question with answer of growth hormone given to chicken for faster growth. Even though the answer is correct, however growth hormone is not used in chicken production as mentioned previously in literature review. Meanwhile, the remaining of 1.94% of respondents said that the growth hormone is being used as for growth promotant together with mating purpose.

Question 4 was asked to assess knowledge on the administration route of growth hormone in chicken. The result is shown in Figure 5 below.

Question 4: What is the administration route of growth hormone/ how does it given to chicken?

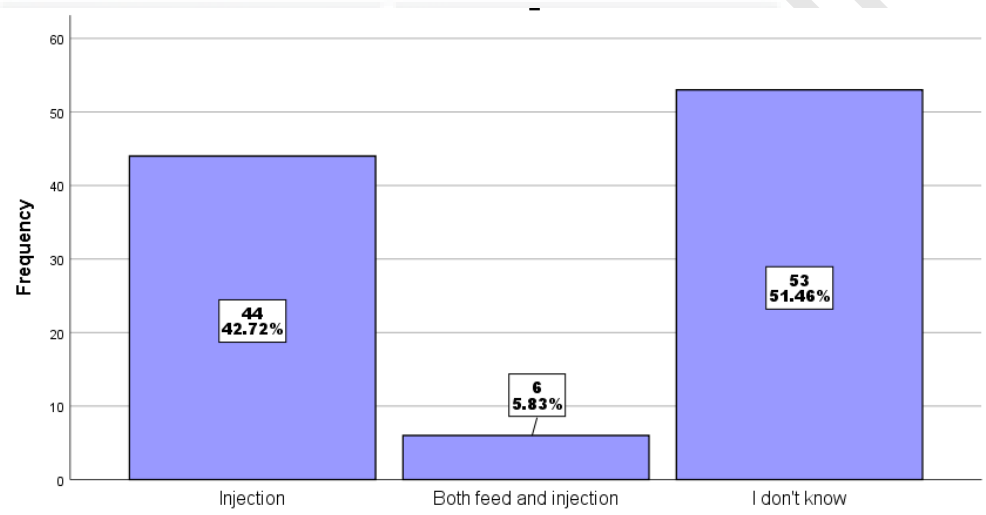

Figure 5: Percentage and number of respondents answering Question 4 from Section B in questionnaire.

44 respondents (42.72%) of the total respondents have answered correctly on Question 4 where they answered injection as the administration route for growth hormone. 5.83% of the total respondents answered with answer of growth hormone is given through both injection and supplemented in feed while another 51.46% of respondent do not have knowledge on this matter.

Question 5 was asked to assess knowledge on the benefit of growth hormone in chicken. The result is shown in Figure 6 below.

Question 5: What is the benefit/advantage of growth hormone in chicken?

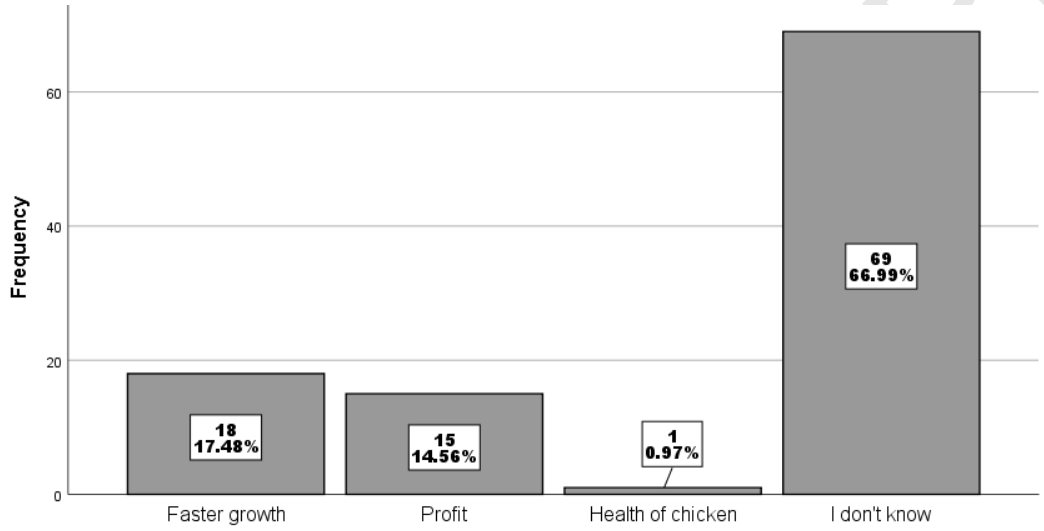

Figure 6: Percentage and number of respondents answering Question 5 from Section B in questionnaire.

Majority of the respondents do not know the benefit of growth hormone in chicken which contributed by 66.99% (69 respondents) of the total respondent. 18 respondents (17.48% of total respondents) said that the growth hormone in chicken is used for faster growth for production which is correct. 14.56% (15 respondents) of the total respondents mentioned that growth hormone is used for profit purpose by the producer. Meanwhile one respondent (0.97%) of total respondents mentioned that the growth hormone is used to promote health of the chicken.

Question 6 was asked to assess knowledge on the disadvantage of growth hormone in chicken. The result is shown in Figure 7 below.

Question 6: What is the disadvantage of growth hormone in chicken?

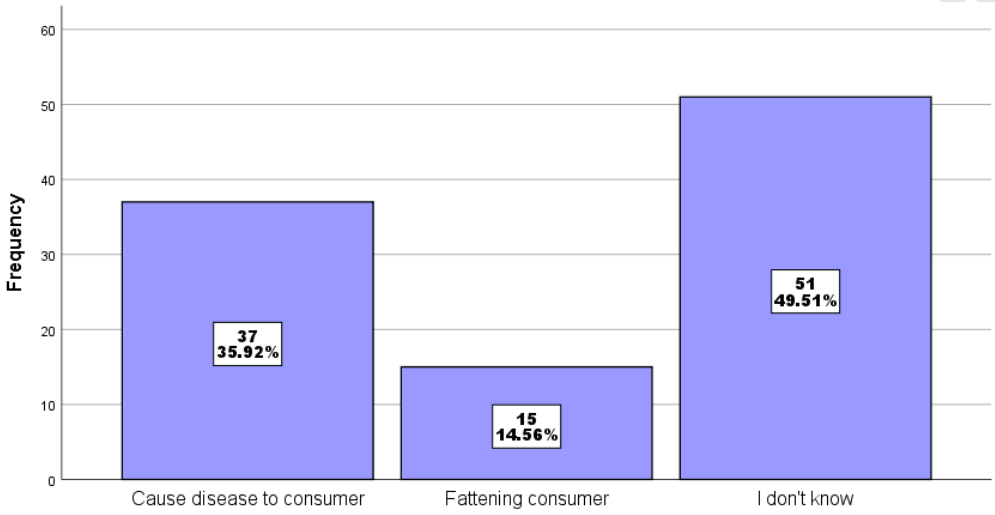

Figure 7: Percentage and number of respondents answering Question 6 from Section B in questionnaire.

Most of respondents (49.51% of total respondent) do not know the disadvantage of growth hormone usage in chicken. Meanwhile, 37 respondents (35.92% of total respondent) mentioned that growth hormone can cause diseases to consumer. The remaining of 15 respondents (14.56% of total respondents) said that growth hormone given in chicken may cause fattening effect on the consumer.

The answers for the questions assessing the knowledge and understanding from Question 1, 3, 4,5 and 6; were analysed by using content analysis method and then the answers were further categorized into two main categories. The first category is the consumers with Adequate Knowledge and Understanding where they have adequate knowledge and correct understanding on the status of growth hormone usage in

poultry industry. The second category is the consumers with Inadequate Knowledge and Understanding where consumers with inadequate knowledge and incorrect understanding are grouped in this category. The consumers with adequate knowledge but have incorrect understanding of the status of growth hormone usage in poultry industry were also grouped into the second category.

The result for the content analysis method are shown in Figure 8 below.

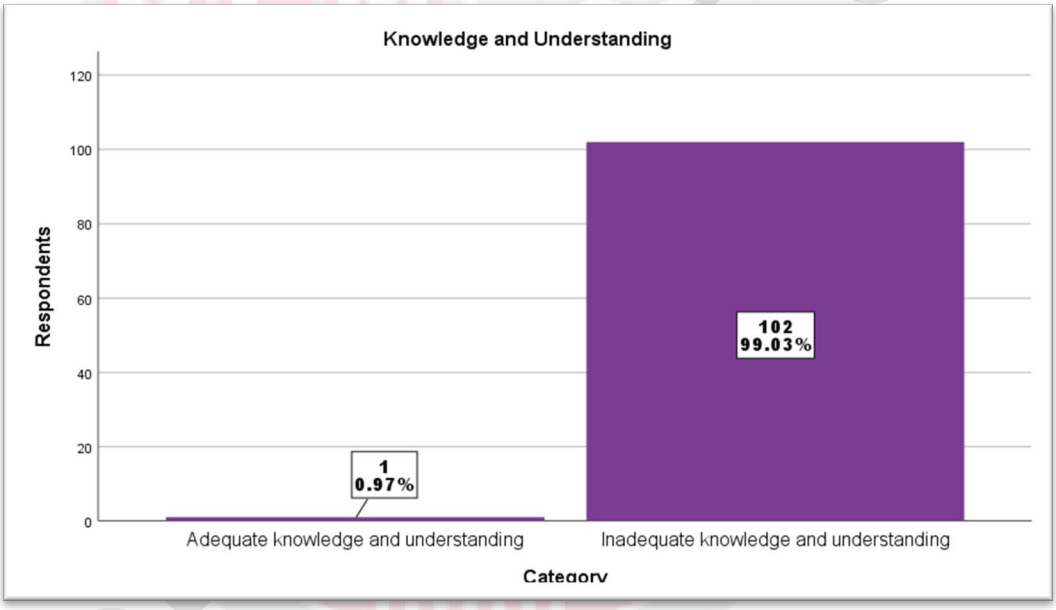

Figure 8: The percentage and numbers of respondents grouped into two categories based on analysed answers from the knowledge and understanding questions.

Figure above shows only1 respondent are qualified to have adequate level of knowledge and understanding on the usage of growth hormone in chicken. While the rest have inadequate knowledge and understanding level.

Question 7 was asked to identify the source of information regarding usage of growth hormone in chicken. The result is shown in Figure 9 below.

Question 7: May I know what is the sources/ where does all the information coming from?

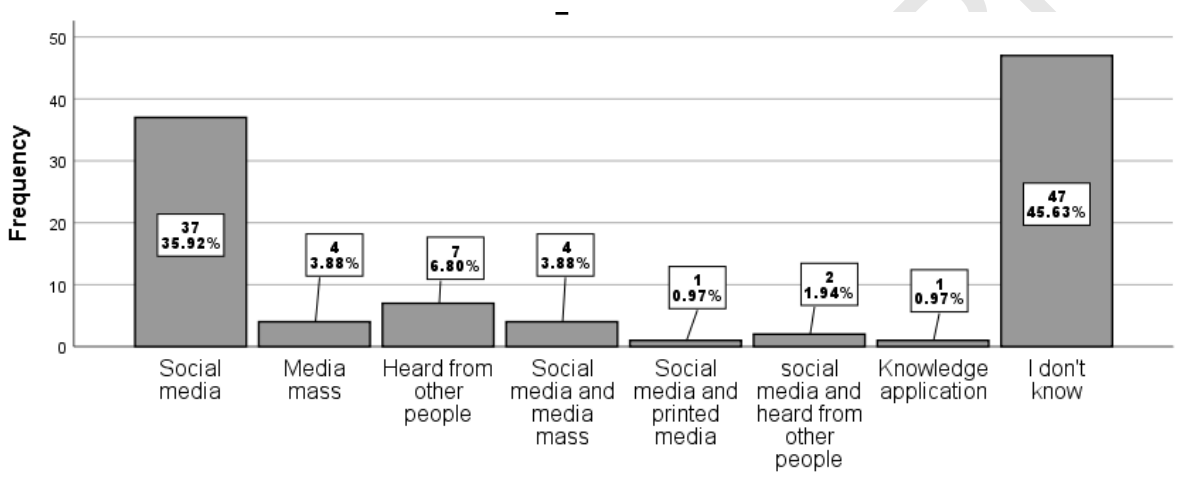

Figure 9: Percentage and number of respondents answering Question 7 from Section B in questionnaire.

Most of respondents (45.63% of total respondent) do not know or unsure the source of information regarding growth hormone in chicken. Social media is the most common source of information as it was mentioned by 37 respondents (35.92% of total respondents). 7 respondents (6.80% of total respondent) mentioned that they heard from other people regarding the usage of growth hormone in chicken. Media mass is the source of information for 4 respondents (3.88% of total respondents) while the same percentage of respondent also mentioned that they obtain information regarding growth hormone in chicken from both social media and media mass. 2 respondents (1.94% of total respondents) mentioned that they obtain the information from social media and heard it from other people. One respondent (0.97% of total respondent) mentioned that he obtained the information from both social media and

heard from other people. Another respondent (0.97% of total respondent) said that she used her knowledge on growth hormone in other animal and applied it in chicken production.

4.4 Statistical analysis results

Binary Logistic Regression was carried out to determine if there is any significant association between variables (demographic characteristic) and level of awareness, knowledge and understanding on the usage of growth hormone in poultry industry.

There is a significance association between age with the level of awareness among consumers as shown in table below.

No.	Type of variables		Have awareness (n, %)	Do not have awareness (n, %)	**Logistic Regression (P value)**
1.	**Gender**	Male	13 (35.1%)	34 (51.5%)	.378
		Female	24 (64.9%)	32 (48.5%)	.490
2.	**Age (years)**	18 – 30	35 (50.7%)	12 (35.3%)	.002
		31 – 50	31 (45.0%)	21 (61.8%)	.001
		51 – 70	3 (4.3%)	1 (2.9%)	.298
3.	**Education level**	No education	0	2 (3.0%)	.345
		Primary and Secondary Education	6 (16.2%)	26 (39.4%)	.719
		Post-Secondary and Higher Education Institution	31 (83.8%)	38 (57.6%)	.945

P value < 0.05 are significantly different

Table 2: Association between demographic characteristics and level of awareness on the usage of growth hormone in poultry industry.

There is a significant association between the age group of 18 to 30 years old and 31 to 50 years old group with the level of awareness on the usage of growth hormone in

poultry industry. Meanwhile in Table 3, there is no association reported between the demographic characteristics with the level of knowledge and understanding of consumers regarding this topic.

No.	Type of variables		Adequate Knowledge and Understanding (n, %)	Inadequate Knowledge and Understanding (n, %)	Logistic Regression
1.	Gender	Male	0	48 (47.1%)	0.997
		Female	1 (100%)	54 (52.9%)	0.997
2.	Age (years)	18 – 30	0	43 (42.2%)	1.000
		31 – 50	1 (100%)	55 (53.9%)	0.998
		51 – 70	0	4 (3.9%)	0.999
3.	Educational level	No education	0	2 (3.8%)	1.000
		Primary and Secondary Education	0	32 (31.8%)	1.000
		Post-Secondary and Higher Education Institution	1 (100%)	67 (66.5%)	1.000

P value < 0.05 are significantly different

Table 3: Association between demographic characteristics and level of knowledge and understanding on the usage of growth hormone in poultry industry.

5.0 DISCUSSION

This survey was conducted to determine current awareness, knowledge and understanding of consumers towards the usage of growth hormone in poultry industry and it was conducted among 103 consumers around Serdang, Selangor. The results of this study revealed three key findings. Firstly, half of the total respondents are aware with the growth hormone issue in chicken and secondly, majority of the respondents have inadequate level of knowledge and understanding in the usage of growth hormone in poultry industry. The third one is there was significant association between the age of consumers with the awareness level on the usage of growth hormone in poultry industry.

5.1 Awareness on the issue of growth hormone usage in poultry industry.

Most of the consumers in this study (50.5%, n= 52) are aware with the issue of growth hormone usage in poultry industry. 35.92% (n=37/103) of the total respondents claimed that they obtained the information related this issue from the social media. This shows that most of the respondents are aware due to the information in they obtained from the social medias. Meanwhile another 49.5% of the total respondents (n=51/103) do not heard of this issue before.

5.2 Knowledge and understanding on the usage of growth hormone in poultry industry.

The results from the content analysis in Figure 8 shows that majority of the consumers selected as respondents have inadequate knowledge and understanding regarding usage of growth hormone in poultry industry and this can be related to the disinformation occurred in public. Disinformation in media mass should have not occurred if the public have adequate knowledge and understanding on the certain issue (Talwar, 2009).

5.3 Association between the awareness, knowledge and understanding level with the demographic variables

From the result above (Table 3) there were significant values from the association between the age and the awareness level of the consumers. There are association between the age group of 18 to 30 years old and 31 to 50 years old with the awareness level of the respondents. These two age groups majority are mostly aware with the growth hormone issue in chicken. However, the knowledge and understanding level of these group of age consumers are inadequate as they have lack knowledge and incorrect understanding of the usage of growth hormone in poultry industry. Most of consumers aware with this growth hormone usage in chicken however, they have incorrect understanding where they believed that the hormone is used in poultry production. According to Sanlier (2009) young consumers have lack of information towards food safety and their preparation. This

means that these consumers have lack of knowledge and understanding on the correct status of growth hormone in poultry industry and at the same time are spreading this false information as a response of concerns they have towards food safety.

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

To conclude, there is a gap in the knowledge and understanding on the usage of growth hormone in poultry industry among consumers from Serdang, Selangor residency which mean it is at inadequate level. This need to be addressed to ensure consumers have adequate and correct knowledge and understanding on this issue. This can further avoid any spread of misleading information which may cause unnecessary concern among consumers. There were significant associations between the level of awareness with the consumer age group of 18 to 30 years old (p value = 0.002, α = 0.05) and 31 to 50 years old (p value = 0.001, α = 0.05).

6.2 Recommendation

For a more comprehensive and better understanding in this area, future research should focus to include systematic random sampling method to reduce bias in sampling. Furthermore, the gap in the knowledge and understanding of the consumers can be improved by introducing consumer's education through media mass and social media platform by the responsible authorities and educated consumers. The topic also can be introduced at school education as a reading material.

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APPENDICES

Interview Questions

Tick (/) in the box respectively.

Section A

1. **Do you live in Serdang, Selangor? (residency)**

   Adakah tuan/puan/encik/cik tinggal di Serdang, Selangor?

Yes/ *Ya*	
No/ *Tidak*	

2. **May I know your age?**

   Boleh saya tahu umur tuan/puan/encik/cik?

   Gender/Jantina

Male *Lelaki*	
Female *Perempuan*	

   Age/*Umur* :

18 – 30 years old/ *8 – 30 tahun*	
31 – 50 years old/ *31 – 50 tahun*	
51 – 70 years old/ *51 – 70 tahun*	

3. May I know your educational background?

Boleh saya tahu latar pendidikan tuan/puan/encik/cik?

Educational level/ *tahap pendidikan* :

No Education/ *Tiada latar belakang pembelajaran*	
Primary and Secondary Education/ *Sekolah Menengah*	
Higher Education Institution (University/ College) *Institusi Pengajian Tinggi (university/ Kolej)*	

Section B

1. **Have you ever heard of growth hormone?**
   Pernahkan anda mendengar perkataan hormon pertumbuhan? Sekiranya ya, apa yang anda tahu tentangnya?

Yes/ *Ya*	
No/ *Tidak*	

2. **Do you think that growth hormone is used in chicken/ poultry production?**
   Adakah tuan/puan berfikir bahawa hormon pertumbuhan digunakan dalam industri/penternakan unggas?

Yes/ *Ya*	
No/ *Tidak*	
I don't know/ *Saya tidak tahu*	

3. **What is the purpose of growth hormone usage in chicken/poultry production?**

   Sekiranya ya, apakah tujuan penggunaan hormon pertumbuhan dalam industri/ penternakan ayam?

……

……

4. **What is the administration route of growth hormone/ how does it given to the chickens?**

   Sekiranya ya, apakah cara pemberian hormon pertumbuhan/ bagaimana ia diberikan kepada ayam?

Fed/ *Diberi makan*	
Injection/ *Suntikan*	
Fed & Injection/ *Diberi makan dan suntikan*	
I don't know/ *Saya tidak tahu*	

5. **What is the benefit/ advantage of growth hormone in chicken?**

   Apakah kebaikan/ kelebihan hormon pertumbuhan?

   ……

   ……

6. **What is the disadvantage of growth hormone in chicken?**

   Apakah keburukan hormone pertumbuhan?

   ……

   ……..……..

7. **May I know what are the source/ where does all these information coming from?**

   Sekiranya ya, boleh saya tahu apa sumber/ dari mana datangnya semua maklumat ini?

   ……
   ……