

Veterinary farm guidance

Farmer's point of view

Author: T.P.C. Geertsema BSc
Student number: 3575993
Supervisor: Drs. M. Derks
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1. Preface

How we, human beings, make our choices, is an interesting process, in which several factors are involved. These factors are different for all of us, and depend on the choices to be made. An example of a factor could be education, or age. It is interesting to know how humans order these factors en come to a conclusion, a process that applies to all the choices humans make. This makes it relevant for farmers too. Farmers, in this study especially dairy farmers, get the opportunity to enroll in veterinary farm guidance. They have got the opportunity, so that does not mean they have to enroll. That brings us to the question why some dairy farmers do enroll in veterinary farm guidance, and some don't, and if they are enrolled, how veterinary farm guidance is executed. Are there specific farm characteristics that influence participation in veterinary farm guidance. This scientific article will look into this , and will try to give the answers to these questions.

2. Abstract

In the seventies veterinary farm guidance was mostly about fertility guidance, and since the eighties the role of the veterinarian has changed more into business consultant. Therefore, the veterinarian needs enough knowledge on lots of topics, like fertility, udder health, nutrition, claw health, housing, calf rearing, milk quality and milk production. [2] An article of Lievaart et al. (1999) described that 70,5% of the farmers took part in any kind of veterinary guidance. [4]

The aim of this study was to investigate the relative importance of various farm characteristics on participation in veterinary farm guidance. Several questions have been asked to dairy farmers via a survey. It turned out that the breed of cows and the somatic cell count are significantly related to participation in veterinary farm guidance. When farmers have Holstein Frisian or Holstein Frisian red cows they are more likely to be enrolled in veterinary farm guidance, probably because this breed is used for its high productivity. Somatic cell count is also significantly related to participation in veterinary farm guidance. This can be explained because the higher the somatic cell count is, the more problems are at the farm and the more help is needed by the veterinarian. Other topics which are quite close to significance are succession, brand of tractor and expansion plans. In the future, these characteristics need to be explored with a larger sample population.

3. Introduction

The livestock sector is changing over the last years, and so is the task of the veterinarian. [1] There is the demand for safe and durably produced animal products, and veterinarians support the dairy farmer achieving this, using their integrated knowledge of farm management and animal diseases. The dairy farmer is running his own enterprise, so it sounds logical that the dairy farmer decides how the farm guidance should be executed by the veterinarian. The question is, however, whether this is the case in practice. In the seventies veterinary farm guidance was mostly about fertility guidance, and since the eighties the role of the veterinarian has changed more into business consultant. This entails enough knowledge about lots of topics, like fertility, udder health, nutrition, claw health, housing, calf rearing, milk quality and milk production. [2]

Right now, veterinary farm guidance is an important part of the veterinary work. Research of Lievaart et al. (1999) shows that veterinarians at the dairy farm spend 45% of their time at veterinary farm guidance. [3] Another article of Lievaart et al. (1999) shows that 70,5% of the farmers take part at any kind of veterinary guidance. [4]

Veterinary farm guidance is meant to increase the productivity of the dairy farm. [2] Research of Vink (2008) shows that almost 90% of the dairy farmers are enrolled in veterinary farm guidance to improve the efficiency of their enterprise. [5] This in contradiction to research of Lievaart et al. (1999) which shows that 45,3% of the dairy farmers are into veterinary farm guidance because of a higher efficiency for their enterprise. A possible explanation for this difference in percentage is time span between the performed studies; perhaps veterinary farm guidance has become more important for the farmer. So, on average about 67,65% of the dairy farmers are enrolled in veterinary farm guidance to improve the efficiency of their enterprise. Of those dairy farmers who stopped the veterinary farm guidance, or never had veterinary farm guidance, 27,3% respectively 33,6% thinks the efficiency is too low. [3] This is noteworthy because research of Kruif et al. (2004) shows that the efficiency of veterinary farm guidance is about 200% to 500%. [6] Further research by Hogeveen et al. (1992) shows that veterinary farm guidance can increase farmers' income considerably. [7]

Veterinary farm guidance is not the same on all farms, but follows a somewhat fixed pattern. Research of Gommans (2007) shows that fertility and milk production are topics frequently discussed during veterinary farm guidance. [8] Udder health for example, is a topic which is discussed in 92,3% of the cases of veterinary farm guidance. For nutrition this is 61,5% and calf rearing is a standard topic for veterinary farm guidance in 15,4% of the visits. Claw health and housing are standard topics for none of the farmers during veterinary farm guidance, but are discussed structurally in 38,5% respectively 23,1% of the farm visits. Notable is the research of Boer (2008), which shows lower rates for fertility and milk production discussed at a farm visit, 86% respectively 61%. [9] Gommans further shows that veterinarians spend most of their time, 52,1%, of veterinary farm guidance, at fertility counseling, followed by udder health (14,8%), calf rearing (8,3%), milk production (7,4%), nutrition (7,3%), claw health (4,5%) and housing (3,8%). [8]

In terms of the costs, the dairy farmer thinks that the maximum price for veterinary farm guidance lies around €119,10 per hour, which is €9,81 more than they pay right now. [2] The

majority of the dairy farmers, 88%, will remain enrolled when the rate will increase. Thirty two percent of the dairy farmers will decrease the level of veterinary farm guidance if prices go up. [2]

From literature it is clear what is done during veterinary farm guidance. It is still unclear, however, why farmers choose to enroll or not. One could expect that characteristics of the farm and the farmer influence this decision. If farmers have someone that wants to take over their farm, for instance, they might be focused more on the future and decide to enroll in veterinary farm guidance. If they have high cell counts, and thus problems with mastitis, they might enroll to fix the problems.

If these farm characteristics are known to veterinarians, they could use them to select farmers that are more likely to be open to participation in veterinary farm guidance. This could help them market it in practice. Aim of this study is therefore to find farm characteristics that are related to participation in veterinary farm guidance

3.1 Purpose of the study

The aim of this study is to find characteristics of the dairy farm that are related to participation in veterinary farm guidance. This can be useful for the dairy farmer and the veterinarian as well. It is useful for the dairy farmer because the farmer can assert for themselves what they want and what they ask for in veterinary farm guidance. For the veterinarian it is also useful because the advice they give is more precise, since they know their clients preferences. To gather data, a survey was used, which was distributed among dairy farmers. In a follow-up study profiles of dairy farmers in relation to veterinary farm guidance will be made up and results will be cross checked.

3.2 Hypothesis

Province, age, succession, size of the dairy farm, size of milk quatum, somatic cell count and expansion plans influence choices about veterinary farm guidance. Province is important because there might be some regional differences between the northern and southern part of The Netherlands. Age may influence choices about veterinary farm guidance. Older farmers may not be familiar with veterinary farm guidance, so they do not take part in it. Size of the farm may be related to veterinary farm guidance, because the bigger the dairy farm is, the more is help needed with the business. These are also the reasons why milk quatum is important. Somatic cell count might be related veterinary farm guidance because it might be the case the higher the somatic cell count is, the more problems are at the dairy farm and the more farm guidance is needed. [10] [11] Succession and expansions plans are related to veterinary farm guidance since they provide the dairy farm a future.

Beforehand there may not be a relation between type of cowshed, brand of tractor, breed cows and how long the dairy farmer is affiliated with the veterinary farm practice and the other topics of the survey, but these topics are investigated to make the profiles of the farmers as complete as possible, because these topics are inextricably linked to the dairy farm.

4. Materials and methods

This study is part one of three. In this part of the study a survey is filled out by dairy farmers, which asks for specific farm characteristics, and farmers' preferences related to veterinary farm guidance. The survey contained 27 questions, varying from age and province to somatic cell count and the types of veterinary farm guidance the dairy farmers would like to have. After drafting this survey it was up to the dairy farmers to fill it out. Ways to approach farmers were via the milk factory 'Friesland Campina' and the 'GD Deventer', but they were not allowed to share the personal contacts of their clients or to distribute the survey via their own intranet network. Next, veterinary practices were contacted to ask for distribution of the survey among their clients. About twenty practices have been contacted, and only one of them helped with distributing the survey. Because of the inefficient way of gaining participants for the survey, dairy farmers were called directly by phone. Phone numbers were obtained by entering 'dairy farmer and the name of province' into Google. Via this way it was possible to call dairy farmers from all over The Netherlands to rule out regional differences. In total more than 140 dairy farmers have been telephoned. Of these farmers, 104 dairy farmers gave their e-mail address, so it was possible to send them the survey via e-mail. Not all of the dairy farmers filled out the survey, 63 of 104 in the end filled out the survey. This is a response rate of $\pm 60\%$ for the phoned farmers, and a response rate of about 45% for all farmers that were approached. The response rate of the veterinary practices who helped to disseminate the survey was only 5.8%. It took over two months to gain the total of 63 participants for the study. The results of the 27 multiple choice questions were entered in Excel, and processed in SPSS with a Chi squared test. The last question of the survey was an open question, so it was not usable for either Excel or SPSS, but answers will be reported in the report. Question number 25 was used to determine whether farmers were enrolled in veterinary farm guidance or not. If a farmer did not fill out anything, or if only fertility guidance or only feed advice was selected, farmers were said not to be enrolled in veterinary farm guidance.

5. Results

Looking back at the hypotheses, some surprising insights came up. First, the topics that were likely to have a relation with veterinary farm guidance (province, age, succession, size of the dairy farm, size of milk quatum, somatic cell count and expansion plans) were found not all to be significant in the Chi-square.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4,942 ^a	2	,084
Likelihood Ratio	4,815	2	,090
Linear-by-Linear Association	4,287	1	,038
N of Valid Cases	63		

a. 1 cells (16,7%) have expected count less than 5. The minimum expected count is 3,71.

Succession was close to significant ($P < 0,05$), with a value of 0,084, but not enough to call it significant (figure 1).

Figure 1. Succession related to veterinary farm guidance.

Maybe the sample of the population is not big enough, and if there were more dairy farmers who filled out the survey it could be significant. There is a logical connection between succession and veterinary farm guidance. If a dairy farmer is sure about succession there is a future for his company, the farm, and the farmer is more likely to invest in his farm through veterinary farm guidance.

Count

		bb		Total
		0	1	
v2	1	2	5	7
	2	3	8	11
	3	9	13	22
	4	4	19	23
Total		18	45	63

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3,059 ^a	3	,383
Likelihood Ratio	3,094	3	,377
Linear-by-Linear Association	,459	1	,498
N of Valid Cases	63		

a. 2 cells (25,0%) have expected count less than 5. The minimum expected count is 2,00.

Another striking detail is the fact that location (province) is not related to veterinary farm guidance. Apparently dairy farmers all over The Netherlands are equally interested in veterinary farm guidance. Notable is the high number of dairy farmers from the province of Drenthe who filled out the survey. With a total of 15 out of 63, it is with 23% the highest response of all the provinces. Age is also not significantly related to veterinary farm guidance ($P = 0,383$) (figure 2).

Figure 2. Age is not related to veterinary farm guidance.

Again this could be explained by the fact that not enough dairy farmers filled in the survey. It is worth noticing that older people engage in veterinary farm guidance more often

compared to younger people. In the category >50 years, 19 out of 23 farmers are enrolled in veterinary farm guidance. This is about 82% of this group. If you look to the category <30 years old, this is 5 of the 7 farmers, which is about 71%. Again it must be said that the sample of the population is not big enough to draw any conclusions.

The somatic cell count is significant ($P=0,044$)(figure 3).

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,242 ^a	2	,044
Likelihood Ratio	7,072	2	,029
Linear-by-Linear Association	5,795	1	,016
N of Valid Cases	63		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is 1,14.

Figure 3. Somatic cell count related to veterinary farm guidance

There is a relation between somatic cell count and veterinary farm guidance. This might be explained by the fact that farms with higher somatic cell count have a higher need for veterinary support. [10] [11] From a different perspective, farmers with a low cell count might experience less problems and thus need less support.

Close to significant are the expansion plans ($P=0,069$)(figure 4).

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,104 ^a	3	,069
Likelihood Ratio	8,326	3	,040
Linear-by-Linear Association	,009	1	,924
N of Valid Cases	63		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is ,86.

Figure 4. Expansion plans close to significantly.

This is explainable because when a dairy farmer wants to expand his enterprise, he is going to invest in its future, perhaps by taking part in veterinary farm guidance, which is also a kind of investment.

The size of the dairy farm, in number of cows and either number hectares, and the size of the milk quatum are not significant ($P=0,130$, $P=0,634$, $P=0,330$ respectively).

Looking back to the hypothesis for the topics which thought to be not affiliated with veterinary farm guidance; "Topics like type of cowshed for milking, brand of tractor, breed cows and how long the dairy farmer is affiliated with the same veterinary practice will have no correlation with type of veterinary farm guidance", some interesting results came up.

Brand of was close to significantly ($P=0.064$) (figure 5).

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,410 ^a	5	,064
Likelihood Ratio	10,928	5	,053
Linear-by-Linear Association	,000	1	,990
N of Valid Cases	58		

a. 8 cells (66,7%) have expected count less than 5. The minimum expected count is ,88.

Figure 5. Brand of tractor.

Although not significant, it seems there is a trend that having a tractor of the brand Fendt, John Deere may be related to veterinary farm guidance.

Breed of cows has a significant relation with participation in veterinary farm guidance ($P=0.034$). It can be concluded there is a relation between the breed Holstein Frisian and Holstein Frisian red and veterinary farm guidance. See figure 6.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4,511 ^a	1	,034		
Continuity Correction ^b	2,409	1	,121		
Likelihood Ratio	3,984	1	,046		
Fisher's Exact Test				,067	,067
Linear-by-Linear Association	4,440	1	,035		
N of Valid Cases	63				

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,14.

b. Computed only for a 2x2 table

Figure 6. Breed of cows is significant related to veterinary farm guidance.

When a farmer has Holstein Frisian (red) cows the change to be enrolled in veterinary farm guidance is bigger, because Holstein Frisians are mostly used for its high productivity and because of this more problems are seen en thus support by the veterinarian is needed. [12]

For the rest, the hypothesis seems to be correct about type of cowshed used for milking and how long the dairy farmer is affiliated with the same veterinary practice. These topics seem to be not related to veterinary farm guidance.

Another topic which is not significant, but notable, is the date of building the stable. As can be seen in figure 7 participation in veterinary farm guidance is lower when the stable is built after 2010 (answer 4).

Count

		bb		Total
		0	1	
jaar	2	6	17	23
	3	5	20	25
	4	7	8	15
Total		18	45	63

Figure 7. Relation between age of stable and veterinary farm guidance.

This may be explained by the fact that a new stable is probably good working and efficient and no help is needed.

The last question was an essay question, where farmers could fill out everything they thought was missing in veterinary farm guidance. Most of them, 71%, were content with veterinary farm guidance as it was. The others differ from saying there is more knowledge needed when veterinarians are doing farm guidance and others say farmers and veterinarian have to set goals and evaluate them.

6. Discussion

While making this scientific article several problems came up. First of all there was the lack of interest to fill out the survey used in this study. In the beginning it was tried to get in contact with dairy farmers through their milk factory, Friesland Campina, because they have a large amount of dairy farmers in their database and via this way we were able to reach a large group of participants for the research. This failed because they were not allowed to share contacts due privacy policy. Secondly it was tried get in contact with the dairy farmers through their veterinarians. But in a certain way this failed, for an unknown reason. About twenty veterinary practices have been contacted and in the end only one practice helped with sharing the survey. This was not the most effective way of gaining participants for the research so also the GD Deventer has been contacted, but they could not help with the investigation for the same reason as the milk factory. The veterinary practices who have been contacted and refused to take part at the research have been asked why they did not want to take part at the research. Several reasons came up, like not willing to share contacts, which does not make sense because the survey is anonymous, and we were not asking for personal data, but only the veterinarian to ask the dairy farmer to fill in the survey. Other veterinary practices did not see the extra value of helping this investigation. Some other veterinarians were changing their own herd health management, so this survey came inconvenient. And the last group of veterinary practices did not respond to the e-mail, or promised it to do and at the end they did not do anything.

Next, dairy farmers have been contacted directly. First of all at a test round at the Landbouwbours Assen, where the survey was tested, and where participants gave there feedback on the survey. After this test round the survey got changed for some questions and some questions were added. With survey 2.0 we started calling dairy farmers, to fill in the survey. Phone numbers were obtained via the internet. Entering 'dairy farmer Drenthe' gave a list of dairy farmers in that specific province. Even though we now had a list of contacts, it was still tough to let the dairy farmers fill in the survey. Over 140 dairy farmers have been telephoned, about 100 of them were fine with giving their email address, and 63 eventually filled in the survey. So this shows that the zest is not that high. The dairy farmers who've been called and refused to fill in the survey have asked why they did not want to fill in the survey and the most called reason was they filled in lots of surveys the last time and they have had enough of them. Other farmers did not have time to fill in the survey and some farmers appeared to be afraid of the survey, even though the farmers were told the survey is anonymous. This is explainable because when people are in the 'no' mood, they are not going to do something you are asking them to do, even when you try to convince them.

Looking at the results, not all topics are significant. Some of them are close to significant, for example the certainty of succession. This could be explained by the fact that when a farmer is sure about succession, there is a future for the farm and the farmer is more willing to invest in its farm, via veterinary farm guidance. Second, the brand of tractor. A statement is not clear, but maybe it is the estimate when a dairy farmer can effort such an expensive tractor, he also is willing to pay for veterinary farm guidance. This question gave lots of reactions by the farmers. Also the year of building the stable seems to have a relation to

veterinary farm guidance. When stables are built after 2010, there is less ask for veterinary farm guidance. See figure 7. This is not significant, but close to it and can be explained because when the stable is new, it may work more efficient and no extra help is needed. The last one are the expansion plans. When a farmer is thinking about expansion plans, it seems to be he is more willing to do veterinary farm guidance. Perhaps farms who are expanding are more serious about the future, and thus more willing to invest in herd health. But this is all not significant, so more research is needed, with a higher rate of participants.

It is notable for me that there seems to be no differences between the Northern and Southern part in The Netherlands in relation to veterinary farm guidance. I expected them to be. Apparently those differences are not there when it is about veterinary farm guidance.

But after all this, can somatic cell count and breed of cows help the veterinarian with veterinary farm guidance? Probably not right now, but the next part of the study will investigate these characteristics. For the veterinarian these characteristics make it more presumably the farmer is willing to enroll in veterinary farm guidance.

7. Conclusion

Veterinary farm guidance is related to a number of topics, investigated in this survey. These are breed cows and somatic cell count. When a dairy farmer has a particular breed of cow, Holstein Frisian or Holstein Frisian red, he is likely to take part in veterinary farm guidance. This can be explained because most of the dairy farmers have cows to produce milk. Mostly they have a type of cow which is well known because of the high productivity, like the breed Holstein Frisian (red). But, unfortunately, this means mostly more problems and thus support by the veterinarian is needed. [12]

The next significant attribute is the somatic cell count. The lower the somatic cell count is, the less veterinary farm guidance is needed. This can be explained because the lower the somatic cell count is, the less problems there are at the dairy farm and the less help is needed for the farmer.

Then there are some topics which are not significant, but are close to significant. First of all the certainty of succession. There also seems to be a relation between brand of tractor and veterinary farm guidance. Although this is not significant, it seems that when a farmer has a Fendt or John Deere he also is more likely to take part in veterinary guidance. Also the year of building the stable seems to have a relation to participation in veterinary farm guidance. When stables are built after 2010, there is less need for veterinary farm guidance. The last one are the expansion plans. When a farmer is thinking about expanding his farm, it seems he is more likely to enroll in veterinary farm guidance.

8. Acknowledgements

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10. Attachments



Universiteit Utrecht

Survey Veterinary farm guidance Faculty of Veterinary Medicine

All results are processed anonymously

1. Which province are you living in?

- Friesland
- Groningen
- Drenthe
- Overijssel
- Gelderland
- Noord-Holland
- Zuid-Holland
- Flevoland
- Utrecht
- Zeeland
- Noord-Brabant
- Limburg

2. What's your age?

- < 30 years
- 30 – 40 years
- 40 – 50 years
- 50 < years

3. Which of the following is applicable to you?

- Married
- Divorced
- Cohabiting
- Single
- LAT relationship
- Other

4. Do you have children?

- Yes, 4 or more
- Yes, 3 children
- Yes, 2 children
- Yes, 1 child
- No

5. Are you sure about succession?

- Yes, I am sure
- Maybe
- No

6. Which brand of tractor do you have? (multiple answers possible)

- Case
- Fendt
- John Deere
- New Holland
- Massey Ferguson
- Other ...

7. Which breed cows do you have? (multiple answers possible)

- Belgisch witblauw Blaarkop Fleckvieh Hereford Fries roodbont
- Holstein-Friesian Jersey Lakenvelder Oost-Vlaams witrood MRIJ
- Fries Hollands Holstein Friesian rood Montbéliarde Brown Swiss Other, ...

8. How many hectare do you use?

- < 20 hectare 20 – 40 hectare 40 – 60 hectare > 60 hectare

9. How big is your herd? (only milch cows)

- < 50 cows 50 – 80 cows 80 – 110 cows > 110 cows

10. How do you milk the cows?

- By hand Rotary milking Herringbone Robot Other, ...

11. What is the average lifetime production per cow at your farm?

- < 20.000 kg milk 20.000 - 30.000 kg milk 30.000 – 40.000 kg milk > 40.000 kg milk

12. In which year the stable(s) built?

- before 1970 between 1970 en 1990 between 1990 en 2010 after 2010

13. Do you have a regular veterinarian employed at your farm?

- Yes, always the same person No, not always the same person, but always the same veterinary practice No, not the same veterinarian and also not the same veterinary practice.

14. How long have you been member at the same veterinary practice?

- less than a year between one and five years between five and ten years > 10 years

15. What kind of farm do you have?

- only dairy farm dairy farm and calf rearing biologic farm
- dairy farm and agriculture dairy farm and poultry dairy farm and pigs other, ...

16. How big is your milk quota?

- < 500.000 kilogram 500.000 – 1.000.000 kilogram > 1.000.000 kilogram

17. How many liters of milk do you supply?

- < 400.000 Liter 400.000 – 600.000 Liter 600.000 – 800.000 Liter > 800.000 Liter

18. What's the average milk production per cow per year at your farm?

- < 6000 Liter 6000 – 8000 Liter 8000 – 10.000 Liter > 10.000 Liter

19. How do you rank animal welfare on a scale from 1 to 5?

Unimportant 1 2 3 4 5 Important

20. What do you think about the value of money for veterinary farm guidance?

- Fine Could be better, bit expensive Great, if necessary I would pay more.

21. What's your somatic cell count?

- < 100.000 per mL 100.000 – 250.000 250.000 – 400.000 > 400.000

22. What's the purpose of your business?

- Maximum profit Maximum welfare Be as 'Green' as possible
 Having a pleasurable farms life Other, ...

23. Do you have expansion plans?

- Yes, within five years Yes, within ten years Maybe in the future No

24. Besides veterinary farm guidance, do you have other forms of business counseling? (multiple answers possible)

- Yes, the feed supplier Yes, the AI-man No Yes, ...

25. Which form of veterinary farm guidance do you have at the moment? (multiple answers possible)

- Fertility
 Udder health
 Feed
 Claw health
 Housing
 Calf rearing
 Milk quality
 Milk production
 Welfare
 Other, ...

**26. Which form of veterinary farm guidance would you like to have in the ideal situation?
(multiple answers possible)**

- Fertility
- Udder health
- Feed
- Claw health
- Housing
- Calf rearing
- Milk quality
- Milk production
- Welfare
- Other, ...

26. What's missing in veterinary farm guidance?

Thanks for your help!