

# Impact Assessment

of Farm and Veterinary Center in Sisian Region

## With the support from

Caucasus Agricultural Development Initiative of the United States Department of Agriculture



December, 2013

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<u>Acknowledgment:</u> ICARE Foundation expresses its cordial gratitude to USDA CADI, CARD Foundation and manager of Sarnakunq Farm and Veterinary Service Center Suren Vardanyan for the continuous support in activities within the scope of baseline study project.

#### I. Introduction

To assure a year—around availability of animal health services and high quality livestock farm supplies in the region, in 2011, a Farm and Veterinary Service Center (FVSC) has been established in Sisian region of Armenia in the scope of USDA's Animal Health Trade Capacity Building program. The center was aimed to provide high quality goods and services to the local population, including services related to artificial insemination, advisory services on livestock management and animal health care, as well as to provide high quality farm supplies and equipments. In order to assess the operational effectiveness and impact performance of this center, USDA has contracted the International Center for Agribusiness Research and Education (ICARE) to conduct a baseline study in 2012 and continue following it up with a monitoring and evaluation study in 2013.

#### 1. Survey questions and instruments

There were two surveys utilized to understand the effects of the FVSC in two different target communities: veterinary community across Sisian and Goris districts of Syunik Marz, and the livestock owning households of the Sisian region.

- a. Questionnaire for animal owning households at large across a geographic area of Syunik Marz aimed at exploring the effect of the FVSC over time on:
- b. Questionnaire for veterinarians aimed at exploring the effect of the FVSC and trainings on veterinarians and their businesses.

ICARE has used the same questionnaires as in 2012. A detailed description of the questionnaires by section is presented in Table 1.

Table 1: Questionnaire Content, by Section

Sections	Households and FVSC Customers	Veterinarians
1	FARM OWNERSHIP INFORMATION	COMMUNITY LIVESTOCK HEALTH INFORMATION
2	LIVESTOCK HEALTH INFORMATION	GENERAL VETERINARY ACTIVITIES
3	AVAILABILITY AND USAGE OF VETERINARY MEDICINE	AVAILABILITY AND USAGE OF VETERINARY MEDICINE
4	VETERINARY SERVICES	SARNAKOUNQ VET CENTER SPECIFIC
5	LIVESTOCK MANAGEMENT	EDUCATION, SKILLS, AND ECONOMIC SITUATION
6	SARNAKOUNQ VET CENTER SPECIFIC	
7	SOCIO-DEMOGRAPHIC CHARACTERISTICS, EDUCATION, AND SKILLS	

#### 2. Scope of survey implementation

The study aimed at revealing the significance of impact on animal-owning households of various services, provided by FVSC on rural households. A survey, employing a personal interview approach, was designed to collect data from selected households who were current or potential users of FVSC. Clusters were chosen based on simple random sampling approach. Ten communities were selected out of total 2. Twenty animal-owning households were randomly selected to be interviewed in each of the selected village community. Weights were calculated based on the relative size of the number of animals in these communities.

The field work lasted about two weeks and was conducted by five interviewers under the supervision of one supervisor. The survey results showed that the FVSC has demonstrated quick progress in building awareness and customer base since opening its doors in November 2011. FVSC was attractive especially for those animal-owning farmers who value convenience and reliable high quality of the goods and services offered. By the end of July 2012, more than half of the animal-owning households in Sisian district were aware of the FVSC. The same figure increased to 68% in 2013. Every fifth animal-owning household reported that they actually visited the FVSC.

The research covered the livestock-owning households' population groups of Sisian region. The sampling methodology was designed to select 10 communities as clusters followed by random sampling of animal-owning households within the selected villages. The households were assigned weights based on the relative number of total animals in their communities. In 2012, fifteen animal-owning households were randomly selected to be interviewed in each of the selected village. The selection of households for the baseline study was done in the following way. The team members visited the mayor's office in each village and requested the list of households who own cattle or ship or goats. Then, from the provided list, 20 households were chosen randomly, using the randomized numbering principles. Out of these 20 households, it was decided to obtain 15 interviews in each village for the baseline study. In the next year the ICARE team decided to complete 20 interviews in each village. The goal was to incorporate the same 15 households who were interviewed in 2012. The remaining 5 households were to be randomly selected in the following way. From the list of inhabitants taken from the village mayor, 10 households were selected randomly to be in the reserve list. If interviewers succeeded to reach the previously interviewed 15 households, 5 households would be randomly selected from the available 10. If interviewers managed to reach 13 households of the 2012 sample, the remaining 7 households from the available list were considered for interviewing (see Table 2 for further details).

Table 2: Sampling Design, by Group

Year	Target Population Group	Sampling Methodolog y	Regiona 1 Cover	Surve y Period	Number of People or Household s Surveyed	Weighted
2012	Cattle (and/or sheep & goats)-owning households	Clustered sampling of the villages and simple random selection within the villages	10 villages in Sisian	July, 2012	150 households	YES
2013	Previously interviewed households, new households	Clustered sampling of the villages and simple random selection within the villages	10 villages in Sisian	July, 2013	200 households	YES

The team managed to interview 37 veterinarians that had been interviewed previously. The missing respondent was not in the country at the time period of interview.

# II. Characteristics of the General Population of the Animal Owning Households, the FVSC Customer Households, and the Veterinarians

The comparison of the number of the animals in the household revealed that the FVSC attracts households with larger animal holdings. Specifically, the median of the total number of animals of all ages and sexes kept in the holdings of the customers is 15, which is three times as high as that of the general animal owning households. The same pattern is also observed when analyzing the ownership of sheep and goats of these two household groups (see Figure 1).

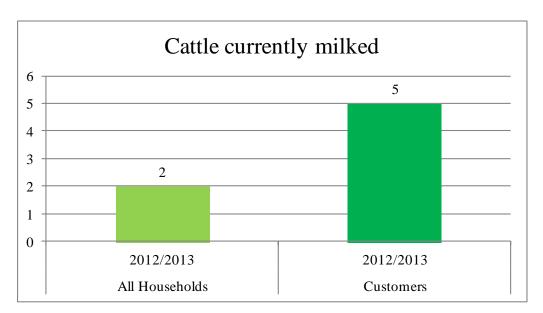
The median number of cattle and sheep and goats kept by the households has increased in 2013 relative to 2012 by 1 and 3 animals, respectively. The FVSC customers have better succeeded in increasing their herd size compared to general animal owning households.

Cattle Sheep and Goats All Households Customers

Figure 1: Median size of animal holdings, by animal type and household group

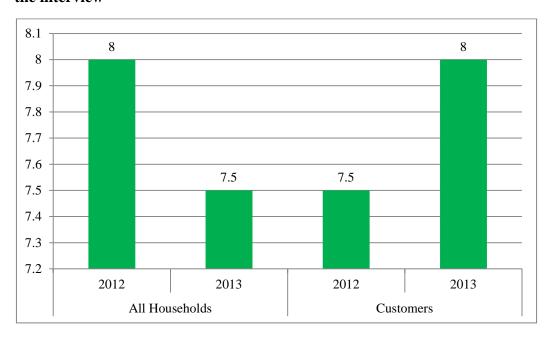
Median number of animals milked stayed the same for both groups of farmers (see Figure 3).

Figure 2: Median size of animal holdings in terms of number of cattle milked, by household group



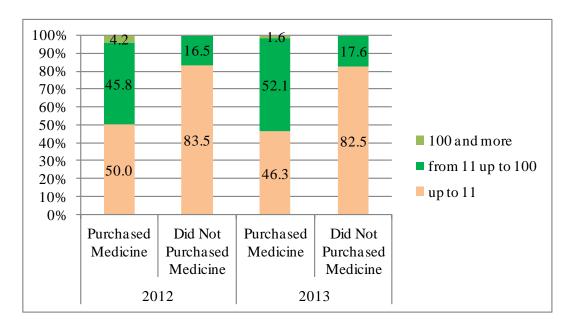
Average daily milk per cow has decreased for animal owning households by 0.5 liters (see Figure 3). The customers, however, have improved their daily milk yield from 7.5 to 8 liters per cow per day.

Figure 3: Median liters of the average daily milk yield per animal milked the day before the interview



82.5% of animal owning households who did not purchase medicine from FVSC are smallholders with up to 11 cattle (see Figure 4). However, only 46.3% of those who purchased medicine from FVSC are smallholders. So, as in 2012, FVSC attracts many mid and large scale farmers. The share of smallholder farms who purchased medicine has decreased by 3.7% in 2013 relative to 2012.

Figure 4: Herd size, by household group



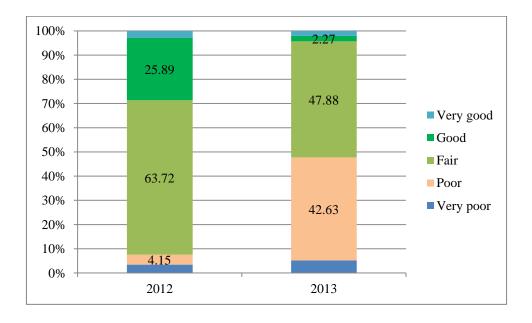
Application of milking machines is almost non-existent in general animal owning households. The FVSC customers however have widened the utilization of this technology from 17.7% in 2012 to 23.5% in 2013 (see Figure 5).

25.0 23.5 20.0 17.9 15.0 10.0 5.0 0.9 0.0 0.0 Customers Non customers Customers Non customers 2012 2013

Figure 5: Ownership of milking machine, by household group

The perception about the general health of animals in the area has become more pessimistic. For example, in 2012 only 4.15% of the animal owning households thought that the general health of animals in their area was poor (see Figure 6). In 2013, this number has increased to 42.63%. In 2013 only 2.27% of farmers thought that the general health of animals in their area was good.

Figure 6: Perception of the general health of their animals in their area, by household group



When asked about the main animal problems in their area, the farmers had significantly different responses in 2012 and 2013. Feed was a key problem (35.51%) in 2012 (see Figure 7). In 2013, however, only 11.2% of farmers mentioned feed as the main animal problem. Most of the farmers (46.62%) thought that sales were the main issue in their community. Diseases (19.63%)

were the second significant problem in 2012. Share of those who had this opinion has decreased to 4.96% in 2013.

100% 7.56 8.04 ■ No problem 90% 8.2 11.94 80% 8.9 ■ Shortage of breeding 70% 6.22 stock60% 10.24 ■ Water 46.62 50% Sales 40% 35.51 30% 15.11 ■ Poisonous Plants 20% 11.2 10% 19.63 Feed 4.96 0% 2012 2013

Figure 7: Perception of the main animal problems in their area, by household group

In 2013, larger share of the animal owning households (13.83%) reported that their animals have been ill in the past month (see Figure 8).

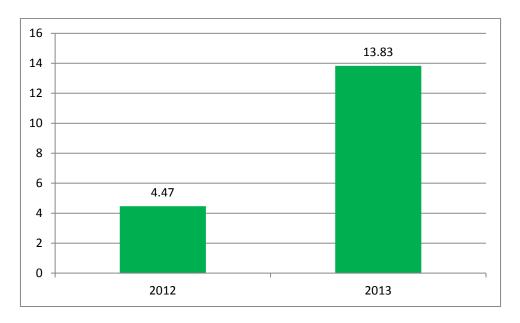
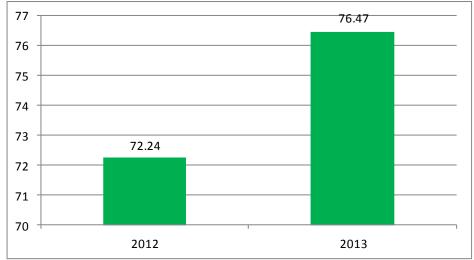


Figure 8: Perception of their animals being ill in the past month

More than 70% of farmers purchase medicines for their livestock during the year (see Figure 9). The share of such farmers (76.47%) has also increased in 2013.

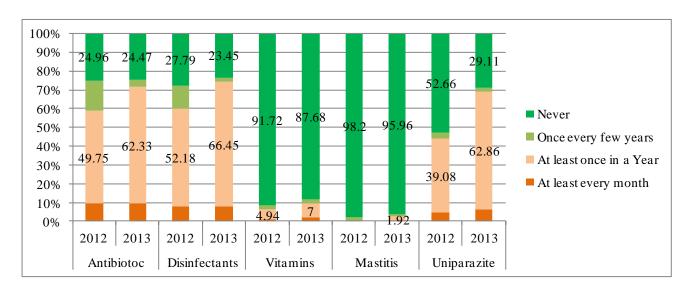
Figure 9: Percent of those who have bought some medicines from the FVSC



Antibiotics have become more popular in 2013. Particularly, the share of those who used this medicine increased from 49.75% in 2012 to 62.33% in 2013 (see Figure 10). But, share of animal owning households who never bought antibiotics stayed about the same (about 25%). So, the farmers who were using this medicine once every few years are now applying it more frequently.

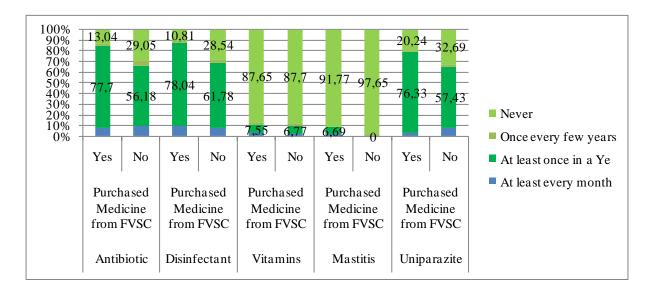
A similar story is connected to the use of disinfectants. Vitamins and mastitis medicine still could not find their place in the arsenal of the farmers. Large share of farmer who never used uniparazite medicine are using it at least once in a year. Particularly, about 29.11% of the farmers reported never using uniparazite medicine in 2013 relative to 52.66% of such farmers in 2012.

Figure 10: Frequency of using the medicines of FVSC in the past year



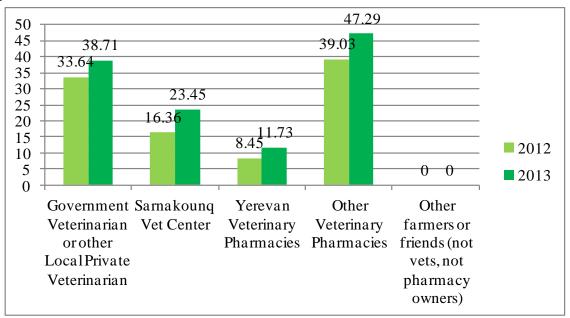
Our team tried to compare the frequency of applying different medicine between two farmer groups: those who purchased medicine from FVSC and those who did not do so. Those who purchased medicine from FVSC apply antibiotics (77.7%), disinfectants (78.04%), and uniparazite medicine (76.33%) more frequently than the other group (see Figure 11).

Figure 11: Frequency of using the medicines of FVSC in the past year, by those who purchased medicines from FVSC and those who did otherwise



All of the sources mentioned in the figure, except for other farmers or friends, have increased the share of farmers served (see Figure 12). Government veterinarians or other local veterinarians (33.64% in 2012 and 38.71% in 2013) together with other veterinary pharmacies (39.03% in 2012 and 47.29% in 2013) kept their dominant positions in the medicine market. FVSC has strengthened its position in the market and currently supplies about one-quarter of the farmers with medicine.

Figure 12: Percent of those who have bought some medicines for livestock, by sources and year



In both 2012 and 2013, more than half of the animal owning households thought that distance is the main factor for their choice of making decision of medicine purchase (see Figure 13). Share of those who mentioned fair pricing as the main factor attracting them has decreased almost

twice from 2012. Instead, the share of the farmers who did not know about the reason of their choice of buying medicine has increased to 22.4% in 2013.

100% Do not know 90% 17.08 22.4 80% Other 70% 12.53 60% ■ Reliable high quality 6.86 50% medicine 40% Better service 30% 59.23 53.58 ■ Better advisory services 20%

2013

10%

0%

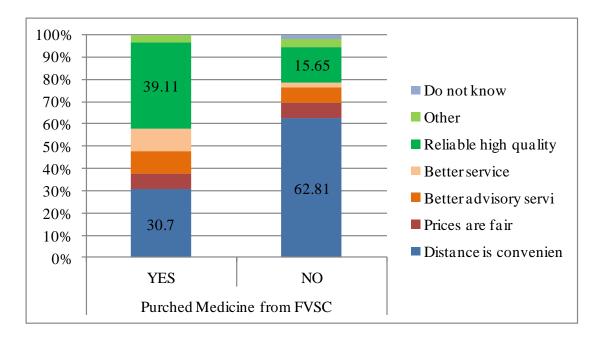
2012

Figure 13: Reason indicated the preference of vet medicine source in the past year for animal owning households in the past year.

We have also compared the responses for this question between the farmers who purchased medicine from FVSC and those who did not purchase medicine from FVSC. Better service was mentioned by 9.95% of those who purchased medicine as compared to 2.08% of farmers who did not purchase medicine from FVSC (see Figure 14). Convenience of distance is mentioned by about twice the higher share of the farmers who did not purchase medicine from FVSC (62.81%) relative to those who purchased medicine from FVSC. A finding also worth to mention is that 39.11% of animal owning households who purchased medicine from FVSC said that they do not know about the main reason of their choice.

Prices are fair

Figure 14: Reason indicated the preference of vet medicine source in the past year for animal owning households in the past year, by those who purchased medicines from FVSC and those who did otherwise



The share of farmers who seek health advice for their livestock in the past year has increased from 42.52% in 2012 to 63.56% in 2013 (see Figure 15).

Yerevan veterinary pharmacies played minimal role in giving health advice to the Sisian farmers for their livestock (see Figure 16). In 2012, the proportion of animal owning households not seeking health advice from fellow farmers stayed about the same (around 48%) as in 2012. Other veterinary pharmacies have significantly improved their role in terms of giving livestock health advice to the farmers. Proportion of farmers who did not seek livestock health advice from the other veterinary pharmacies decreased from 94.19% in 2012 to 64.58% in 2013.

42.52 

Figure 15: Percent of animal owning farmers seeking health advice in the past year

At least twice a year vaccination program covered 85.3% in 2013. This number is by 6.78% lower than it was in 2012 (see Figure 16). AI and pregnancy checking has expanded by 10.57% since 2012. This service is used at least once a year. Sick animals checking has become more frequent in 2013 compared to 2012. 57.41% of the farmers used this type of service at least every six months. Dehorning and hoof trimming service has also become more demanded, but still

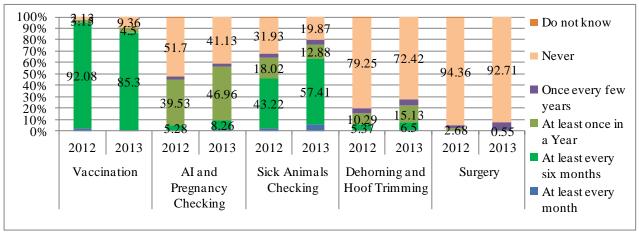
about 72.42% of the animal owning households did not seek such service by a veterinarian in 2013. Most of the farmers (94.36% in 2012 and 92.71% in 2013) are not using surgery services.

100% 3.40 90% Did not seek 80% 47.85 48.06 health advice 42.41 4.92 70% 60% Over 20 times 92.8494.1950% 5.4710.82 40% 55.10 30% 20.04■ 5-20 times 35.30  $10.09^{-}$  $\overline{49.15}$ 20% 22.7210% 1.61 1.03 0.55Under 5 times 0% 2012 2013 2012 2013 2012 2013 2012 2013 Once Yerevan Vet Other Vet Fellow Farmers Government Veterinarian or Pharmacies Pharmacies other Local Private Veterinarian

Figure 16: Frequency of seeking health advice for their livestock in the past year by sources

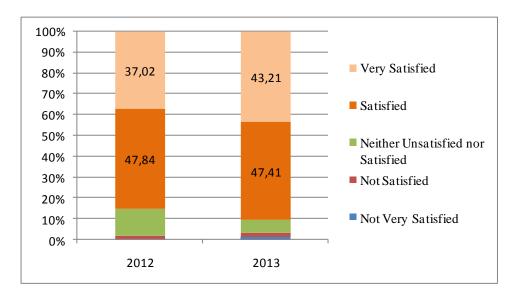
The proportion of the animal owning farmers who were satisfied or very satisfied with the quality of their veterinary services you received from the Government Veterinarian or other Local Private Veterinarian has increased from 84.86% in 2012 to 90.62% in 2013 (see Figure 17). The number of those who are very satisfied with the quality of such service has also improved by 6.19% in the past year.

Figure 17: Frequency of using a veterinarian for their livestock in the past year by service type



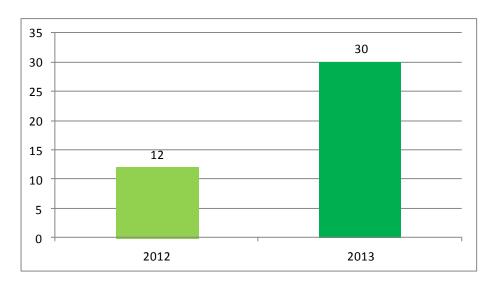
Vast majority of animal owning households mentioned that they are either satisfied or very satisfied of vet services received from Government Veterinarian or other Local Private Veterinarian (see Figure 18). The share of farmers with such opinion has increased in 2013 (90.62%) relative to 2012.

Figure 18: Satisfaction with the quality of vet services you received from the Government Veterinarian or other Local Private Veterinarian



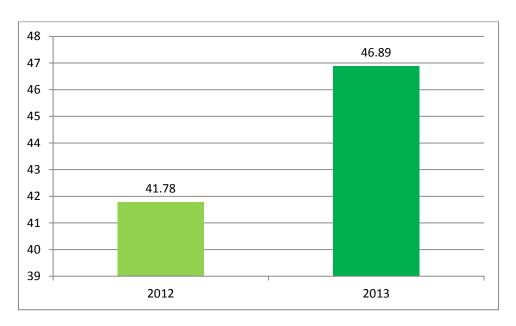
In 2013, the median of the share of purchased feed for their livestock by farmers was reported 30% (see Figure 19). This share is about 2.5 times higher than that of 2012.

Figure 19: The median share of purchased feed used relative to total feed



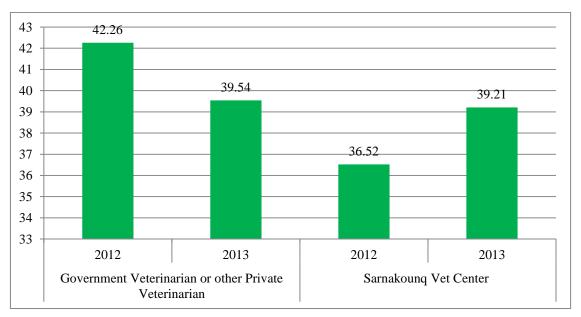
In 2013 46.89% of the animal owning farmers relied on artificial insemination (see Figure 20). Use of artificial insemination method has increased by 5.11% in 2013 relative to 2012.

Figure 20: Proportion of animal owning households who used artificial insemination for their cattle



In 2013, the local farmers have decreased the reliance on the Government Veterinarian or other Private Veterinarians as their main supplier of artificial insemination (see Figure 21). The farmers increased direct purchases of the FVSC from 36.52% in 2012 to 39.21% in 2013. Both suppliers of the artificial insemination have currently equal share of the market. Taking into account that most of the Government Veterinarian or other Private Veterinarians get the artificial insemination from the FVSC, we can conclude that FVSC is the prime supplier of it in the region.

Figure 21: Proportion of animal owning households using artificial insemination for their cattle by supplier



#### III. Interaction with the FVSC

Section 3 tries to shed light on some of the key aspects of the interaction with FVSC of both animal owning households and veterinarians. We start this section by comparing the awareness level of veterinarians versus the animal owning households (see Figure 22).

80 68.27 70 60 54.26 50 40.19 40 Yes 2012 26.48 30 ■Yes 2013 19.19 20 10 0 0 Are you aware of the Are you aware of the Have you visited the Sarnakounq Vet Center? location of the Sarnakounq Sarnakounq Vet Center? Vet Center?

Figure 22: The Interaction with FVSC for animal owning households

Share of the farmers who are aware of the FVSC has increased by 14.01% relative to 2012 and reached to 68.27% in 2013. The share of animal owning households visiting FVSC increased by less percentage (7.29%) over the past year and reached to 26.48% in 2013. There is a stable link between the share of those who are aware of the FVSC and those who have actually visited the place during the both years. It turns out that less than half of those who are aware of the FVSC actually visited the place in both years.

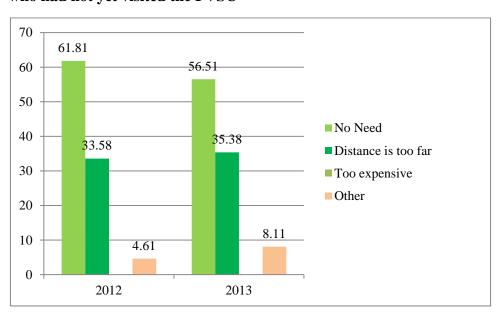
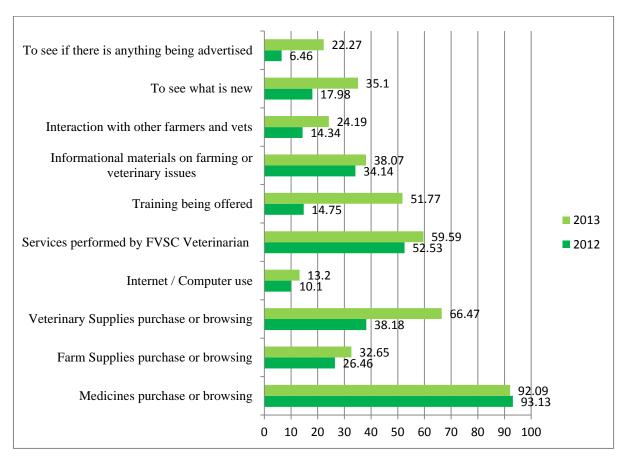


Figure 22: The reasons for not visiting the FVSC among those animal owning households who had not yet visited the FVSC

In both 2012 (61.81%) and 2013 (56.51%), majority of the farmers, when asked about the reason for not having visited the FVSC, responded that there was not need to do so (see Figure 23). In 2013, about 35.38% of the farmers reported that distance was too far. This number is almost the same as in 2012.

Figure 23: The main reasons of animal owning households to return to FVSC among those who have been to the FVSC



Those farmers who have visited the FVSC, were asked about the main reasons for their return to the center. The share of reason selected has increased in each category presented in figure 24. It turn out that medicines purchase or browsing is still the most sited reason for returning to the center in 2013. In the same year, the other reasons that were mentioned by more than half of the farmers were the following:

- "Veterinary supplies purchase or browsing" (66.47%),
- "Services performed by FVSC veterinarian" (59.59%), and
- "Training being offered" (51.77%).

In 2013, the only category that attracted less than 25% of the farmers to revisit the center was "Internet/Computer use" (13.2%).

■ Informational and reference materials on farming and veterinary issues Fully satisfied 2013 9.48 Partially satisfied 6.79 ■ Examination of farm animals Not satisfied provided at your farm including hoof trimming, dehorning, pregnancy check by rectal palpation, and 59.18 72.06<sup>81.67</sup> Fully satisfied diagnosis and treatment of obstetrical, respiratory and digestive system diseases 2012 Partially satisfied ■ Examination of farm animals 7.53 provided at Sarnakounq Vet Center including hoof trimming, dehorning, 40.82 18.33 Not satisfied pregnancy check by rectal palpation, and diagnosis and treatment of obstetrical, respiratory and digestive

Figure 24: Satisfaction of animal owning households with the services rendered by FVSC

In 2013, most of the farmers who used services from FVSC we were still fully satisfied with the trainings and workshops. In 2012, 40.82% of the farmers who used services from the FVSC were not satisfied with informational and reference materials on farming and veterinary issues. In 2013, however, most the farmers (92.97%) were satisfied with this type of service of FVSC.

60

80

100

system diseases.

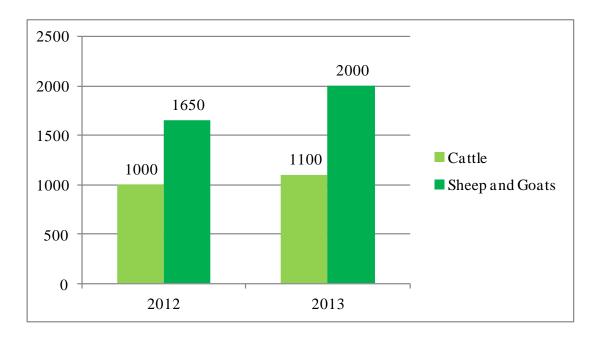
0

20

40

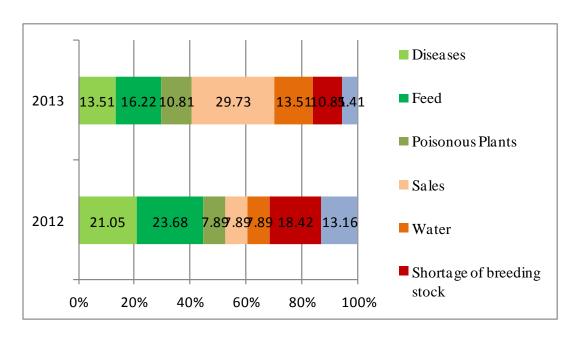
#### IV. Veterinarians

Figure 25: The median size of the animals in the serviced area of the veterinarians



In 2013, the veterinarians reported that there was an increase in the numbers of both cattle and sheep and goats under their serviced area (see Figure 25). Particularly, the median number of cattle increased by 100 heads from 2012. In 2013, an average veterinarian was servicing 2000 more sheep and goats. This number is by 350 higher than the number of sheep and goats in the service area in 2012. This finding is consistent with the findings of the farmer survey presented in figure 1.

Figure 26: Perception of the main animal problems in the area of veterinarians



In 2012, veterinarians reported that diseases (21.05%), feed (23.68%), and shortage of breeding stock (18.42%) were the three key problems in their service area (see Figure 26). In 2013, sales is mentioned as the main problem by the 29.73% of the veterinarians. So, both veterinarians and the farmers (discussed before) are concerned with the problems related to sales in their region. The second largest concern is the feed (16.22%) followed by diseases and water problems (13.51% each).

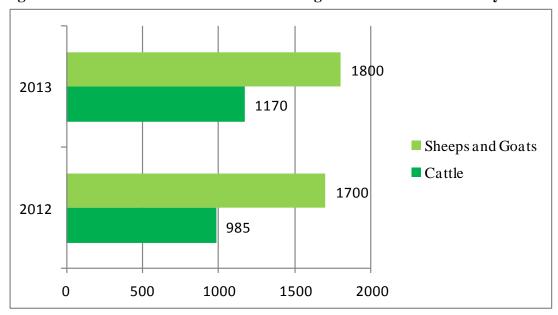


Figure 27: Median number of animals of all ages and sexes vaccinated by veterinarian

The figure 27 shows that most of the animals in the service area are vaccinated by the veterinarians. In 2013, the median number of vaccination load of the veterinarians has increased by 85 vaccinations for cattle and 100 vaccinations sheep and goats. So, in 2013, an average veterinarian has been vaccinating 1170 cattle and 1800 sheep and goats

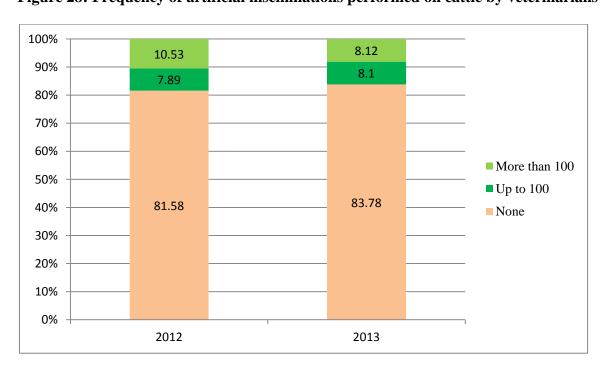


Figure 28: Frequency of artificial inseminations performed on cattle by veterinarians

Regarding veterinarians involvement in performing artificial insemination services, the situation pretty much stayed about the same in 2013 as it was in 2012 (see Figure 28). About four fifth of the veterinarians do not perform artificial inseminations. However, the rest of the veterinarians are quite successful in continuously providing this service in large numbers. For example, in 2013, 8.1% of the veterinarians mentioned that they performed up to 100 artificial inseminations and 8.12% of the interviewed said that they had done more than 100 artificial inseminations in the past year.

90.00 78.95 00.08 70.00 60.00 50.00 43.24 40.54 40.00 30.00 16.22 20.00 13.16 7.89 10.00 0.00 Remained Decreased Remained Increased Decreased Increased the Same the Same 2012 2013

Figure 29: Income change from veterinary practice this year compared to last year, for 2012 and 2013

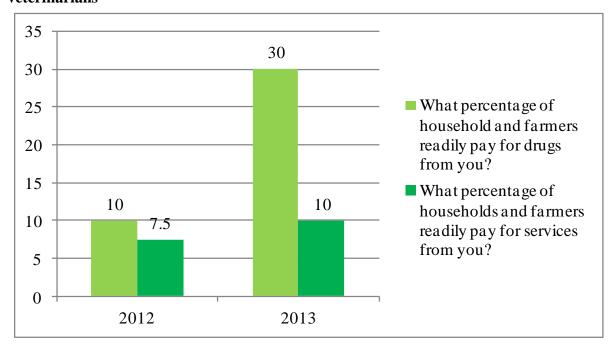
The veterinarians, in general, are happier with their income generated from veterinary practices in 2013 relative to 2012 (see Figure 29). The share of veterinarians reporting a decrease of income from veterinary practice has decreased from 78.95% in 2012 to 43.24% in 2013. In 2013, 16.22% of the veterinarians reported that their income from veterinary practices has increased and 40.54% said that it stayed the same compared to the last year.

reference information Do you have ransportation|have a new or (in books or problem? veterinary when you Y2013 internet) access to on the difficult Y2012 Do you have state provided Do you have your own or deliver your meansto services? Y2013 Y2012 need them? when you Y2013 access to vaccines Yes ■ No Y2012 Sometimes Do you have | need them? medicines when you Y2013 access to Y2012 Do you have access to veterinary equipment when you Y2013 need it? Y2012 0% 20% 40% 60% 80% 100%

Figure 30: Veterinarians' access to transportation, equipment and supplies

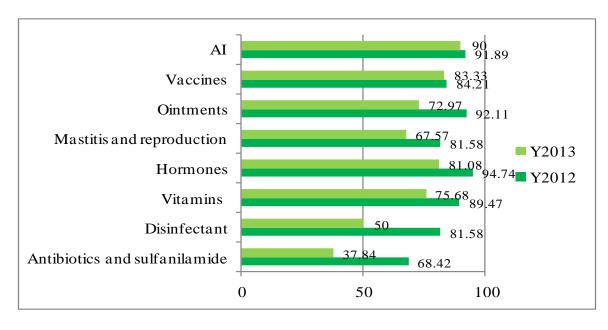
Access to all the resources mentioned in figure 30 has increased over the past year. Assess to transportation is not the main issue for the veterinarians. In 2013, all of the veterinarians mentioned that they have access to vehicles when they needed as compared to 81.58% in 2012. The share of veterinarians who have their own state provided transportation means to deliver their services has increased from 36.84% to 45.95%. In 2013, the access to the medicines and veterinary equipment when needed has increased about twice compared to 2012 and reached to 56.76% and 64.86%, respectively. Access to reference information when having a new difficult veterinary problem is not available to only 13.51% of the veterinarians.

Figure 31: Median percent of households and farmers readily paying for drugs from veterinarians



In 2013, the veterinarians reported higher readiness of farmers to pay for both drugs and services they receive from the veterinarians(see Figure 31). Particularly, the median number of share of animal owning households readily pay for the drugs received from the veterinarians has increased threefold compared to 2012 and reached to 30% in 2013. The veterinarians reported that even though the situation improved compared to the year of 2012, still only 1 in every 10 households and farmers are readily paying for the services delivered by the veterinarians.

Figure 33: Percent of veterinarians never selling veterinary medicines and supplies for their community livestock



In 2013, veterinarians have improved their sales of most of the veterinary medicines and supplies mentioned in figure 32 in their community. Artificial insemination (90% in 2013) followed by the vaccines (8.33) are the two highest reported categories that the veterinarians never sell in their community. And the situation stayed pretty much the same over the past two years. However, only 37.84% of the veterinarians never sold antibiotics and sulfanilamide in 2013.

This is a significant drop from reported 68.42% in 2012. In 2012 more than 80% of the veterinarians never sold disinfectants. But, in 2013, only half of the veterinarians are still not selling this item. In the same year, vitamins, hormones, and mastitis and reproduction medicine, and ointments have been never sold by 75.68%, 81.08%, 67.57%, and 72.97% of the veterinarians, respectively.

72.97 70 60 55.26 50 40 30 20

Figure 33: Proportion of veterinarians who visited the FVSC

Y2012

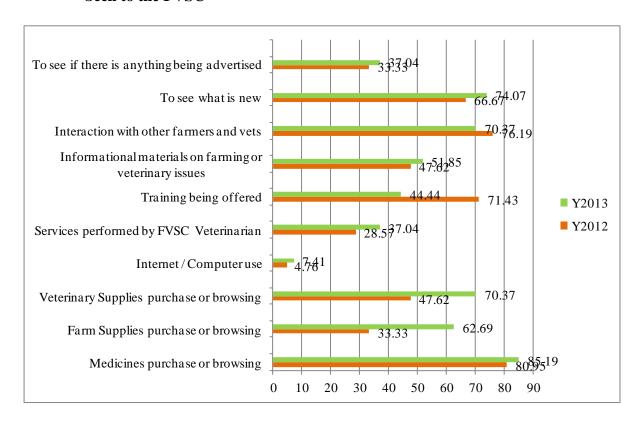
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The FVSC was much more successful in attracting the veterinarians to visit the center than farmers. Particularly, the share of veterinarians who visited the center has increased from 55.26% in 2012 to 72.97% in 2013 (see Figure 33).

Y2013

Figure 34: The main reasons of veterinarians to return to FVSC among those who have been to the FVSC



Most of veterinarians who have visited the FVSC, mentioned that medicines purchase or browsing was the main reason for returning the FVSC in both 2012 and 2013(see Figure 34). In 2013, the local veterinarians who visited FVSC considered the center worth to revisit for medicine purchase or browsing (85.19%), veterinary supplies purchase or browsing (70.37%), and seeing new things in general (74.07%). They also considered the center as a place where they interact with other farmers or vets (70.37%). Internet and computer use (7.41%), seeing if anything being advertised (37.04%), and services performed by the FVSC veterinarian (37.04%) were the least reasons that would bring the veterinarians back to the center. From 2012 to 2013, the interest in farm supplies purchase and browsing and veterinary supplies purchase and browsing has increased by 29.36% and 22.65%, respectively.

Figure 35: Proportion of veterinarians who bought some medicines from the Sarnakounq Vet Center?

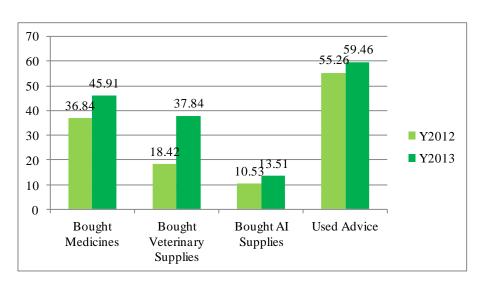


Figure 35 describes that veterinarians have used FVSC services more intensively in 2013 than in 2012. Advice again topped the list in 2013 (59.46%) of veterinarians such service. Purchases of veterinary supplies experienced highest increase (19.42%) in 2013 compared to 2012. If we combine figure 28 data on artificial insemination with information on the same subject on figure 35 we can conclude that most of the vets that are providing AI service to the animal owning households get their supplies from the FVSC.

#### V. Conclusion and Recommendations

In 2013, ICARE has continued providing technical assistance to FAS of USDA and CARD to do the second round of performance assessment of animal health interventions including the in Syunik Marz FVSC established by CARD as part of USDA's Animal Health Trade Capacity Building program. Specifically, ICARE has accomplished in completion of the following tasks:

- 1. Reviewing the baseline survey questionnaire prepared in 2012,
- 2. Technical advising to USDA on scope of survey implementation,
- 3. Conducting a actual field work of the survey of animal owning households and veterinarians.
- 4. Conducting the analysis and summarization of data from the both 2012 and 2013 surveys,
- 5. Presenting key research findings to CARD and USDA and developing the final report.

The FVSC customers have better succeeded in increasing their herd size compared to general animal owning households. The customers also have improved their daily milk yield from 7.5 to 8 liters per cow per day. On the contrary, the average daily milk per cow has decreased for animal owning households by 0.5 liters.

The FVSC customers have widened the utilization of this technology from 17.7% in 2012 to 23.5% in 2013. Application of milking machines is still almost non-existent in general animal owning households.

Feed was a key problem (35.51%) mentioned by the animal owning households in 2012. In 2013, however, only 11.2% of farmers mentioned feed as the main animal problem. Most of the farmers (46.62%) thought that sales were the main issue in their community.

In 2013, larger share of the animal owning households (13.83%) reported that their animals have been ill in the past month. This finding is reinforced by the increase (from 42.52% in 2012 to 63.56% in 2013) in the share of farmers who seek health advice for their livestock in the past year has.

Antibiotics and disinfectants have become more frequently used in 2013. The farmers who were using this medicine once every few years are now applying it more frequently. But, share of animal owning households who never bought antibiotics stayed about the same (about 25%).

Vitamins and mastitis medicine are still not used much by the farmers.

FVSC has strengthened its position in the market and currently supplies about one-quarter of the farmers with medicine. But the government veterinarians or other local veterinarians (33.64% in 2012 and 38.71% in 2013) together with other veterinary pharmacies (39.03% in 2012 and 47.29% in 2013) kept their dominant positions in the medicine market.

In 2013 46.89% of the animal owning farmers relied on artificial insemination. Use of artificial insemination method has increased by 5.11% in 2013 relative to 2012.

Share of the farmers who are aware of the FVSC has increased by 14.01% relative to 2012 and reached to 68.27% in 2013. The share of animal owning households visiting FVSC increased by less percentage (7.29%) over the past year and reached to 26.48% in 2013.

Medicines purchase or browsing is still the most sited reason for returning to the center in 2013. In the same year, the other reasons that were mentioned by more than half of the farmers were:

- "Veterinary supplies purchase or browsing" (66.47%),
- "Services performed by FVSC veterinarian" (59.59%), and
- "Training being offered" (51.77%).

In 2013, the veterinarians reported that there was an increase in the numbers of both cattle and sheep and goats under their serviced area. Particularly, the median number of cattle increased by 100 heads from 2012. In 2013, an average veterinarian was servicing 2000 more sheep and goats. This number is by 350 higher than the number of sheep and goats in the service area in 2012.

In 2013, sales is mentioned as the main problem by the 29.73% of the veterinarians. So, both veterinarians and the farmers are concerned with the problems related to sales in their region.

Regarding veterinarians involvement in performing artificial insemination services, the situation pretty much stayed about the same in 2013 as it was in 2012.

The veterinarians, in general, are happier with their income generated from veterinary practices in 2013 relative to 2012. In 2013, 16.22% of the veterinarians reported that their income from veterinary practices has increased and 40.54% said that it stayed the same compared to the last year.

In 2013, most of the veterinarians mentioned that they have access to vehicles when they needed as compared to 81.58% in 2012. The share of veterinarians who have their own state provided transportation means to deliver their services has increased from 36.84% to 45.95%. In 2013, the access to the medicines and veterinary equipment when needed has increased about twice compared to 2012 and reached to 56.76% and 64.86%, respectively. Access to reference information when having a new difficult veterinary problem is not available to only 13.51% of the veterinarians.

In 2013, the veterinarians reported higher readiness of farmers to pay for both drugs and services they receive from the veterinarians. Particularly, the median number of share of animal owning households readily pay for the drugs received from the veterinarians has increased threefold compared to 2012 and reached to 30% in 2013. The veterinarians reported that even though the situation improved compared to the year of 2012, still only 1 in every 10 households and farmers are readily paying for the services delivered by the veterinarians.

The FVSC was much more successful in attracting the veterinarians to visit the center than farmers. Particularly, the share of veterinarians who visited the center has increased from 55.26% in 2012 to 72.97% in 2013.

Most of veterinarians who have visited the FVSC, mentioned that medicines purchase or browsing was the main reason for returning the FVSC in both 2012 and 2013. They also considered the center as a place where they can purchase or brows veterinary supplies (70.37%) and see new things in general (74.07%). About two thirds of the veterinarians considered the center as a place where they interact with other farmers or vets.