

# Transfer of Information Heritage between Algerian Veterinarians and Breeders: Assessment of Information and Communication Technology Using Mobile Phone

R. Bernaoui, P. Ohly

**Abstract**—Our research shows the use of the mobile phone that consolidates the relationship between veterinarians, and that between breeders and veterinarians. On the other hand it asserts that the tool in question is a means of economic development. The results of our survey reveal a positive return to the veterinary community, which shows that the mobile phone has become an effective means of sustainable development through the transfer of a rapid and punctual information inheritance via social networks; including many Internet applications. Our results show that almost all veterinarians use the mobile phone for interprofessional communication. We therefore believe that the use of the mobile phone by livestock operators has greatly improved the working conditions, just as the use of this tool contributes to a better management of the exploitation as long as it allows limit travel but also save time. These results show that we are witnessing a growth in the use of mobile telephony technologies that impact is as much in terms of sustainable development. Allowing access to information, especially technical information, the mobile phone, and Information and Communication of Technology (ICT) in general, give livestock sector players not only security, by limiting losses, but also an efficiency that allows them a better production and productivity.

**Keywords**—Algeria, Breeder-veterinarian, Digital Heritage, Networking, Mobile phone.

## I. INTRODUCTION

**I**N Algeria, food security must be ensured by the agriculture sector, particularly the livestock sector, whose initial and essential function is to ensure adequate nutrition in terms of nutrition for the entire population of one country [1].

For Algeria, the agronomic sector tries to improve its production thanks to the inclusiveness of the national economy in the world economy developing oriented projects for export. The agricultural sector accounts for around 10% of the total GDP of Algeria. On the other hand, The United States GDP (Gross Domestic Product) was worth 18569.10 billion US dollars in 2016. For the field of agriculture, Algeria has about 8.4 million hectares of arable land representing roughly 3.5% of its total surface area. Only 12% of this arable land is irrigated. Algeria continues to import about \$9.33 billion in agricultural commodities and food annually and is one of the

world's largest importers of wheat (\$2.39 billion) and dairy products (\$1.16 billion). The United States exports about \$200 million in food and agricultural products to Algeria [2]. In this regard, it must be borne in mind that Algeria is a country which is still far from being food self-sufficient. Algeria, with a total country population of 39.5 million people, has to import huge volumes of wheat, to satisfy domestic demand [3]. It is a question of re-launching this sub-sector of agriculture on technologies linked to the technical development of production and productivity in this sub-sector as well as to its environmental framework allowing it to achieve its performance. "Among these technologies, several studies have shown that ICTs, principally mobile phones, are those that can bring a high added value to a sector of activity, both technically and economically" [4]. "Indeed, the mobile phone is currently the most accessible tool in time and space to communicate better, like the mass media. We considered that the use of the mobile phone that offers a multitude of functionalities." [4]

It turns out that if one associates the mobile phone, a technological tool that has been so much democratized in Algeria, to the social traditions of the stockbreeders based on oral communication, this correlation could answer the many difficulties that hinder the emergence of the livestock sector, starting with the lack of information and communication with their main partner, the veterinarian.

Our research aspires to demonstrate whether the use of the mobile phone has actually come to consolidate the relationship that existed before between the breeders and the veterinarians. We suppose that communication and information are more relevant, via mobile internet.

## II. METHOD

We opted for the method of questionnaire which allows us to understand the three main axes of our study, namely:

- The use of the mobile phone as a professional tool.
- Knowledge and level of control and / or use of ICTs.
- Assessment of ICTs carried by mobile phones.

Our survey was carried out between May and August 2016. We collected 303 breeders 303 from the central region of Algiers, 63% answered our survey. Through this paper, we will present only partial results of the survey.

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III. RESULT AND DISCUSSION

A. Identification of the Socio-Professional Profile of Breeders

The results of our survey reveal that 13% of the breeders are under 25 years old compared with 38% who are over 45 years old. The most representative age groups are "25-45 years" for under-45 and "46-65 years" for over-45. It should be noted that, through the results obtained, we note that breeders "over 60" are more representative than those of "fewer than 25", as in Fig. 1.

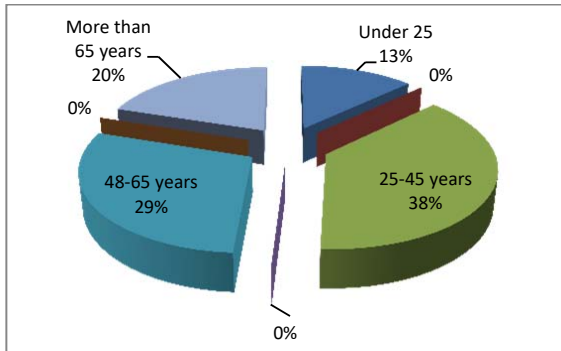


Fig. 1 Distribution of Breeders by Age

If we compare the results of our survey that took place in 2016 with the 2001 agricultural census and the results obtained in 2009, we can conclude that there has been a rejuvenation of the breeders' population over the last ten years [5].

Contrary to popular belief, the results of this survey show that 80.83% of farmers have a level of education, respectively average, secondary and primary education. We understand that 89.68% of breeders know, at least, read and have the ability to communicate and/or receive the information offered by mobile telephony, either by SMS or via the Internet as in Fig. 2.

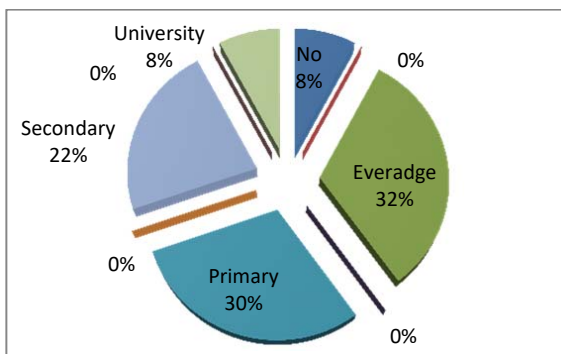


Fig. 2 Educational level of breeders

B. Use of the Mobile Phone, Tool of Communication for Breeders

43,894% of the breeders surveyed have a classic mobile phone that we have designated by basic, while 34,323% of the breeders have a Smartphone. Concerning access to the Internet

via 3G, 30.69% of the breeders answered positive to use 3G. They are equipped with a mobile device with different networks, as in Fig. 3.

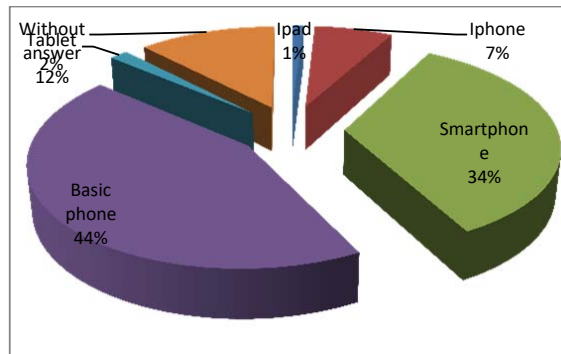


Fig. 3 Use of mobile phone

The analysis of the type of internet access highlights a preferential use for the social networks such as Facebook and Twitter that are popular in Algeria. Indeed, we have 21% of breeders use the Internet to access social networks and 64% do not use mobile phone and Internet. As an indication, social networks on the Internet, also called "community" sites, aim to connect people who know each other (friends, families, co-workers) or to connect people who do not know each other but have the same tendencies, common interests or profiles (social, professional, cultural ...) similar. In fact, "community" sites allow many people to communicate and exchange information in writing, share photos and/or videos (including sound) wherever they are in a country or world. So, concerning the population of breeders who use social networks, both types of use are possible: personal or professional.

There are few breeders who use search engines when browsing the internet via 3G mobile phone. They represent 3.960%, so 12 breeders on the whole sample. As for the type of internet access for e-mail, the rate of 1.980% of breeders, obtained in third position is very insignificant as in Fig. 4.

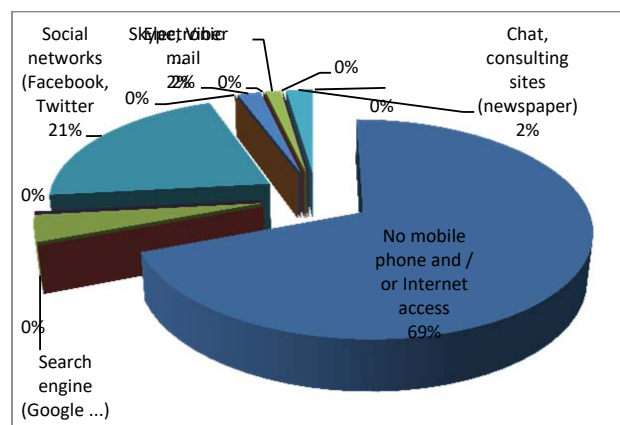


Fig. 4 Use of Internet

*C. Use of Professional of Mobile Phones, Tool of Communication for Breeders*

The survey showed that 75% of the breeders use their mobile phones for professional activities to communicate with others breeders and veterinarians.

163 breeders out of 170 who use SMS have responded that they use it professionally. However, the results show that 31.683% of breeders do not use SMS. For this class of breeders, it should be noted that 19,545% have either no intellectual level or a primary level.

*D. Communication of Breeders with Veterinarians: Subjects Related to the Health Status of Livestock*

Concerning the number of breeders who use their mobile phones to communicate with the veterinarian for animals' health problems, we notice that 68% of the breeders use it frequently. Our results clearly show that the use of mobile phones by breeders in a framework linked strictly to the sanitary condition of breeding is far from being an exceptional fact.

**Reasons for Using the Mobile Phone**

31% responded that they take into consideration the advice of veterinarians. 25% said they use it in emergencies only and 33% said it about information if the illness is contagious. The main reasons given for the use of mobile phones in the health prevention of their farms are: mortality, low birth, date of vaccination, drug requirements, to know if the disease is contagious, as in Fig. 5.

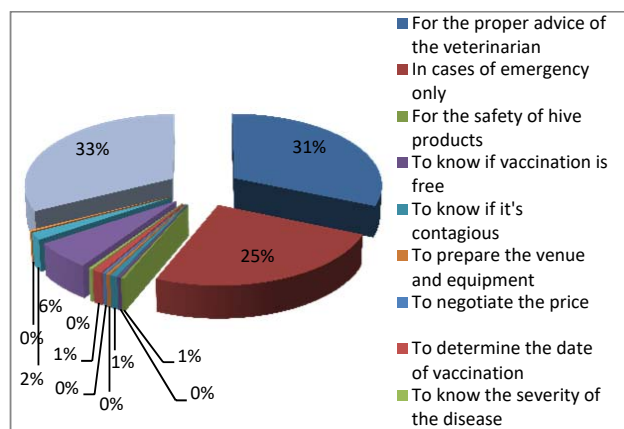


Fig. 5 Reason for using the mobile phone

**Communications by Mobile Phone and SMS**

To the question "if veterinarians communicate with you, via the mobile phone", 66,337% of the breeders answered in the affirmative against 21,452% who say that their veterinarian does not communicate with them via mobile phone.

The results show that 57.426% of breeders do not receive SMS from their veterinarians. This means that the majority of veterinarians do not use the SMS service offered by mobile telephony to communicate with breeders.

**Reasons for Contact the Veterinarians with Breeders by Mobile Phone**

32,343%, breeders, or 98, say that the veterinarian contacts them by mobile phone for the recall of a vaccination or a medical procedure. In the second position, the breeders replied that the veterinarian called them to inquire about the medical or surgical procedure practiced on their animals. 12,541% of breeders replied that the reason for the appeal was for the payment of the costs of consultations or purchase of products granted as credit, they are veterinarians who work in the private sector, as in Fig. 6.

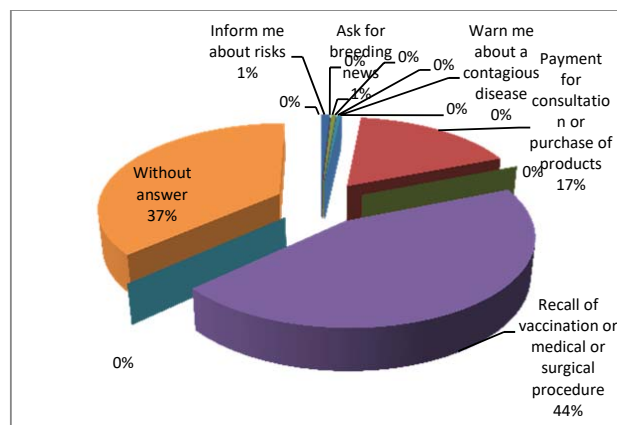


Fig. 6 Reasons for contact the veterinarians to breeders

**SMS Health Recommendations from Agricultural Authorities**

We want to know, for those who have a mobile phone, if they would like to receive SMS health recommendations from the authorities' service of agriculture, such as for health emergency of animals. The results show that of the 266 breeders who own a mobile phone, 253 among them are in favor of writing SMS as a means of communication and therefore receive "text messages" from the bodies in charge of agriculture.

Among those who answered positively, there are still 5 breeders who have no level of education (considered illiterate) and 3 are over 65 years of age. This demonstrates that the value of using the SMS service offered by the mobile phone is not only for breeders but also for the different services of animal health.

*E. Taking Photos and/or Videos by Breeders*

As regards the use of the photo and/or video function in our survey, we note that among the 266 breeders equipped with mobile phones, 130 breeders use the photo and/or video function of the mobile phone against 136 that have responded negatively. The breeders are therefore divided as to the use of this function. We are interested in breeders who take pictures or videos of their animals or their breeding when there is a disease on the farm. The results show that it is the cattle farmers and the poultry farmers who use this function of the mobile phone which are very important for the economy development of the country.

Of the 130 breeders who take pictures and/or videos of their breeding or when a disease affects their animal, we have recorded that the majority of breeders shows them to the veterinarian for a possible exploitation.

#### IV. CONCLUSION

The patterns and nature of communication between breeders and veterinarians have evolved in recent years. This is due to the introduction of ICTs, especially the new means of communication, the relationship between breeder and veterinarian was thus greatly impacted by the use of mobile phones. Indeed, we can affirm that the mobile phone according to the results of our survey strengthened the partnership between the two main players in the livestock sector.

In general, we can conclude, with regard to the use of the mobile phone by the breeders, that the tool in question reinforced the relationship existed between them and was limited only to cases of emergency. The options offered by the mobile phone, namely SMS and especially the mobile Internet, have strongly conditioned this relationship. Particularly mobile internet contributes to communicate better now for both actors than in the past.

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