

# Computer Usage Purpose and Awareness of Rural Household in Cattle Husbandry

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**Abstract** – *The aim of this study was to determine impact of technology (computer and internet) usage on rural household of livestock husbandry. A survey was carried out with cattle farmers by using face-to-face interviewing method. New technology and scientific discoveries regarding cattle farming provide the basis for accelerated progress in performances for farmers which adopt these technologies in practice. The use of computers for farm management in dairy sector has started in as early in 1990's in Turkey. Hence, personnel computer was developed and the price have dramatically declined, more and more farmers began to use computers by themselves. Usually the use of technology is generally preferred, as it facilitates operational preference in large scale farms.*

*Small scale farmers bypassed the technology because of cost and lack of knowledge about computer use in farming. This study results showed that the computer usage is common for younger, educated and male family member of small scale cattle farmers in rural area. But computer usage purpose is not mainly focused to animal husbandry. Also women carry a large portion of their workload of animal care taken. The issue of women's awareness in small-scale animal husbandry enterprises should also be emphasized. If they aware of information gathering from internet for this purpose is very strong effect on their profitability.*

**Key Words:** Cattle, Farmers, Computer, Internet, Awareness

## 1. INTRODUCTION

Automation and monitoring systems in enterprises are important in terms of animal behavior and welfare. While computer technologies provide fast and accurate access to the information required in the enterprise, information can be accessed from anywhere. All kinds of activities, production and marketing opportunities in the enterprises can be followed by computer technologies established in the enterprise. Thus, all operational phase of the animal from birth can be intervened immediately. But, the first investment and usage habits are a significant handicap for these technologies. However, in recent years, the use of this computer for livestock purposes is limited, although the use of households has increased. Milk production in Turkey has increased over the last few years as a result of the increased number of milking animal holdings and higher annual milk yield per cow. In 2015, total milk production in Turkey was 18.65 million tons. 91-92 % of the total raw milk production come from cows [1]. Mainly milk production is processed

by mobile, small-scale, traditional processors, with less than 20% processed in modern plants. Total red meat production increased by 12.2% compared to the 2017 and decreased by 3.4% compared to the same period of the previous year. Total red meat production only The amount of red meat produced in slaughterhouses was 140 093 tons. While beef production increased by 10.3% compared to the previous period, it decreased by 5.6% compared to the same period of the previous year. The increase in meat production per head results from an increase in the proportion of cross-bred animals. But still big gap between Turkish population animal product demand and meat production capacity [2]. For this purpose there is a form of high interest to cattle breeding and this is leading to establishment of intensive farms. The only criteria for the life cycle continuity of these intensive farms would be on maximum profitability and competitiveness ability on market. This concept mainly related to forceful usage of knowledge, technology and management at intensive farms and small enterprises. Whenever the farmers meet any problem in order to refer to organization for learning to new solutions and absolute result most probably they prefer to share with farmers who are more experienced one [3]. But developed countries heavily use computer and internet that is the main way to reach information [4,5]. The Internet in Turkey has been available to the public since 1993. The first available connections were dial-up. Cable Internet has been available since 1998 and ADSL since 2001. Turkey Statistical Institute [6] reported that computer and internet usage was 56.6 percent and 66.8 percent, respectively. In 2016, these rates were 54.9 percent and 61.2 percent, respectively. These are used in abroad widely for the study and improvement of various aspects of livestock production, research and education. Several reasons limit using computer and internet these are listed as high financial cost, difficulties to use technology, loss of knowledge to economical benefits, hesitate to use new technologies, lack of education, strict personality, poor infrastructure, lack of personal experience and not enough time to spent [7]. On the other hand Turkey has many technologic applications which is extend to 80 % and this is enough to eliminate most of the reasons which is mentioned above. If the farmer evaluates the benefits of using computer and internet they will replace this technology in farm management. In this study it has been aimed that determine the impact of computer and internet usage on cattle farmer awareness. The survey was carried out by using face-to-face interviewing method with cattle farmers

## 2. MATERIAL AND METHODS

Adana is in the subtropical climate zone in the south part of Mediterranean region of Turkey. Air temperature varies 27-30 °C in daytime and 17-22°C in nighttime for summer season, average temperature is about 23°C in Adana in October. Besides, relative humidity varies between 60% and 90%. Adana province surface area is 14.030 km<sup>2</sup>, Attitude is 23 m and Mediterranean sea coast is 160 km. Primary data resource of the study is the survey carried out among the rural cattle farmer of the Adana in order to determine farmer habits on computer and internet use. The farmers were selected for Ministry of Agriculture data [8]. Survey study was carried out using face-to-face interviewing method with cattle farmers in their farms in rural areas. The survey study was carried out from June to August 2017 and interviewed with 84 cattle farmers. Adana Municipalities Major and their employees support and contribution to our survey study for providing us basic infrastructure and different facilities. Animal science department students completed the farm visits with Adana Municipalities employees.

In the survey, questions were asked about the social and demographic structure of cattle farmers engaged in animal husbandry, business characteristics, etc., and analyzes were performed in the light of the data obtained. In order to visit the selected enterprises, an appointment was made from the relevant persons and the company visits were made in line with the schedule prepared for half day per enterprise. Chi-square test was used to evaluate the data obtained in the study. We used a chi-square test for independence to determine whether computer is related to farmers preferences. Chi-Square analyzes results showed computer and age, education level and gender is very significant differences expected and observed values. Statistical analysis was performed using SPSS STATISTIC program [9].

## 3. RESULTS AND DISCUSSION

The population of Adana is 2.220.125 in 2018. This population consists of 1,106,811 men and 1,113,314 women. The number of districts was 15, number of municipalities was 53 and number of villages was 831 [8]. The questionnaires were composed of breeders who had no land and lived in rural areas, had between 2-7 cattle from different age groups. The demographic status of surveyed farmer family is given Table 1. The ages were range between 20 to 60 while 14,29 % of them 20-30 years old, 33.33% of them 31-40 years old, 32.14% of them 41-50 years old and 20.24% of them older than 50.

Table 1. Demographic status of surveyed farmer family

General features		Number	%
Age (year)	20-30	12	14,29
	31-40	28	33,33
	41-50	27	32,14
	>= 50	17	20,24
Education	Uneducated	17	20,24
	Primary education	38	45,24
	Secondary education	20	23,81
	High school	9	10,71
Family size	2-6	35	41,67
	7-12	39	46,43
	13-22	4	4,76
	No answers	6	7,14
NGO Membership	There is	68	80,95
	There isn't	12	14,29
	No answers	4	4,76
Significance			0.000
NGO attendance	There is	12	14,29
	There isn't	68	80,95
	No answers	4	4,76
Significance			0.000
Occupation	Cattle Farming	12	14,29
	Working in Agricultural Business	38	45,24
	Working in Non-Agricultural Business	27	32,14
	Other	7	8,33
	Significance		
Experience	YES	72	85,71
	NO	10	11,90
	No answers	2	2,38
Significance			0.000
Cattle care	Woman	68	80,95
	Man	12	14,29
	Child	4	4,76
Significance			0.000
Marketing	Milk	50	59,52
	Product	20	23,81
	No answer	14	16,67
Significance			0.000

The education levels of the surveyed farmers are as follows; 20.24 % uneducated, 45,24% primary school, 23.81% secondary school and 10,71% high school. Farmers family mainly (87%) has 2-12 member. It is understood that cattle care and feeding were operated by a family member. Cattle care and feeding mainly were done by woman. Sometimes considered to be passed down by heritage. Family farm businesses can take many forms and any size. Main

occupation of the farmers is working agricultural and non agricultural activities. Livestock care taken experience is getting by family member and there are no any certificate any organizations. Also NGO Membership percentage of farmers is very high (80,95%) but activity level is very low (%14.26). They did not believe benefit of the NGO activities. Özkütük ve Göncü [10]. reported that the problems with the nongovernmental organization in Turkey arises from quality is not quantity. The absence of a favorable environment of cooperatives in Turkey, training, inefficiencies in raising awareness and research activities, organization and cooperative cooperation between the problem of lack of capital and appropriate access to finance issues, inspection and image problem, institutional and professional management, lack of effective due to legislation and administration related problems they cannot work effectively. The ongoing problems in this area indicate that existing organizations cannot overcome the lack of organization in the field of animal husbandry [11]. Some farmers (23.81%) process their products for better price and marketing to increase their profitability while 59.52% of farmers have to market the milk they produce without processing.

The computer and internet usage status of farmers is given Table 2. It can be seen from the Table 2 that, 70,24% of the surveyed farmers did not have a computer at home and most of them used computer for other purposes. The computer usage rates were 29,76 % for child, while 21,43 percent man and 13,10 percent of females. But internet usage rates differ and independent from computer usage because of the mobile access. Internet usage rate was similar between the groups while usage aim was differ depending on the family member activity purposes. Woman prefer internet for chatting, household requirement and marketing while child use for education. Man in the family reported that they use internet for getting information and news from the world. Mobile phones with internet access among households with mobile devices with Internet access increased to 15% leaving behind portable computers. The main purpose of the farmers to use internet is to messages not to get cattle farming information [12]. But reasons for using the Internet were sending-receiving e-mails, posting messages at chat and social network sites, and reading newspapers and magazines. Main information source of this small scale farmers are neighbors and family members (33.33%+38.10).

Internet is very low level used for information source for animal husbandry. This is perhaps indicator of the age of Turkish cattle farmers. Because age is the main contradictory factor for new technologic acceptance. Willimack [13] Lazarus and Smith [14], found out that an inverse relationship between adoption rates and farmer age, size of farms and education level and regional differences. The results of this study are similar to the results of Willimack [13], found that less than 3% of USA farmers used a computer to maintain farm records. But Lazarus and Smith [14] reported that 15

percent of New York dairy farmers enrolled in the Farm Business Summary and Analysis program owned computers in 1986. Lazarus, Streeter [12] tracked a panel of record keeping farmers over a four-year period and found an increasing cumulative adoption pattern. Putler and Zilberman [15] surveyed farmers and found that over 25 percent of farmers owned computers.

Table 2. The computer and internet usage status of farmers

General features		Number	Percentage
Information source	Neighbor	28	33,33
	Old family member	32	38,10
	Cooperative	15	17,86
	Internet	5	5,95
	Other	4	4,76
Significance			0.002
Computer	YES	20	23,81
	NO	59	70,24
	No answers	5	5,95
Internet	YES	60	71,43
	NO	18	21,43
	No answers	6	7,14
Significance			0.000
Internet usage	Woman	17	20,23
	Man	39	46,42
	Children	28	33,33
Significance			0.000
Internet usage purposes	Homework	27	32,93
	Technical information	34	41,46
	Messaging	9	10,98
	Marketing	12	14,63
Significance			0.000

Turkey Statistical Institute [6] between the years 2013-2017 in enterprises with 10 or more employees, passing on information technology increase the utilization rate of computer usage in this period rose 92 percent from 97,2 percent of households. In the same period, the rate of internet access was 90.8 percent to 95.9 percent in enterprises with 10 or more employees. web site ownership increased from 53.8 to 72.9. Between the years 2013 and 2017, there has been a significant increase in the utilization rates of enterprises and companies as well as households. While computer usage in households reached 56.6 percent from 49.9 percent in 5 years, these rates increased from 48.9 percent to 66.8 percent in internet access. On the other hand,

men's access to the Internet as well as women's access to computer information is more prominent. media outlets in the internet and computer headlines in recent years reached the highest level of news outlets. Last year, 164 thousand 54 in the title of the Internet, 70 thousand 605 news outlets in the computer header were detected. In 2014, Turkey had 41 million internet users. This figure is projected to grow to 56 million internet users in 2019 [6], Erengil et al. [16] reported that farmers willing to learn more about new technologies use in farm management. Although 70% were aware personal computers to making important management decisions, 30% had never used a computer in making any farm management decisions. Perhaps the main reason for this is the fact that the computer will be used for very complex tasks. Results of Fawole and Olajide [17] indicate that most farmers had no formal education and awareness of Internet and cable television is very low. But it is well known that the computers and the Internet is to proven way for farmers and rural residents to more quick and easy information gathering. Osondu and Ibezim [18] result of their survey study reported that farmers can increase their productivity, improve upon their income generation and be able to access the Information and Communication Technologies. Also Nwagwu [19] Computers were used by large farmers for feed formulation and knowledge management; mobile phones served the purpose of managing animal health, linking customers, managing farms and marketing goods, while Internet/email was scarcely used for farming purposes. But in Turkey, several reasons limit using computer and internet are high financial cost, difficulties to use, loss, poor infrastructure, lack of personal experience. Because 70% of farmers reported that the importance of personal computers to making important management decisions, 30% had never used a computer in making any farm management decisions. In small-scale livestock enterprises, women carry a large portion of their workload [20;21] while access to the Smartphone and internet is much lower (20,23%) than man (46,42%) and the children (33,33 %) who live at home. This is an important contradiction for sustainable improvement for profitability and efficiency.

The aim of computers usage is mainly focused on nonagricultural activities. When asked to family members, the reasons why they hadn't adopted personal computers on their farm activities, %70 of them cited the cost and 20% indicated lack of technical knowledge as the main factors. However %70 indicated they'd like to learn more about to use personal computers in their farm management decisions. As a technology, the Internet has the additional benefit of minimizing some constraints on a farmer's ability to receive and manage information, regardless of where the farm is located or when the information is used. Internet- provided communication and information gathering services are generally available at substantially lower costs than conventional technology.

#### 4. CONCLUSIONS

Milk production in Turkey has increased over the last few years as a result of the increased number of milking animal holdings and higher annual milk yield per cow. Mainly milk production is processed by mobile, small-scale, traditional processors, with less than 20% processed in modern plants.

The findings of this study revealed that cattle farmers are willing to learn more about computer use in farm management and their economic benefit to them. It is an undoubted fact that the Internet infrastructure has developed and the number of company operating in the Internet sector has been increased in Turkey over the last five years. The commercial opportunities of the Internet may afford farmers new ways to build business partnerships, including opportunities to purchase inputs, sell farm products, and acquire new agricultural information. Several studies have identified why breeders have been reluctant to new technologies in the farm management. Before increasing the computer usage in farm management, more farmers must become convinced that quality management is an important determinant of profitability and sustainable cattle farming. Computer usage is common younger, educated and male person in rural area small scale cattle farmers. But computer usage purpose is not mainly focused animal husbandry. Also women carry a large portion of their workload of animal care taken. The issue of women's awareness in small-scale animal husbandry enterprises should also be emphasized. If they aware of information gathering from internet for this purpose is very strong effect on their farm profitability and hence sustainability.

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