



## Attitude and Perception of Dairy Entrepreneurs Regarding Use of Mobile Phone as an ICT Tool

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### ABSTRACT

The study was conceptualised in Kolhapur district of Maharashtra to ascertain the attitude, perception, perceived attributes and adoption period of the dairy entrepreneurs towards use of mobile phone as an ICT tool. For this study, 120 dairy entrepreneurs were selected randomly as respondents. Majority of dairy entrepreneurs' have favourable attitude towards use of mobile phone, perceived attribute and high adoption period. Regarding relative advantage of mobile phone, 100 per cent of dairy entrepreneurs agreed that use of mobile phone was economical and time saving, 89.17 per cent of dairy entrepreneurs were using radio on mobile phone for news and information related to animal husbandry and allied sectors. 36.67 per cent of dairy entrepreneurs had more than 9 years of adoption period for mobile phone. None of the dairy entrepreneurs were non-adopter of mobile phone. Majority (81.67%) of dairy entrepreneurs found mobile call facility as timely information media sources. 41.67 per cent of dairy entrepreneurs found WhatsApp group as more reliable and easy source of information related to livestock and dairying.

**Keywords:** Attitude, perception, perceived attribute, adoption level, dairy entrepreneurs, WhatsApp

Information and communication technology (ICT) has significant potential to help dairy entrepreneurs and farmers in acquiring and accessing information which can be utilized to enhance livestock and agricultural production. At present, a wide range of ICT platforms is available for accessing and sharing agriculture-related information and knowledge in the forms of web pages, audio, video and text messaging. Among all the ICT tools, mobile phone has emerged as one of the widely accepted and adopted instruments in most parts of the world to ease the information communication process among the farming community (Hayrol *et al.*, 2009). The increasing penetration of mobile phones and delivery of mobile-enabled information services to the farming community can reduce information asymmetry as well as complement the role of extension services by saving time, offering instant out-reach and ensuring continuity in information availability (Mittal *et al.*, 2010). Keeping this in view, the present study was conducted to study the attitude,

perception, perceived attributes and adoption period of dairy entrepreneurs who were using mobile phone as an ICT tool for information and communication related to animal husbandry activities.

### MATERIALS AND METHODS

The study was undertaken in purposively selected Kolhapur district of Maharashtra during 2016-2017. Out of twelve blocks, three blocks were selected randomly and 2 villages in each block were selected to withdraw a sample of 120 dairy entrepreneurs' who had at least two milch animal and were having experience of 3 to 4 years in dairying. The data were collected personally with the help of pre-tested structured interview schedule and analysed with the help of frequency, mean, standard deviation, percentage and cumulative square root technique (CSRT). The data included information about attitude and perception of dairy entrepreneurs towards use of mobile phone and perceived attributes of mobile phone by dairy entrepreneurs'.



### Statistical analysis

The attitude of dairy entrepreneurs was calculated by using Kumar and Ratnakar scale (2011) with slight modifications. The final scale consists of 22 statements out of which 10 were negative statements. The responses had to be recorded on a five-point continuum representing strongly agree, agree, undecided, disagree, and strongly disagree with scores of 5,4,3,2, and 1 for positive statements and vice-versa for negative statements. The attitude score of each dairy entrepreneur was calculated by summing the scores obtained by him on all the items. The attitude score on this scale ranges from 22 to 110. The higher score indicates that respondent had more favourable attitude towards use of mobile phone as an ICTs based extension services and vice-versa.

## RESULTS AND DISCUSSION

### Attitude of dairy entrepreneurs towards use of mobile phone as an ICT tool

Attitude in this study was operationalised as the degree of positive or negative feeling of dairy entrepreneurs towards use of mobile phone as an Information and Communication Technologies (ICTs) based Extension services. Allport (1935) defined attitude as a mental state of readiness, organized through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which is related.

Majority 97.50 per cent each of dairy entrepreneurs strongly agreed that mobile phone provided possible solution to the animal husbandry in short duration of time and information through mobile phone is boon to dairy community respectively. Dairy entrepreneurs (91.67%) and (93.34%) were also positively strongly agreed that the mobile phone is potential tool for needy dairy entrepreneurs and feedback is fast through mobile phone than traditional services respectively. As it saves the manpower and energy as well as time of dairy entrepreneurs. 56.67 per cent of dairy entrepreneurs positively strongly agreed that mobile phone is valuable but it never influence dairy entrepreneurs' own decision making because it depends on the acceptability and adaptability of dairy entrepreneurs. 66.66 per cent of dairy entrepreneurs positively strongly agreed mobile phone based extension

services are alternative to traditional extension system respectively because the feedback is immediate and results can be easily predictable which also reduces the time and distance barrier.

Majority (83.34% and 81.66%) of dairy entrepreneurs agreed that expert advice makes the dairy activities more productive because it shows the scientific way of dairy practices which helps to avoid many consequences and illiteracy won't deter farmers in availing mobile phone services respectively because of the simplicity of mobile phone. 92.50 per cent of dairy entrepreneurs positively agreed that phone-in-live with scientist give first-hand information about queries because it satisfy their queries in simple language with scientific view which is easy to understand and also easy to accept by dairy entrepreneurs.

Majority (81.67%) of dairy entrepreneurs undecided response for the mobile phone based market intelligence for their dairy products and by-products. As we know that dairy products are perishable commodity and prices in dairy farming are fluctuating day by day. There is also lack of updated feedback on the mobile based market intelligence. Therefore, dairy entrepreneurs unable to access profit or loss regarding dairy products and by-products.

Majority 87.50 per cent, 85.84 per cent, 85.00 per cent and 81.67 per cent of dairy entrepreneurs disagreed that present infrastructure of mobile phone is not enough to fulfil the needs of dairy community, escaping of personal extension contact can be possible through mobile phone extension service, poor farmers could not afford the mobile phone services and mobile phone can exchange all kinds of information respectively. The disagree response is because services given by mobile phone are much cheaper than the traditional methods and regarding exchange of the all kinds of information is not possible because at rural level people use indigenous technical knowledge which is more supportable than information technology. 93.34 per cent, 91.66 per cent, 84.16 per cent and 63.33 per cent of dairy entrepreneurs disagreed that benefits of mobile phone are only for resourceful dairy entrepreneurs, transfer of technology is thorough mobile phone, farmer's all problems solved through mobile phone, mobile phone cannot meet location specific needs. This indicates that dairy entrepreneurs have favourable attitude and awareness about the new technological use and knowledge of mobile phone.

**Table 1:** Attitude of dairy entrepreneur towards use of mobile phone as an ICT tool

Sl. No.	Statements	SA	A	UD	DA	SDA
1	Mobile phone provides possible solutions to the present dairy/ animal husbandry/ livestock sector situation in a short duration of time.	117 (97.50)	03 (02.50)	00 (0.00)	00 (0.00)	00 (0.00)
2*	Mobile phone cannot meet location specific needs of the dairy entrepreneurs.	37 (30.83)	02 (01.66)	03 (02.50)	76 (63.33)	02 (01.66)
3	Mobile phone is potential tool to reach the needy dairy entrepreneurs.	110 (91.67)	06 (05.00)	04 (03.33)	00 (0.00)	00 (0.00)
4	Dairy entrepreneurs feedback is fast through mobile phones than traditional service.	112 (93.34)	03 (02.50)	03 (02.50)	00 (0.00)	02 (1.66)
5*	Illiteracy will not deter farmers in availing mobile phone services.	08 (06.66)	98 (81.66)	00 (0.00)	09 (07.50)	05 (04.16)
6*	Mobile phone cannot deliver personalized information.	91 (75.83)	08 (06.66)	01 (0.83)	20 (16.66)	00 (0.00)
7*	Mobile phone based extension services assist the farmers in planning and decision-making aspects related to dairy sector.	108 (90.00)	05 (04.17)	02 (01.66)	04 (03.34)	01 (0.83)
8	Mobile phone services' is a distant dream for resource poor farmers.	06 (05.00)	03 (02.50)	03 (02.50)	102 (85.00)	06 (05.00)
9	All kind of information exchange are possible only through Mobile phone.	16 (13.33)	02 (01.66)	04 (03.34)	98 (81.67)	00 (0.00)
10	Dairy entrepreneurs can get remunerative prices to their product and by-products through mobile phone based market intelligence.	12 (10.00)	07 (05.83)	98 (81.67)	03 (02.50)	0 (0.00)
11*	Expert advice makes the dairy enterprise /activities productive.	19 (15.83)	100 (83.34)	01 (0.83)	00 (0.00)	00 (0.00)
12	Existing infrastructure of Mobile phone is not enough to meet the needs of the farming community.	04 (03.33)	07 (05.84)	00 (0.00)	105 (87.50)	04 (03.33)
13*	Only resourceful farmers can get the benefit of the mobile phone.	06 (05.00)	00 (0.00)	00 (0.00)	112 (93.34)	02 (01.66)
14	Access to information through mobile phone is boon to the farming community.	117 (97.50)	02 (01.67)	00 (0.00)	00 (0.00)	01 (0.83)
15	Phone-in-live with scientists gives first-hand information about queries.	05 (04.16)	111 (92.50)	01 (0.83)	03 (02.50)	00 (0.00)
16*	Mobile phone based extension services provide new opportunity to build a skilled and knowledge community.	80 (66.67)	06 (05.00)	33 (27.50)	00 (0.00)	01 (0.83)
17	Mobile phone extension services avoid the personal extension contact.	02 (01.66)	10 (08.33)	05 (04.17)	103 (85.84)	00 (0.00)
18*	Mobile phone based disease outbreak information and warning system facilitate farmers to take preventive measures.	113 (94.16)	03 (02.50)	01 (00.83)	00 (0.00)	03 (02.50)
19	Mobile phone is a valuable to, but it will never influence farmers' own decision making.	68 (56.67)	03 (02.50)	41 (34.17)	06 (05.00)	02 (1.66)

*(Cont...)*

20*	Mobile phone alone would solve the problems of farmers.	08 (06.67)	02 (01.67)	02 (01.67)	101 (84.16)	07 (05.83)
21*	Use of mobile phone enhances the transfer of technology.	01 (00.83)	02 (01.67)	01 (00.83)	110 (91.66)	06 (05.00)
22	Mobile phone based extension services are alternative to the present extension system.	80 (66.66)	35 (29.16)	00 (00.00)	03 (02.50)	02 (01.66)

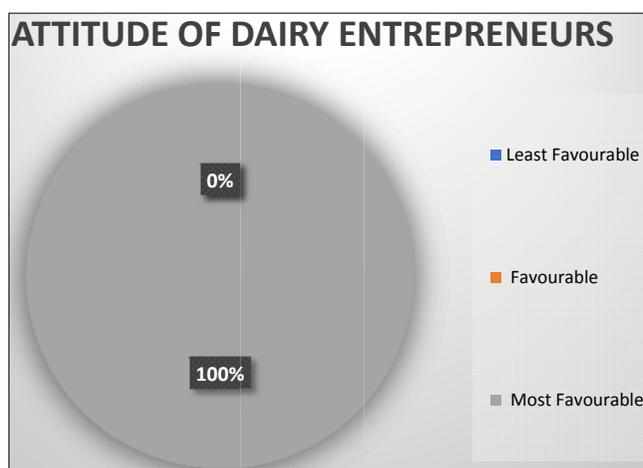
\*Negative statements. (Note: Figures shown in parenthesis indicate Percentage); (SA: Strongly agree, A: Agree, UD: Undecided, DA: Disagree, SDA: strongly disagree)

### Overall attitude of dairy entrepreneurs towards use of mobile phone

It is clear from Table 2, all the dairy entrepreneurs (100.00%) had favourable attitude towards use of mobile phone for obtaining information regarding animal husbandry, agriculture services, market related, weather forecasting etc. Further, dairy entrepreneurs of Kolhapur found mobile phone as a good, easy and convenient source for communication and information. These results are in line with the findings of Arun (2005), Babu *et al.* (2013) and Kabir (2015).

**Table 2:** Overall attitude of dairy entrepreneurs towards use of mobile phone as an ICT tool

Sl. No.	Category	Score	Frequency	Percentage
1	Least favourable	<22	00	0.00
2	Favourable	22 to 110	120	100.00
3	Most favourable	>110	00	0.00



**Fig. 1:** Distribution of dairy entrepreneurs according to Attitude towards use of mobile phone

### Perception of dairy entrepreneurs towards use of different media via mobile phone

#### Reliability of different media use

From Table 3, it can be observed that 41.67 per cent of dairy entrepreneurs found WhatsApp group as more reliable source of information related to livestock and dairying whereas 25.83, 15.83 and 12.50 and only 04.17 per cent preferred mobile SMS, mobile call, radio programme, dairy and animal husbandry applications as reliable source of information related to livestock and dairying.

This is due to the fact that WhatsApp have various communicable groups with same objectives/goals which provides updated information to dairy entrepreneurs than any other media.

#### Easiness of different media use

There was total 41.67 per cent of dairy entrepreneurs agreed to WhatsApp group, 25.00 per cent to mobile SMS, 15.83 per cent to mobile call, 15.00 per cent to radio programme and 02.50 per cent agreed to dairy & animal husbandry application regarding easiness to use these media sources. Time to time updated information with easy way of storage give way of easiness to WhatsApp.

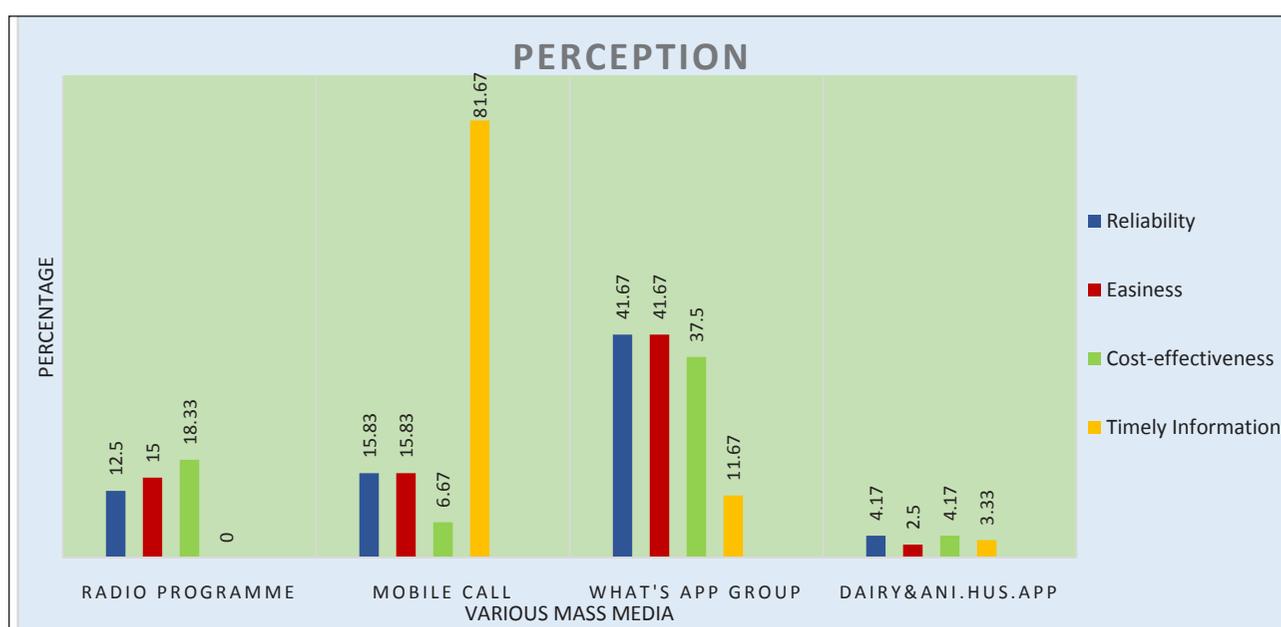
#### Cost-effectiveness of different media use

There was total 37.50 per cent of dairy entrepreneurs agreed to WhatsApp group, 33.33 per cent to mobile SMS, 18.33 per cent to radio programme, 06.67 per cent to mobile call up and 04.17 per cent to dairy and animal husbandry application as the most cost-effective source of information among these media sources. Because of low cost of services than other media WhatsApp act as multi-tasking communicable method than any other media.

**Table 3:** Perception regarding different media use on mobile phone

Sl. No.	Various Media	Respondents (N=120)			
		Reliability	Easiness	Cost-Effective	Timely information
1	Radio programme	15 (12.50)	18 (15.00)	22 (18.33)	00 (00.00)
2	Mobile call	19 (15.83)	19 (15.83)	08 (06.67)	98 (81.67)
3	WhatsApp group	50 (41.67)	50 (41.67)	45 (37.50)	14 (11.67)
4	Mobile SMS	31 (25.83)	30 (25.00)	40 (33.33)	04 (03.33)
5	Dairy & Animal Husbandry App	05 (04.17)	03 (02.50)	05 (04.17)	04 (03.33)

*Note:* Figures shown in parenthesis indicates Percentage.



**Fig. 2:** Distribution of dairy entrepreneurs according to perception of various mass media

#### Timely information of different media use

Majority (81.67%) of dairy entrepreneurs used mobile call facility, 11.67 per cent WhatsApp group, 03.33 per cent each mobile SMS and dairy and animal husbandry application for timely information among these information media sources respectively. As, by call the doubts as well as queries of dairy entrepreneurs is easily solved and provides direct satisfaction. It leads to time saving of dairy entrepreneurs.

Results regarding perceived compatibility and trialability attributes of mobile phone are in line with findings of Niget *et al.* (2004) and Sarkar (2004) respectively.

#### Attributes of mobile phone as perceived by dairy entrepreneurs

Attributes are qualities, characteristics, or traits possessed by an object. It is the intrinsic quality, but the quality or character of the innovation as people see to them (Ray, 2016). One of the major goals of veterinary extension is to get new and profitable technologies adopted by rural community. It may be generalized that the attributes such as relative advantage, compatibility, trialability, observability, and predictability of an innovation, as perceived by the members of social system are positively related to its rate of adoption. The complexity of an innovation, as perceived by the members of a social system, is negatively related to its rate of adoption.



### Relative advantage of mobile phone

It is evident from Table 4, that regarding relative advantage of mobile phone, 100 per cent of dairy entrepreneurs agreed that use of mobile phone was economical and time saving, 99.17 per cent of respondents agreed that mobile phone provides information 24×7 hours and majority (99.17%) agreed that mobile phone is easy to use. The relative advantage is more about mobile phone because it has multiple use and also cover location specific need of dairy entrepreneurs.

### Complexity of mobile phone

Regarding complexity of mobile phone, majority (60.83%) of dairy entrepreneurs gave undecided response regarding difficulty in operating and handling mobile phone. The undecided response is due to fact that use of mobile phone is easy as per their basic needs and requirement.

It was also observed that only 03.34 per cent of dairy entrepreneurs agreed that use of mobile phone require skills and expertise. Majority of dairy entrepreneurs felt that use of mobile phone is less complex technology and no need of specialized training is required regarding it.

### Compatibility of mobile phone

Regarding compatibility of mobile phone, majority (99.17%) of dairy entrepreneurs agreed regarding access of mobile phone was without any social discrimination. 95.83 per cent of dairy entrepreneurs had agreed regarding use of mobile phone without any cultural barrier. 37.50 per cent agreed regarding use of mobile phone without any language barrier. The major response regarding compatibility is because of past experience regarding use of mobile phone and it also preserve cultural and ethical values of dairy entrepreneurs.

**Table 4:** Perceived attributes of mobile phone

Sl. No.	Variables	Respondents (N =120)		
		Agree	Undecided	Disagree
<b>Relative advantage</b>				
1.	Economical and time saving	120 (100.00)	00 (0.00)	00 (0.00)
2.	Information available 24 into 7 hours	119 (99.17)	01 (0.83)	00 (0.00)
3.	Easy to use	119 (99.17)	00 (0.00)	01 (0.83)
<b>Complexity</b>				
4.	Difficult to operate and handle	04 (03.34)	73 (60.83)	43 (35.83)
5.	Require skill and expertise	04 (03.34)	75 (62.50)	41 (34.16)
<b>Compatibility</b>				
6.	Can be access by all entrepreneur without any social discrimination	119 (99.17)	01 (0.83)	00 (0.00)
7.	No cultural barrier	115 (95.83)	05 (04.17)	00 (0.00)
8.	No language barrier	45 (37.50)	67 (55.83)	08 (06.67)
<b>Trialability</b>				
9.	Easy to try many features	96 (80.00)	11 (09.16)	13 (10.84)
10.	Try even without purchasing	04 (03.34)	01 (0.83)	115 (95.83)
<b>Observability</b>				
11.	Feedback is immediate	118 (98.34)	02 (01.66)	00 (0.00)
12.	Provides mostly accurate information	114 (95.00)	06 (05.00)	00 (0.00)
<b>Predictability</b>				
13.	Both positive and negative impacts can be predicted easily	114 (95.00)	05 (04.17)	01 (0.83)
14.	Results are easily predictable	114 (95.00)	06 (05.00)	00 (0.00)

*Note:* Figures shown in parenthesis indicates Percentage.

**Trialability of mobile phone**

Regarding trialability of mobile phone use, majority (80.00%) of respondents agreed that it was easy to try many features of mobile phone. Handling of mobile phone requires no skill and expertise which shows agreed response for trialability of mobile phone as an ICT tool. 95.83 per cent disagreed that they tried mobile phone even without purchase. Dairy entrepreneurs had use reliable person, friends, relative and neighbours' mobile phone.

**Observability of mobile phone**

Regarding observability, majority (98.34%) of dairy entrepreneurs had agreed and 1.66 per cent had undecided response regarding immediate feedback response through mobile phone respectively. It was also observed that 95.00 per cent and 5.00 per cent had agreed and disagreed response that mobile phone provides most accurate information other than any source respectively. Feedback as well as accurate information from any source give the results which are visible to dairy entrepreneurs which also adds profit in their dairy entrepreneurship.

**Predictability of mobile phone**

Regarding predictability of using mobile phone, majority (95.00%) of respondents had agreed that mobile phone gave both positive and negative impact which could be

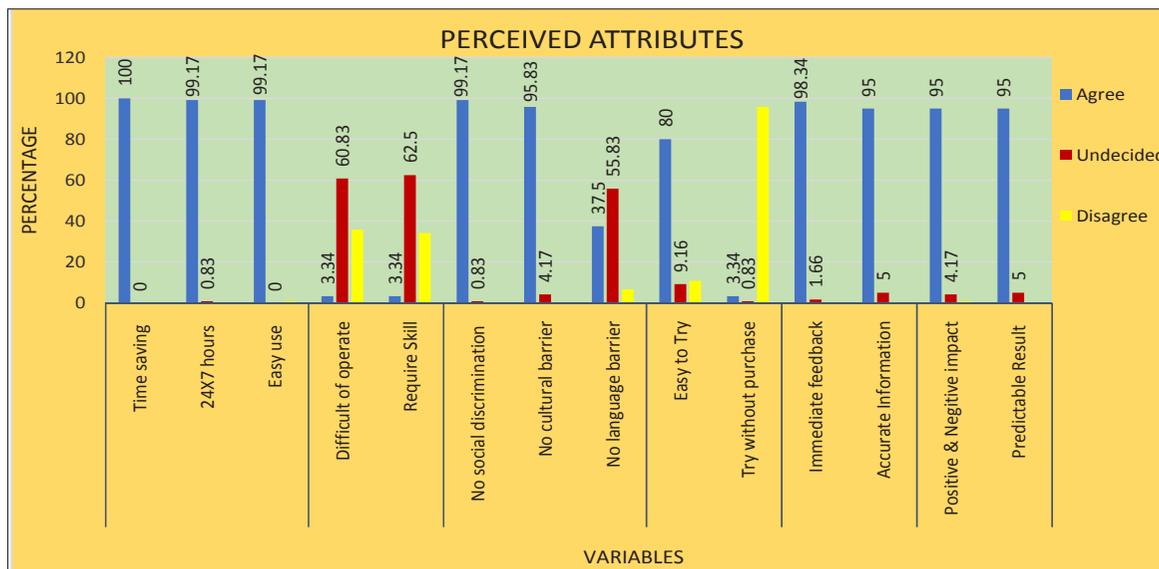
easily predicted. It was also observed that 95.00 per cent and 5.00 per cent of respondents had agreed that results given by mobile phone were easily predictable because dairy entrepreneurs received expected benefits from the use of mobile phone as an ICT tool.

**Adoption Period of Mobile Phone by Dairy Entrepreneurs**

It is evident from Table 4, that 36.67 per cent of dairy entrepreneurs had more than 9 years of adoption period for mobile phone, 25.83 per cent, 19.17 per cent and 18.33 per cent of dairy entrepreneurs had 3 to 6 years, 0 to 3 years and 6 to 9 years of adoption period respectively regarding use of mobile phone. None of the dairy entrepreneurs were non-adopter of mobile phone.

**Table 5:** Adoption period of mobile phone by dairy entrepreneurs

Sl. No.	Variables	Respondents (N)= 120	
		Frequency	Percentage
<b>A. Adoption period</b>			
1	0-3 yrs.	23	19.17
2	3-6 yrs.	31	25.83
3	6-9 yrs.	22	18.33
4	More than 9 yrs.	44	36.67
<b>B.</b>	<b>Non- adoption</b>	<b>00</b>	<b>0.00</b>



**Fig. 3:** Distribution of dairy entrepreneurs according to perceived attributes of mobile phone

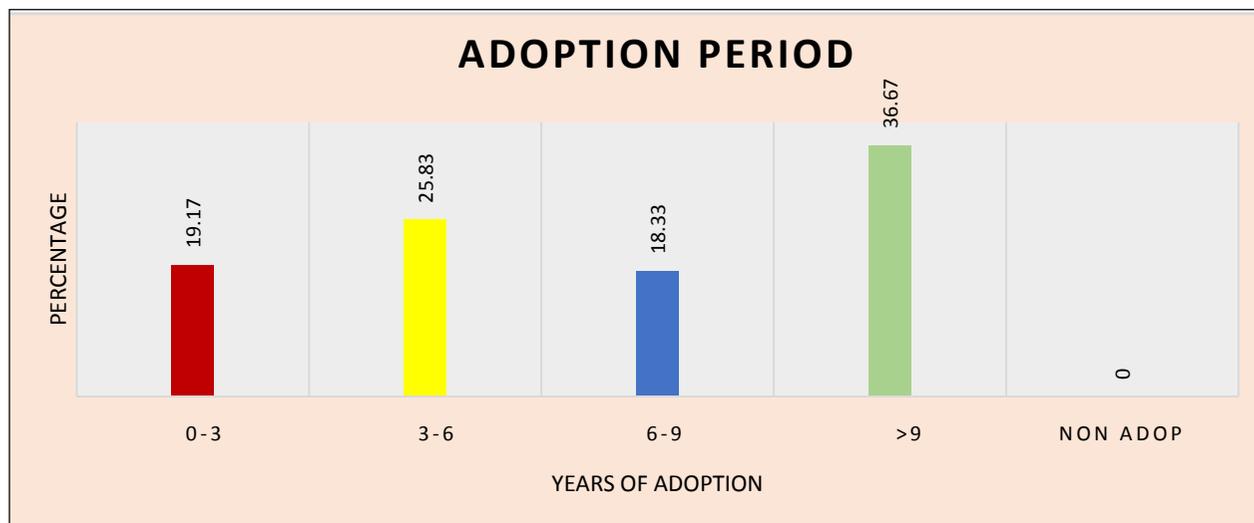


Fig. 4: Distribution of dairy entrepreneurs according to adoption period towards use of mobile phone

The dairy entrepreneurs of Kolhapur had favourable attitude and perception towards use of mobile phone. Dairy entrepreneurs were mainly using mobile phone for obtaining information related to animal husbandry and allied sectors. Dairy Entrepreneurs found WhatsApp as easy and reliable source of communication and information and has formed many WhatsApp groups within their community, villages and with dairy cooperatives for information and communication.

## CONCLUSION

The findings in the study revealed that positive response for perceived attributes among the dairy entrepreneurs regarding use of mobile phone as an ICT tool was responsible for their favourable attitude as well as high level of adoption period of mobile phone for accessing information. Attitude regarding use of mobile phone is high and favourable as mobile phone provides economic, time saving, easy access, immediate feedback, easy predictability regarding information pertaining to animal husbandry and allied sectors. It can be concluded that dairy entrepreneurs of the Kolhapur district have a favourable attitude and the most important finding is that none of the dairy entrepreneurs had least or most favourable attitude towards mobile phone use. Besides this, the findings of the study also revealed that dairy entrepreneurs (36.67%) had use of mobile phone more than 9 years and full adoption

period is responsible for their favourable attitude towards mobile phone as an ICT tool. Therefore, it will enhance the future development of mobile phone as an ICT tools use for getting extension service delivery in the study areas and government should take proper steps to make these areas as a potential ICT based farming zone.

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