

## A Scale for Measurement of Entrepreneurial Behaviour of Dairy Farmers\*

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**Abstract :** The present study was conducted in two districts namely, Dharwad and Belgaum of Karnataka State with sample size of 200 dairy farmers to measure their entrepreneurial behaviour. Nine components of entrepreneurial behaviour of dairy farmers namely, innovativeness, achievement motivation, decision making ability, risk orientation, co-ordinating ability, planning ability, information seeking behaviour, cosmopoliteness and self confidence were selected based on relevancy weightage and scale value. The standard procedure was followed to develop the scale such as item/statement collection, criteria given by Edward (1969) to frame the statements, judges' response on items, item analysis, validity and reliability. It was observed that the scale values of components of entrepreneurial behaviour of dairy farmers i.e. innovativeness, achievement motivation, decision making ability, risk orientation, coordinating ability, planning ability, information seeking behaviour, cosmopoliteness and self confidence were 9.82, 3.39, 6.60, 8.01, 5.03, 6.91, 5.22, 1.65 and 3.89, respectively. It reveals that all the statements under components of entrepreneurial behaviour of dairy farmers were found to have highly significant. And also all the statements had relevancy weightage more than 0.75. Hence, the entrepreneurial behaviour scale was found to be standardized.

**Key words:** Entrepreneurial behaviour, dairy farmers, innovativeness, achievement motivation, decision making ability, risk orientation

### Introduction

The entrepreneurs are key persons of any country for promoting economic growth and technological change. The appearance of their activities i.e. development of entrepreneurship is directly related to the socio-economic development of the society. India is the largest milk producer in the world, therefore role of dairy farmers is very important in dairy industry and socio-economic development of the society. In this context, it was felt necessary to develop a scale for measuring entrepreneurial behaviour of dairy farmers. Entrepreneurial behaviour of dairy farmers is operationally defined as cumulative outcome of nine components namely, innovativeness, achievement motivation, decision making ability, risk orientation, co-ordinating ability, planning ability, information seeking behaviour, cosmopoliteness and self confidence.

### Material and Methods

The present study was conducted in Dharwad and Belgaum districts of Karnataka with sample size of 200 dairy farmers. The scale on entrepreneurial behaviour of dairy farmers was developed by applying standard procedure which is mentioned as under.

Collection of components based on review of literature on various measures of entrepreneurial behaviour and discussion with experts in the field of agricultural extension, dairy science, dairy entrepreneurs, etc., eleven components had been identified.

For this purpose, these eleven components were mailed to a panel of judges in the field of extension education, communication, administration and dairy entrepreneurs. In all, 120 judges were requested to indicate appropriateness (relevancy) of the components for inclusion in the scale. The responses of judges were secured on three point continuum namely, 'Most relevant', 'Relevant' and 'Not relevant' frequencies and scored as 2, 1 and 0, respectively.

In all 68 judges could respond. These responses were used to workout the Relevancy Weightage (RW) of each component by using following formula.

$$\text{Relevancy Weightage (RW)} = \frac{\text{Most relevant} \times 2 + \text{Relevant} \times 1 + \text{Not relevant} \times 0}{\text{Maximum possible score (68} \times 2 = 136)}$$

Considering relevancy weightage, the components were screened for their relevancy. Accordingly, components having relevancy weightage of more than 0.75 were considered. Using this process, ten components having more than 0.75 relevancy weightage were selected.

Computation of scale value by normalized rank method: Based on relevancy weightage, the selected ten components had been mailed to 100 judges for ranking. Out of 100 judges, sixty judges had responded. The ranks given by the 60 judges based on relative importance of the components in measuring the entrepreneurial behaviour of dairy farmers were used to workout the scale value with the help of Guilford's (1954) normalized rank method.

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Table 1 . Statement wise relevancy weightage (RW) and reliability co-efficient (r) of components of entrepreneurial behaviour of dairy farmers

Sl.No. Components and statements/ items	'RW'	'r'
<b>I. Innovativeness (scale value 9.82 )</b>		
It consisted of five practices in respect of the dairy management, which were common to all the dairy farmers included in the sample. If the dairy farmer would have adopted the practice from five years or more than five years, he would get five points, one point for each year. The score ranged from zero to 25.		
1. Artificial Insemination	0.94	0.78
2. Feeding colostrums to newly born calves	0.91	0.76
3. Feeding balance concentrate mixture based on milk production	0.86	0.80
4. Use of sterilized scalpel for cutting naval cord and application of tincture iodine on the cut end of the naval cord.	0.95	0.86
5. Timely and regular vaccination against common contagious diseases	0.81	0.89
6. Having pregnancy diagnosis done between 60-90 days after service.	0.82	0.81
<b>II. Achievement motivation (scale value 3.39)</b>		
It consisted of five statements. Each statement had two options and out of these, one was concerned with achievement motivation. Thus, the total score for each dairy farmer on his achievement motivation would range from zero to 5.		
1. In accomplishing a task, I like .....		
*to do it much better than other dairy entrepreneurs		
*to finish it before time	0.95	0.91
2. My desire is to be .....		
*a average dairy entrepreneur		
*a successful dairy entrepreneur	0.92	0.72
3. I feel my success depends.....		
*upon my hard work in dairy enterprise		
*upon my parents and relatives	0.86	0.71
4. I like .....		
*to earn more profit		
*to satisfy my minimum needs	0.89	0.75
5. After 10 years I will be .....		
*a well known dairy entrepreneur		
*my status will be same	0.78	0.69
<b>III. Decision making ability (scale value 6.60)</b>		
The instrument had eight decision criteria. The response categories for each item were 'not considered', 'considered after consultation with others', and 'decision taken independently'; the alternative was scored with 0, 1, and 2 score, respectively. Thus, the possible score for each respondent on his decision-making ability was 0 to 16.		
1. Breed of milch animal to be purchased	0.81	0.68
2. Fodder management	0.79	0.70
3. Insurance of animals	0.80	0.66
4. Applying new practices, ideas, technologies	0.81	0.71
5. Practicing A.I.	0.91	0.73
6. Quality of concentrate to be fed to milch animals	0.93	0.71
7. Vaccination against contagious diseases	0.94	0.74
8. Milk selling	0.92	0.68
<b>IV Risk orientation (scale value 8.01)</b>		
The instrument consisted of six statements and responses obtained on three-point continuum viz., 'agree', 'undecided', and 'disagree'. A weightage of 2, 1 and 0, respectively assigned to the response categories in case of positive statement and scoring was reversed for negative statements. Statement number 1, 3, 5 and 6 were positive, while 2 and 4 were negative statements. The total score range was 0 to 12.		
1. A dairy entrepreneur should take greater risk than the average farmers	0.90	0.71
2. A dairy entrepreneur should try new dairy practices only after successfully used by other dairy entrepreneurs	0.81	0.66
3. Trying an entirely new practice in dairy enterprise involves risk orientation but it is worth	0.87	0.68
4. Dairy management is full of risk	0.80	0.62

# *A Scale for Measurement of . . . . .*

5. Dairy entrepreneur should keep improved breed instead of local bred	0.81	0.67
6. Dairy entrepreneur should sustain risk in development of his enterprise	0.89	0.65

## **V. Co-ordinating ability (scale value 5.03)**

It consisted of total five questions. The score of 2, 1 and 0 were assigned for the responses 'well in advance', 'at nick of time' and 'never', respectively. Total score was obtained by summing up the score recorded.

The score range was 0 to 10.

1. When did you estimate the capital required for the entrepreneur	0.79	0.68
2. When did you consult the veterinarian about the health of the animals?	0.76	0.71
3. When did you estimate the required quantity of fodder?	0.82	0.66
4. When did you vaccinate the animals?	0.81	0.59
5. Do you take precautions for clean milk production?	0.85	0.67

## **VI. Planning ability (scale value 6.91)**

It consisted of five statements. It was measured on two point continuum as 'followed' and 'not followed' by assigning score 1 and 0, respectively. The score range was 0 to 5.

1. Preparation of calendar of operation of dairy activities	0.88	0.68
2. Estimating in advance the fodder requirement for livestock	0.92	0.85
3. Estimating in advance, the capital requirement for dairy enterprise	0.79	0.81
4. Consulting in advance with experts about clean milk production	0.81	0.79
5. Anticipating in advance the number of animals required for maintaining milk production	0.79	0.61

## **VII. Information seeking behaviour (scale value 5.22)**

The contacts with formal sources were measured on four point continuum viz., once in a fortnight, once in a month, whenever problem arises and never by assigning scores of 3, 2, 1 and 0, respectively, whereas the information seeking from informal and media sources was measured on three point continuum viz., 'regularly', 'occasionally' and 'never' by assigning the scores of 2, 1, and 0, respectively. The total score was computed for each respondent by summing the scores recorded. The score range was 0 to 28.

A) Media sources	0.94	0.51
1. TV	0.91	0.56
2. Radio	0.93	0.71
3. News papers	0.95	0.68
4. Agriculture literature	0.91	0.59
B) Formal sources		
1. Scientist of UAS, Dharwad	0.89	0.68
2. Livestock inspector	0.96	0.69
3. Veterinary doctor	0.94	0.68
4. KMF extension personnel	0.81	0.70
C) Informal sources		
1. Family members	0.97	0.62
2. Relatives	0.89	0.55
3. Friends	0.91	0.57
4. Dairy entrepreneur	0.89	0.59

## **VIII. Cosmopolitaness (scale value 1.65)**

The instrument consisted of six statements and responses were obtained on three point continuum viz., 'agree', 'undecided' and 'disagree' by assigning a weightage of 2, 1 and 0, respectively for positive statements while, it was reversed for negative statements. There were six statements out of these, the statement number as 1, 3 and 5 were negative statements, whereas 2, 4 and 6 were the positive statements. The score range was 0 to 12.

1. There is no need to collect additional information from outside of the village for successful dairy entrepreneur	0.81	0.68
2. A dairy entrepreneur should try to get information on dairy management practices from outside of his village by using mass media facilities	0.79	0.75
3. A dairy entrepreneur learns many things from the happenings and experiences of his village only	0.91	0.61
4. Keeping contact with progressive dairy entrepreneur is useful for managing the dairy enterprise	0.85	0.60
5. Visiting the subject matter specialist is waste of time	0.88	0.59
6. Cattle exhibition / Agril. Exhibition helps to gather recent information	0.78	0.65

**IX. Self confidence** (scale value 3.89)

It consisted of six questions. The responses were obtained on dichotomous continuum i.e., in 'yes' and 'no' form by assigning the scores of 1 and 0, respectively for positive questions and it was reversed for negative questions.

The question number 3 and 5 were positive questions and 1, 2, 4 and 6 were negative questions. The total score range was 0 to 6.

1.	Do you have difficulty in saying the right opinion at the right time?	0.91	0.65
2.	Do you frequently feel unworthy?	0.83	0.61
3.	Can you adjust readily to new situation?	0.89	0.66
4.	Do you feel it hard to keep your mind on a task / job?	0.76	0.62
5.	Do you have enough faith in yourself to make profit in dairy enterprise?	0.78	0.59
6.	Do you have rely on others to carry out all dairy activities?	0.80	0.58

The statements were framed on each components based on review of literature and discussion with experts in the field of agricultural extension education and department of Dairy Science, UAS, Dharwad. The statements were edited based on 14 criteria suggested by Edward (1969). These statements were then subjected to scrutiny by an expert panel of judges to determine the relevancy. For this purpose, the statements were given to a panel of 120 judges and requested to indicate appropriateness (relevancy) of each statement for inclusion in the scale. The responses were obtained on three point quantinum viz., 'Most relevant', 'Relevant' and 'Not relevant' with scores of 2, 1 and 0, respectively. Based on judges' responses, the relevancy weightage were worked out for the statements by using the formula stated above. Applying the criteria that the statements having relevancy weightage more than 0.75 were selected

Final selection of the items made on the basis of item analysis. It was considered essential to delineate the items (statements) based on the extent to which, they can differentiate the person's entrepreneurial behaviour, for this purpose item analysis was carried out. The statements were administered to 40 dairy farmers from non-sample area.

For item analysis, 't-test' was used. The respondents were arranged in ascending order on the basis of total score earned by them. Then 25 per cent respondents with highest total score and 25 per cent with total lowest score were selected. These two groups provided the criterion groups for item analysis. The critical ratio (t) for each item was calculated by using following formula.

$$t = \frac{X_H - X_L}{\sqrt{\frac{\sum (X_H - \bar{X}_H)^2 + \sum (X_L - \bar{X}_L)^2}{n(n-1)}}$$

efficient of the statements under nine components of

$$\sum (X_H - \bar{X}_H)^2 = \sum X_H^2 - (\sum X_H)^2/n$$

$$\sum (X_L - \bar{X}_L)^2 = \sum X_L^2 - (\sum X_L)^2/n$$

Where,

t = Critical ratio

$X_H$  = Mean score on a given statement for the high group

$X_L$  = Mean score on a given statement for the low group

$X_H^2$  = Sum of square of the individual score in the high group

$X_L^2$  = Sum of square of the individual score in the low group

n = Number of respondents in each group

The significance of the difference of the means of these two groups was found out by 't' test. The 't' value is the measure of the extent to which given statement differentiate between high and low groups. The 't' value equal to or greater than 1.75 indicate that the average response of high and low group differs significantly and differentiates between high and low groups. Finally the statements having 't' value greater than 1.75 were selected.

**Reliability of the scale:** A scale is said to be reliable when it consistently produces the same results when applied to measure the same phenomena from time to time.

According to Anasthasi (1976) reliability refers to the consistency of scores obtained by the same individual when examined with test on different occasions or with different sets of equivalent items, or under other variable examining conditions. In the present study, split half technique of testing reliability was used.

**Split half method :** In this method the scale was split in to two equal halves on the basis on odd and even number of statements and administered to 30 dairy farmers from non-sampled area. The correlation co-efficient was computed between the two sets of scores of the scale. The reliability co-

entrepreneurial behaviour of dairy farmers was found to be significant at 0.01 level of probability.

Guilford (1954) said that a test is valid when it measures what it is presumed to measure. Anasthasi (1976) said that the validity of the test concerns with what the test measures and how well it does so. The validity of the scale refers to degree to which the scale is capable of achieving the aims or purposes. It is established by considering content validity.

The scale was examined for the content validity of determining how well the content of the scale represented the subject matter under study. In collection and selection of

components and items for the construction of the present scale sufficient care had taken. It covered important components responsible for entrepreneurial behaviour of dairy farmers based on judges ratings and included the items which represents the universe of content of dairy farmers' entrepreneurial behaviour for maintaining the dairy enterprise. As all the possible components and items covering the universe of content were selected by discussing the same with experts, subject matter specialist and reviewing the available literature on the subject as well as by working out relevancy weightages, the scale satisfied the content validity. An index was developed to measure the entrepreneurial behaviour of dairy farmers by using the following formula.

$$\text{Entrepreneurial Behaviour Index (EBI)} = \frac{\sum_{n=1}^9 \frac{\text{Total obtained score of nine components}}{\text{Maximum obtainable score of nine components}} \times \text{Scale value of nine components}}{\sum_{n=1}^9 \text{Scale values of nine components}} \times 100$$

Results and Discussion

The final format of the scale is given in Table 1. It was observed from Table 1 that the scale values of components of entrepreneurial behaviour of dairy farmers i.e. innovativeness, achievement motivation, decision making ability, risk orientation, coordinating ability, planning ability, information seeking behaviour, cosmopoliteness and self confidence were 9.82, 3.39, 6.60, 8.01, 5.03, 6.91, 5.22, 1.65 and 3.89, respectively. It reveals

that all the statements under components of entrepreneurial behaviour of dairy farmers were found to have highly significant. Thus, all the statements had relevancy weightage more than 0.75. Hence, the entrepreneurial behaviour scale was found to be a standardized and an objective one, as indicated by the validity, reliability and norms of distribution of scores. Therefore, this scale can be used by all persons and organisations to measure the entrepreneurial behaviour of dairy farmers in an objective way.

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